



COVID-19 PANDEMIC'S IMPACT ON LOGISTICS AND SUPPLY CHAIN INDUSTRY

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ABSTRACT

The logistics and supply chain industry forms the backbone of global business and ensures the smooth movement of goods and services. The outbreak of the COVID-19 pandemic in late 2019 set off a chain reaction that profoundly affected these critical operations.

Purpose: The purpose of this study is to analyze the multifaceted impact of the COVID-19 pandemic on the logistics and supply chain industry. It aims to explore the challenges faced by supply chain professionals, the strategies organizations use to mitigate disruptions and the resulting changes in industry dynamics.

Methods: The research uses a mixed method approach that includes both quantitative and qualitative data collection. Quantitative data is collected from a survey of companies in the logistics and supply chain industry. Qualitative data is collected from interviews with experts in the field.

Findings: The pandemic has exposed a series of challenges that have spread throughout the supply chain. Disruptions included factory shutdowns, transportation restrictions, erratic demand patterns, and labour shortages. Organizations are responding by rapidly adopting digital technology, where real-time monitoring, predictive analytics and automation play a central role in improving supply chain visibility, sustainability and risk management.

Conclusions: The study concludes that the COVID-19 pandemic has had a significant impact on the logistics and supply chain industry. The pandemic has brought many challenges to companies, but it has also brought innovations and new ways of working. Research shows that the logistics and supply chain industry is in transition, and companies that adapt to the new reality will be better off in the long run.

KEYWORDS: COVID-19, Logistics, supply chain, demand, distribution

1. INTRODUCTION

The COVID-19 pandemic has had a major impact on the logistics and supply chain industry. The pandemic has caused disruptions in supply chains around the world, causing shortages, increased transport costs and longer delivery times. One of the most important consequences of the pandemic was the movement of goods across the border. Border closures and travel restrictions have made it difficult for goods to move between countries. This has led to commodity shortages and higher consumer prices in some countries. The pandemic has also significantly affected the transport sector. The demand for transportation services has decreased as a result of the pandemic, which has led to a decrease in freight rates. However, transport costs have increased in some cases due to increased demand for essential goods and safety measures to protect workers.

The pandemic has also significantly affected the logistics industry. The demand for logistics services has increased as a result of the pandemic, where companies have had to adapt

their supply chains to meet the challenges posed by the pandemic. This has increased the demand for warehousing and distribution services and the use of technology to track and trace shipments. The pandemic has also significantly affected the workforce in the logistics and supply chain industry. The pandemic has led to layoffs and layoffs in the industry as companies

have struggled to adapt to the challenges posed by the pandemic. The pandemic has also increased the demand for workers with special skills, such as technology and security. The purpose of this study is to understand the impact of the COVID-19 pandemic on the logistics and supply chain industry. The study explores industry challenges and opportunities and identifies key trends shaping the industry. The study also provides recommendations on how the industry can adapt to the challenges of the pandemic and become stronger in the future.

The COVID-19 pandemic, caused by the new SARS-CoV-2 coronavirus, has emerged as a global crisis of unprecedented



scale. Since its outbreak, the pandemic has profoundly affected all aspects of society, changed established norms and caused unprecedented disruption worldwide. The virus has been characterized by rapid spread and severe respiratory symptoms, prompting governments to take unprecedented measures, including widespread shutdowns, travel restrictions and quarantine protocols.

As the pandemic continues to affect global dynamics, understanding its impact on the logistics and supply chain industry is critical to developing strategies that can improve resilience, mitigate disruptions and ensure smoother operations in the face of future uncertainty. This study aims to deepen the multifaceted consequences of the pandemic on this vital sector and shed light on the adaptations and innovations that have emerged to address these challenges.

2. LITERATURE REVIEW

In order to elucidate the research gap and to uphold the objective, the review of literature is conducted.

The COVID-19 pandemic has caused both loss of life and economic damage. Lockdown measures have disrupted manufacturing and logistics, leading to a decrease in the supply of products. This study focuses on the impact on the public distribution system (PDS) network and its ability to match supply with demand. The simulation model developed in this study can help create a resilient and responsive food supply chain, taking into account changing circumstances and travel restrictions. The paper also suggests future research to further strengthen the food supply chain network (Tiwari, M. K. 2021). The COVID-19 pandemic has caused significant damage to industries worldwide, disrupting the availability and supply of raw materials and finished products. Global supply chains, which were previously resilient against disruptions, have been compromised. This article investigates the impact of COVID-19 on supply chains and proposes ways to mitigate risks and enhance resilience. The study found that COVID-19 has affected supply chains in various sectors such as pharmaceuticals, food, electronics, and automotive industry. Unlike previous disruptions, COVID-19 has impacted all stages of supply chains with major disruptions in manufacturing, transport, logistics, and changes in demand. The analysis suggests that improving supply chain resilience is crucial in reducing vulnerability during disruptive times. Additionally, post-COVID-19 supply chains are expected to be shorter with a focus on relocations and back-shoring strategies (El Omri, A. 2020). Logistics companies play a crucial role in connecting businesses to markets by providing various services like transportation, warehousing, and inventory management. They are particularly important for global manufacturing, which involves complex supply chains with components sourced from multiple countries. To ensure the smooth flow of goods, companies often outsource their logistics functions to third-party providers with integrated solutions. The performance of the logistics sector has a direct impact on

