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Major Disruptions in the Shipping Sector Due to Various Events Across the World

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Abstract

Over the past several years supply chain leaders have been beset by one disruption after another, including global wars, climate change events, energy shortages and hybrid work. This paper tries to explain various disruptions in the shipping sector which has impacted the supply chain in the world. This paper tries to explain various trends of supply chain in the year 2024 and also the challenges that global supply chain is facing in this year. Further it tries to explain how the companies and the countries can respond to such kind of disruptions. Thus, paper tries to explain various disruptions in the shipping sector which has an impact on the global supply chain and how one can respond these uncertainties

Key words – Disruptions, Shipping, supply chain

Introduction

A supply chain disruption is a significant disturbance or interruption in the usual progression of goods, services, information, or resources within a supply chain. Supply chains are intricate networks encompassing the movement of raw materials, components, and finished products, starting from suppliers and extending through manufacturers, distributors, and retailers, ultimately reaching consumers. Disruptions in these networks can occur for various reasons and have far-reaching consequences.

In the past few years there has been lots of events that has effects of major disruptions in the shipping sector. These events are from covid19, issues at the red sea, problems of draught at Panama Canal etc. All of these ranges from man made disaster, natural disasters, transportation issue, inventory shortages, regulatory changes etc.

Major disruptions in the previous five years and its Effect of these on supply chain

There have been various types of events that has caused the severe supply chain delays. Few of the real-life events are

a) Covid-19 Pandemic

The Covid-19 pandemic had a profound and widespread impact on global supply chains, causing a range of supply chain issues and disruptions. Here are some of the ways in which Covid-19 contributed to these challenges. In the early stages of the pandemic, lockdowns led to:

- Factory closures and production disruptions
- Transportation and logistics

- International trade restrictions
- Uncertainty and demand volatility

Many businesses have reconfigured their supply chain strategies, invested in digital technologies, and implemented risk mitigation measures to better prepare for future disruptions. However, the pandemic highlighted the need for greater supply chain agility and flexibility in an increasingly interconnected global economy.

b) Suez canal obstructions

In March 2021, a large container ship named the *Ever Given* ran aground and became lodged sideways in the Suez Canal, one of the world's most critical maritime trade routes. The incident resulted in the blockage of the Suez Canal for nearly a week, disrupting global trade and causing significant economic and logistical impacts.
The blockage of the Suez Canal disrupted the flow of goods, leading to a massive backlog of ships waiting to enter or exit the canal. It caused delays in the delivery of goods, increased shipping costs, and concerns about shortages of various products.

c) Russia-Ukraine War

The conflict has constrained the availability of crucial metals previously imported from Russia in the US. To illustrate, a substantial portion of key materials, such as 30% of platinum group elements, 13% of titanium, and 11% of nickel, which were formerly sourced from Russia, are no longer accessible. This situation has had a notable impact, particularly in sectors where these metals play a pivotal role.
For instance, nickel is a fundamental component in producing batteries used in automobiles and electronic devices. As a result of these shortages, there have been disruptions in the manufacturing of essential products. Similarly, the scarcity of titanium has raised significant concerns due to its status as one of the strongest metals employed in fabricating a wide range of industrial goods.

D) Panama Canal drought

Climate-induced extreme weather events are placing significant stress on major shipping routes, and the potential onset of El Niño threatens to exacerbate this situation. The Panama Canal is grappling with water shortages, and Danish company Maersk has pointed to climate-related risks. El Niño, characterized by warming Pacific waters, has a gradual but far-reaching impact, contributing to the global temperature rise. Recent incidents like the Suez Canal mishap have underscored vulnerabilities in shipping, shining a spotlight on fragile supply chains.

Due to various disruptions there has been several impact on the supply chain

The modern global economy is highly interconnected and reliant on the smooth functioning of supply chains. Unfortunately, disruptions in supply chains are becoming increasingly commonplace, and their impact is far-reaching and costly.

Disruptions can take a variety of forms, such as natural disasters, political instability, and customer demand changes. Regardless of the cause, supply chain disruptions can have a significant impact on businesses, their customers, and the economy as a whole.

The direct impact of supply chain disruptions is felt most heavily in terms of lost sales and profits. When supply chains are disrupted, businesses can't deliver their products or services to customers in a timely manner.

This often results in lost sales, missed opportunities, and a decrease in customer satisfaction. In addition, supply chain disruptions can lead to increased production costs, additional storage costs, and higher shipping costs.

All of these can have a significant impact on the bottom line. The indirect impact of supply chain disruptions can be even more costly. When supply chains are disrupted, businesses often have to scramble to make alternative arrangements for the delivery of their products and services.

This can lead to delays in production, a decrease in quality, and a decrease in customer satisfaction. Furthermore, supply chain disruptions can damage a company's reputation and jeopardize customer loyalty.

Finally, supply chain disruptions can have an impact on the economy as a whole. When businesses are unable to deliver their products and services on time, it can lead to a decrease in consumer spending.

This decrease can lead to an overall decrease in economic activity. In conclusion, supply chain disruptions can have a significant impact on businesses, their customers, and the economy as a whole.

Businesses must be prepared to respond quickly and effectively to any supply chain disruptions they may face. It's also important to understand the potential economic impacts of such disruptions, so that businesses can develop strategies to minimize their impact.

Supply chain trends for the year 2024

Supply chain leaders have never had it so tough. COVID-19 caused unprecedented disruption, and was closely followed by Russia's invasion of Ukraine, directly impacting raw materials supplies and driving an energy-price spike that sent inflation soaring around the globe.

This year, supply chain leaders will hope for some respite. However, with ongoing challenges and new ones on the horizon, there is a strong likelihood that they will be disappointed. Below, we look at five themes likely to be front of mind in 2024.

a) Supply chain disruption fall-out continues

Producers and retailers worldwide had hoped that 2024 would see supply chains finally settle back into the stable routines of the pre-COVID-19 era. Unfortunately, the New Year has seen logistics costs spiral in light of military clashes in the Red Sea, a key global trade route.

The effects of such volatility will continue to reverberate throughout the global economy. While there is a widespread desire to return to a system where wholesalers and retailers agree prices for extended periods, this will continue to be a highly challenging area of the economy.

In France, for example, where the practice is to set food prices annually through a negotiation process, supermarket group Carrefour has had a set-to with (now former) supplier PepsiCo. As a result, Carrefour is refusing to stock PepsiCo's products, describing the latter's proposed price increases for 2024 as "unacceptable." A similar row last year saw UK retailer Tesco pull Heinz products from its shelves.
Wholesalers argue that they need to protect themselves against ongoing volatility in their supply chains. Retailers insist they are seeking to protect consumers and that their own margins have already taken a substantial hit as a result.

A move towards more dynamic pricing looks like the only way through the morass. Wholesalers and retailers may have to accept shorter-term agreements on pricing, even if this favors neither party.

b) Dealing with the cost-of-living crisis

While inflation has eased markedly across much of Europe, consumers (and, in particular, families) are likely to see only partial respite at best. Millions of Europeans whose low-cost, fixed-rate mortgages are due to come to an

end this year will see their monthly outgoings rise sharply when they are obliged to remortgage at a significantly higher rate.
Consumer-facing businesses will be impacted in many different ways, but the situation in the supermarket segment is of particular interest. There, many organizations are questioning the wisdom of recently introduced self-checkout machines. The roll-out of these machines has certainly reduced labor costs and may have had a positive effect in respect of consumer convenience, but self-checkout systems do present greater opportunities for theft.

Indeed, shrinkage rates in stores using self-checkout registers are more than 20 times' higher than in those that exclusively use manually operated registers. When so many consumers are struggling financially, the temptation to discreetly omit to scan a few items going into the shopping bags, even for those who would never consider theft under normal circumstances, may be too strong to resist. Accidental theft, where shoppers unintentionally fail to scan goods properly, is also commonplace.
Ultimately, newer technology may provide the solution, with some stores now moving to a system where entire baskets and trolleys can be scanned in one go. In the meantime, some retailers are rowing back on self-checkout roll-outs.

C) Sustainability and supply chain strife support seasonality
This could be the year in which European consumers find themselves transported back to a time when out-of-season goods were not available from their local stores.

The shift away from extended supply chains, where any one of a multitude of moving parts could give retailers a pricing headache, militates against all-year-round availability. Many retailers may no longer be prepared to source goods from geographically distant producers.