productivity and economic development, with higher incomes associated with better logistics performance. However, the cost of logistics can be higher in developing economies compared to developed ones. Therefore, improving efficiency in the logistics sector can enhance competitiveness and stimulate economic growth in emerging markets. Twinn, C. I.

(2020). This paper looks at how the COVID-19 pandemic has affected supply chain operations and how companies have responded to the crisis. It also looks into whether smaller businesses have been hit harder by the supply chain issues caused by COVID-19 (Min, H. 2023). The Coronavirus pandemic has caused disruptions in supply chains worldwide, and these disruptions are expected to continue indefinitely. This study analyzes the impact of the pandemic on supply chains, including the challenges and trends that have emerged. It presents a framework for understanding the relationship between supply chains and COVID-19, which can be useful for decision-makers and researchers in various industries. The study also discusses its limitations and suggests directions for future research (Magableh, G. M. 2021).

3. OBJECTIVES

1. To assess the impact of the COVID-19 pandemic on global supply chains.
2. To understand the challenges faced by logistics operations in meeting delivery deadlines during the pandemic.
3. To understand the challenges faced by logistics operations in meeting delivery deadlines during the pandemic.
4. To explore the importance of social responsibility for logistics companies in the wake of the pandemic.

4. RESEARCH METHODOLOGY

The research methodology analyzes 100 survey responses on the Impact of the COVID-19 pandemic on the logistics and supply chain industry. A mixed methods approach combines quantitative analysis to explore trends and patterns in survey data and qualitative analysis to extract insights from open-ended responses. The results provide a comprehensive overview of the impact of the pandemic on the industry.

5. DATA ANALYSIS AND INTERPRETATION

This section presents a comprehensive analysis and interpretation of the survey responses related to the impact of the COVID-19 pandemic on various aspects of supply chains and logistics operations. The data collected from the respondents is examined and contextualized to provide insights into the significance of disruptions, challenges, and changes observed during the pandemic. The data highlights the urgency of adapting supply chain strategies, enhancing resilience, and embracing innovative approaches to navigate the challenges posed by the ongoing crisis.

❖ Has there been an increased reliance on e-commerce and online ordering due to the pandemic?

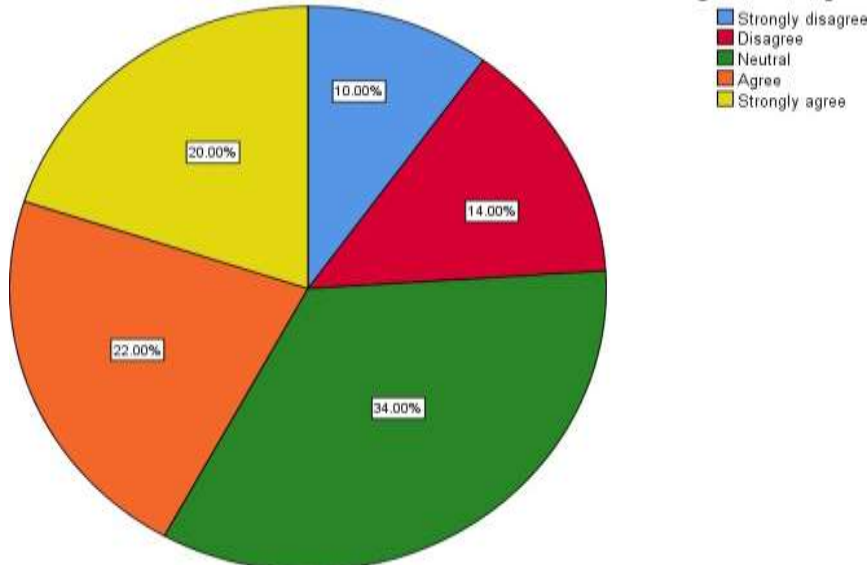


Chart 1

The data shows that a significant number of respondents acknowledge the pandemic's increased reliance on e-commerce and online ordering. With 42% agreeing and only 24% disagreeing, it seems that the pandemic has indeed

caused a significant shift towards using e-commerce platforms to purchase goods and services.

❖ To what extent have logistics operations faced challenges in meeting delivery deadlines during the pandemic?

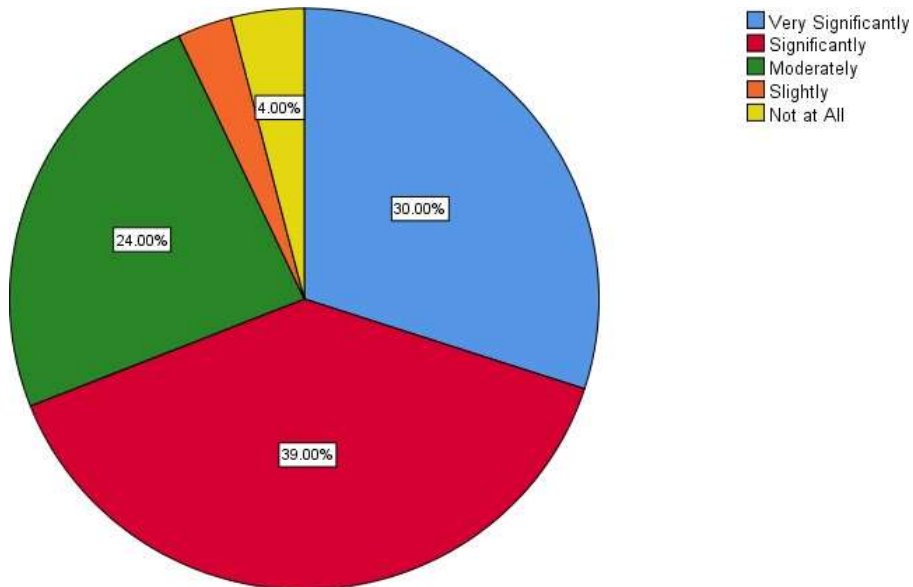


Chart 2

The data shows that a significant number of respondents had difficulty meeting delivery times during the pandemic. With 69% reporting significant challenges and 24% adding some

challenges, it is clear that the majority of respondents experienced disruptions in logistics operations that affected their ability to meet delivery schedules.

❖ How significantly has the COVID-19 pandemic disrupted global supply chains?

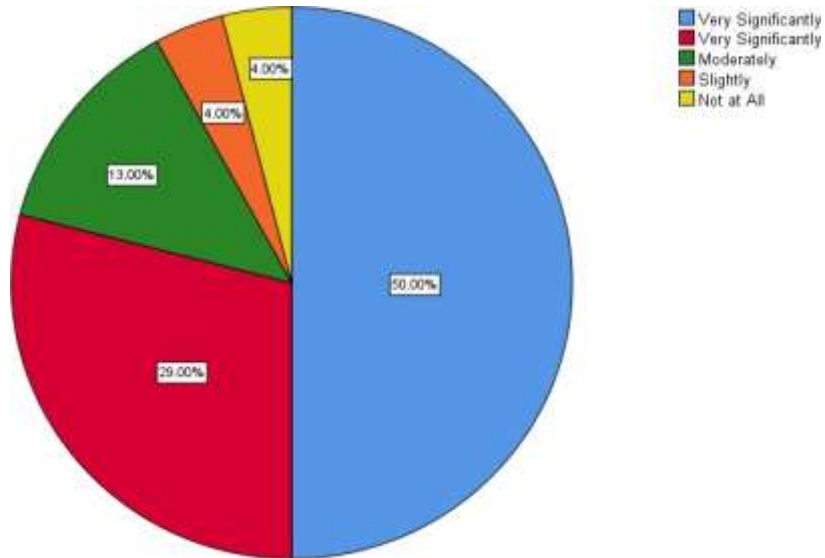


Chart 3

The data provides significant insight into the disruptions to global supply chains caused by the COVID-19 pandemic. Approximately 79% of respondents consider the disruption significant, and a significant 50% report very extensive

disruption. This indicates that the significant impact of the pandemic on global supply chain operations is widely recognized.

❖ How much have border restrictions and lockdowns caused delays in the movement of goods?

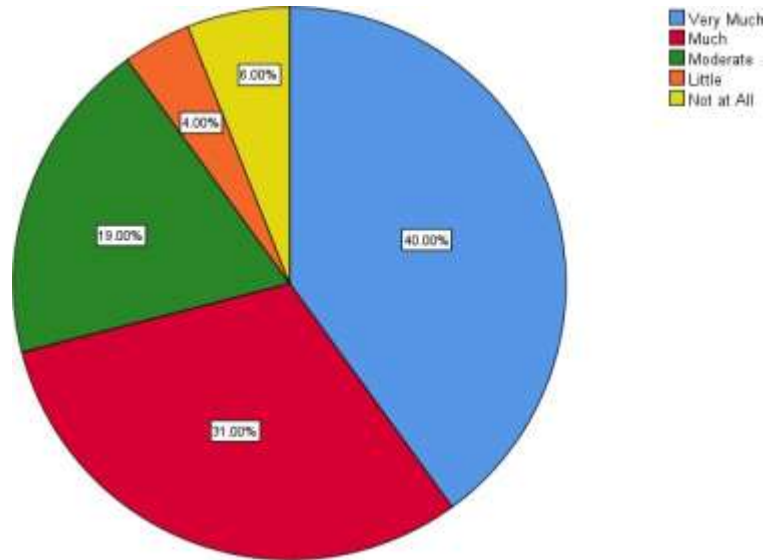


Chart 4

The data shows that a significant number of respondents have seen significant delays in the movement of goods due to border