Equally, the sustainability pendulum continues to swing. Environmental campaigners continue to attack retailers prepared to continue to leave a large carbon footprint by racking up food miles: food transport may now account for one-third of the sector's greenhouse gas emissions. NGOs continue to worry about the labor market practices of suppliers based in developing countries worldwide.

Against this backdrop, some European supermarkets are increasingly wary of offering out-of-season products. Even where suppliers in countries such as Spain, which has invested hugely in greenhouse production, are able to bridge the gap, supermarkets in other markets worry about the potential backlash from customers unimpressed by goods they doubt have been locally produced.

D) More pressure on branded goods
In a tough economic environment, sales of retailers' private-label products almost always rise at the expense of more costly brands. The current downturn is no exception, with private labels once again in the ascendancy – but this time around, there is a new dimension to the dynamic.

Increasingly, consumers do not regard private-label goods as inferior: 60% of European shoppers now regard them as of similarly high quality as branded products, according to research. Shoppers switching to private labels in search of a cost saving may end up sticking with these products if they feel there is little or no compromise in terms of quality, piling the pressure on brands that expected a reversion to the norm once pressure on consumers relented. In 2024 we may start to see smaller brands disappearing for good – or at least offered for sale – as manufacturers decided their margins they are no longer sustainable and marketing costs too high.

Equally, demand for private-label production capacity will remain highly elevated. Retailers may not be able to source the supplies they need in the quantities required – and that means that supply chain costs will rise. There is already some evidence that private-label prices are rising more quickly than prices of branded goods.

E) Solving the nearshoring challenge in Europe

Manufacturers in industries such as automotive and IT have a problem when it comes to Europe. They recognize the imperative to nearshore production – the pandemic exposed the weaknesses of complex global supply chains and over-dependence on China – but making that a reality presents practical difficulties.

In North America, Mexico offers an obvious low-cost base in close proximity to the all-important US market. In Europe, in contrast, picking the right site for a new plant is less clear-cut. High labor costs in the most developed markets are a deterrent, as are geopolitical uncertainties in peripheral locations.

In Eastern Europe, the shadow of the Ukraine crisis looms large. In Turkey, political risk continues to rise, and inflation is out of control. North African markets are fraught with difficulties, too.

Against this backdrop, Poland and Portugal are expected to be among the winners, with both countries battling hard to attract manufacturers contemplating a nearshoring strategy. But competition will be tough, prompting governments to intervene with incentives and even direct financial support.

In 2024 manufacturers, then, will have some decisions to make. What appear to be obvious solutions have hidden pitfalls that are only brought to light as market dynamics shift in unprecedented ways, suggesting that there will be an element of gambling and a requirement to accept trade-offs.

Challenges faced by global supply chain in 2024

While many of the logistical complexities roiling supply chains in 2021 and 2022 have gradually resolved themselves, a new wave of challenges is materializing for production buyers—a group that was almost certainly hoping for a stretch of relative calm and predictability in their respective supply chains. And while the new year might not necessarily present quite the same slew of intractable, existential threats posed by COVID-19, it's still poised to present a formidable landscape of geopolitical, environmental, and regulatory obstacles supply chain professionals need to be sufficiently prepared for.

a) Pirates of the Red Sea

The brutal and highly polarizing conflict in Gaza between Israel and Hamas has reverberated across much of the world in a range of complex, turbulent ways. The October 7 massacre and subsequent military campaign has incited a barrage of cross-border strikes in the region; embroiled the U.S. and the Biden Administration in growing allegations of complicity in the escalating Palestinian death toll; and even spurred the South African government to bring charges of genocide against Israel at The Hague's International Court of Justice. But few, if any, of these ripple effects were as unforeseeable and utterly singular as the violent and abrupt emergence of Houthi rebels onto the world stage.

The Houthis, a religious movement whose armed insurgency toppled Yemen's government in 2014 and subsequently triggered a long and bloody civil war in the nation, began carrying out attacks on cargo ships traveling through the Red Sea and the Suez Canal in November. The Houthis are using drones, airstrikes, and speedboats to shell, ambush, and hijack ships in what the Yemeni faction is framing as a campaign of revenge against Israel and its supporters for the military offensive in Gaza. While the group has been staging these destructive incursions nearly every day since early December, the repercussions are extending far beyond the two dozen or so ships that have fallen victim to the organization's sophisticated piracy.

The Red Sea is a major maritime gateway to the Western Hemisphere—around a quarter of all global container ships pass through the Suez Canal, often traveling from Asia to Europe. That makes the narrow, 120-mile stretch a critical chokepoint for global trade, and the Houthis and their patrons—namely Iran and Hezbollah—are exploiting it to sabotage cargo flow and strike back at the West and its perceived unconditional support for Israel. So far, the unconventional, "asymmetric" warfare has been working. As of late January, the volume of container ships traveling through the Red Sea has all but collapsed, dropping by 75 percent, and most of the world's largest shipping lines—including Maersk, CMA-CGM, and Evergreen—have stopped transporting cargo through the increasingly dangerous route.

Such significant, protracted disruptions present serious challenges to production buyers dependent on established supply chains that run through the Suez Canal. For now, shipping companies are redirecting their vessels south, around South Africa's Cape of Good Hope. The longer route adds around two weeks to a container ship's journey, pushing up the cost of everything from fuel to insurance premiums for the voyages. Buyers operating in this fractured supply chain environment must entertain contingency plans and maintain flexibility as they navigate higher costs, longer transportation times, and a higher degree of logistical volatility. Looming over a myriad of difficult decisions is the question of whether and how much to pass these increased costs to consumers, who've already had to grapple with two long years of sticky, sprawling inflation.

b) Generational Drought in the Panama Canal

Although not nearly as vital as the Red Sea to maritime trade flow and the innumerable industries that depend on it, the Panama Canal is another key chokepoint in the global supply chain. Around 2.5 percent of all seaborne cargo travels through the Central American canal, and 2023 saw roughly 14,000 passages through the waterway. What's happening in the Panama Canal is far more straightforward than the proxy-war morass playing out in the Red Sea, though. The canal depends on freshwater from the nearby Gatun Lake, and a severe drought in the region has decreased the lake's water levels to the lowest on record. As a result, the Panama Canal Authority (ACP) is being forced to restrict daily usage of the route by about 40 percent compared with 2023 figures. The decision, which is costing the ACP an estimated $100 million per month in lost toll revenue, has major shipping lines rerouting their container ships and even incorporating rail transport into their logistics.

As with the embattled Red Sea, the shrinking access to the Panama Canal is forcing production buyers to accept more expensive shipping routes and transportation costs or else rethink their existing supply chains altogether. Because around 14 percent of all maritime cargo coming to and from the United States passes through the manmade corridor, the ramifications of the canal's constriction are going to be disproportionately felt by American companies and their buyers. The narrow period for these stakeholders to make critical adjustments is right now, and the window is rapidly closing. Key players must weigh decisions regarding alternative routes and changes in purchasing patterns while working up speculative assessments on when the canal will resume preexisting trade capacity.

c) Clamping Down on Forced Labor

Twenty twenty-three represented a landmark year for regulations protecting human rights in supply chains. Germany entered into force the first phase of its Supply Chain Due Diligence Act (SCDDA), while the EU made substantive progress on its Corporate Sustainability Due Diligence Directive (CS3D). This year looks to continue the trend of governments increasing regulatory pressure on businesses to root out forced labor and other human rights abuses in their supply chains.

The initial phase of Germany's SCDDA, rolled out in January 2023, required all companies that were based in Germany and had at least 3,000 employees to comply with the new regulations. Beginning on January 1 of this year, the directive's scope expanded significantly, and now applies to all businesses with at least 1,000 employees. (For perspective, this year's expansion increased the number of companies under the directive's remit by around 500 percent.) While we covered the SCDDA in detail in December, the act requires companies to protect 11 internationally recognized human rights conventions by implementing eight distinct measures, including creating a risk management system and establishing a human rights officer within the company.

In addition to the second phase of Germany's human rights directive, this year Canada's own legislation aimed at combating forced labor practices comes into effect. The Forced and Child Labour in Supply Chains Act will require covered organizations to submit annual reports to the Minister of Public Safety outlining their efforts to reduce and mitigate forced and child labor within their supply chains. According to the Canadian government, entities under the law's purview include "any corporation, trust, partnership or other unincorporated organization whose activities include producing, selling or distributing goods in Canada or elsewhere importing goods into Canada, or controlling an entity engaged in any of these activities." Further inclusion criteria include thresholds for assets, revenue, and total employees.

Organizations complying with the Forced and Child Labour in Supply Chains Act must cover several specific areas in their annual reports, including due diligence processes, measures to assess forced and child labor risks in their supply chains, and concrete steps taken to mitigate such risks. The first reports to the government are due on May 31, 2024.

Production buyers based in the US and doing business in Canada will need to be aware of the newly enforced reporting requirements and comply with their business's corresponding policies and due diligence measures. Adhering to their new obligations may require buyers to deepen and enhance visibility into their supply chain and learn to recognize signs of forced and child labor risks. In the event that labor exploitation is discovered, organizations will need to develop and deploy contingency measures—including implementing modifications to their supplier networks and utilizing dual sourcing—that eliminate labor abuses from their procurement processes.

D) EU Embraces ESG
ESG is a framework for analyzing and evaluating a corporation's performance in fulfilling three central pillars: environmental, social, and governance. The environmental pillar refers to a company's efforts to reduce its negative impacts on the environment, including through shrinking its carbon footprint, implementing a viable climate change strategy into its operations, and embracing waste-reduction processes that promote circularity. The social pillar focuses on how a corporation treats human beings, emphasizing ethical practices like fair pay, equal opportunities for employment, and responsible supply chains free of exploitation and other labor abuses. Finally, governance encompasses the ways in which a corporation holds itself accountable to external regulations and internal policies, including compliance, best practices, and guardrails for potential conflicts of interest.

The concept of ESG and the ideals it espouses have gained considerable traction over the past half-decade or so. Over that time, investors, governments, and the wider public have increasingly trained their attention on the extent to which organizations are acting with integrity and making a good-faith shift toward more ethical, sustainable business models that don't focus exclusively on profits. The European Union's Corporate Sustainability Reporting Directive (CSRD), which entered into force in January 2023, is intended to codify these new principles into legally binding regulations that obligate companies in the EU to meet unprecedented levels of transparency with respect to ESG.

The EU is using a phased approach in its rollout of CSRD. Beginning this year, organizations with at least 500 employees operating in an EU market must start adhering to the directive. CSRD encompasses a comprehensive breadth of disclosure and reporting requirements related to ESG and its pillars, which have been established in the form of the European Sustainability Reporting Standards (ESRS). The ESRS are broken up into 12 ESG-related categories, including—but not limited to—climate change, pollution, biodiversity and ecosystems, and workers in the value chain. All disclosures must be made publicly available, typically through a company's website, and organizations must submit to third-party auditing to verify the accuracy of the information being disclosed.

Responding to the disruptions caused and a Futuristic perspective

Businesses must navigate disruption's financial and operational challenges. And they need to do so while rapidly addressing the needs of their people, customers, and suppliers. With the right actions, supply chain leaders can turn massive complexity and disruption into meaningful change.
Businesses need to create value chains with long-term resilience. This requires holistic approaches to managing the supply chain. Companies must build in sufficient flexibility to protect against future disruptions. And they need a responsive and resilient risk management operations capability.

That capability should be technology-led. It should leverage platforms that support applied analytics, artificial intelligence and machine learning. It should also ensure end-to-end supply chain transparency. This will make risk response an integral part of business-as-usual protocols.

Supply chain disruptions have severe operational and financial consequences. Planners need to address several key issues:

- Demand drops and surges by segment
- Supply shortages
- Inventory placement challenges
- Reduced productivity

Planners may be unable to rely on the steady-state models of most existing planning systems. Instead, they may need to make decisions based on real-time information

Conclusion

As for future trends in shipping, it is important to keep in mind that shipping is a highly market driven activity and its development is largely determined by the demands for foreign goods and services. The shipping sector is affected by the financial crises in 2008 to covid-19 and currently the Ukraine war, and war at red sea and together with the low level of global GDP growth predicted by IMF, growth in shipping is likewise predicted to be slow in the coming years. Thus, this paper helps to understand various market disruptions and its effects on its global supply chain.

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