restrictions and closures. About 71 percent of participants admit to major delays, indicating that most have experienced major disruptions in the movement of goods.

❖ To what degree has the pandemic led to a shortage of essential goods and materials?

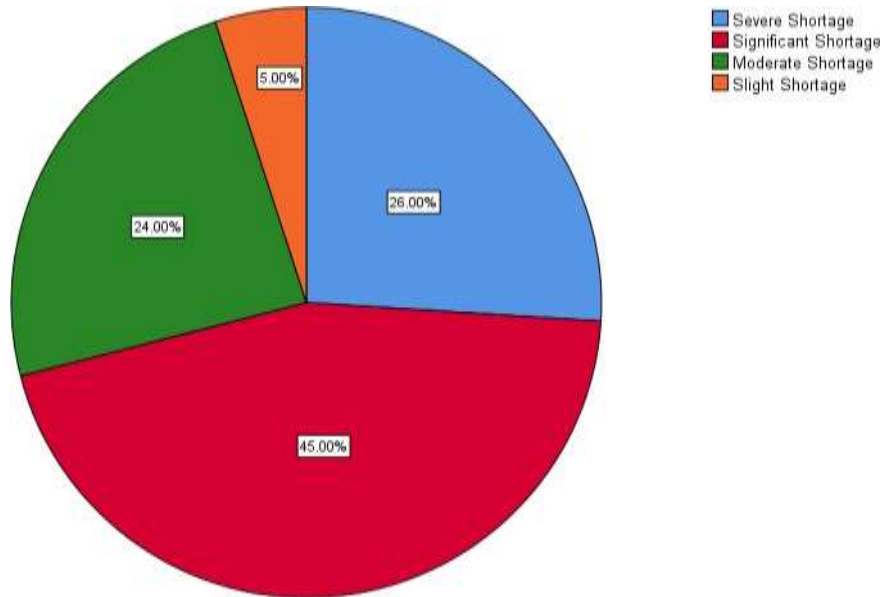


Chart 5

The survey results show that the pandemic is significantly affecting the availability of essential goods and materials - 71% of respondents reported a serious or severe shortage. The data

highlights the far-reaching consequences of the pandemic, with nearly three-quarters of participants reporting significant challenges in securing essential supplies.

❖ How extensively have companies implemented new safety measures and protocols to protect workers in warehouses and distribution centers?

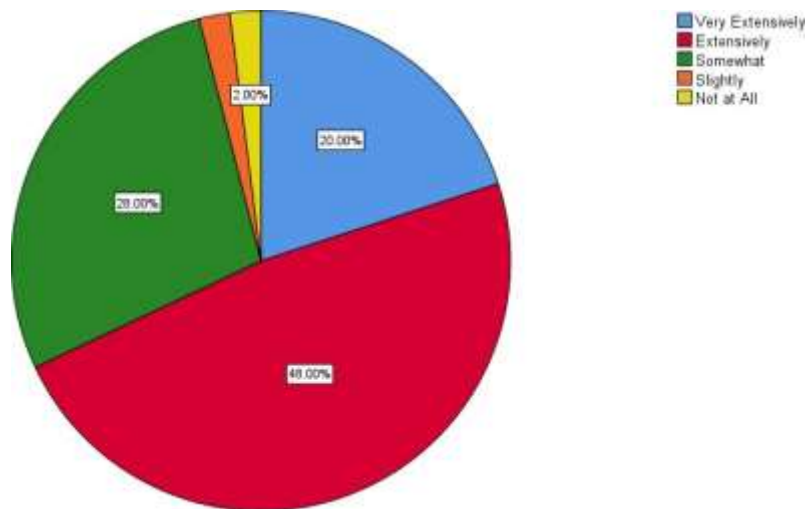


Chart 6

The data indicates that a significant portion of companies have taken substantial measures to ensure worker safety in warehouses and distribution centers during the pandemic. With 68% of respondents (Very Extensively + Extensively) reporting

extensive implementation, and an additional 28% indicating a somewhat proactive approach, it suggests that a large majority of companies have made notable efforts to protect their workers by adopting new safety measures and protocols.

❖ To what extent has the pandemic accelerated the adoption of digital technologies in the logistics industry?

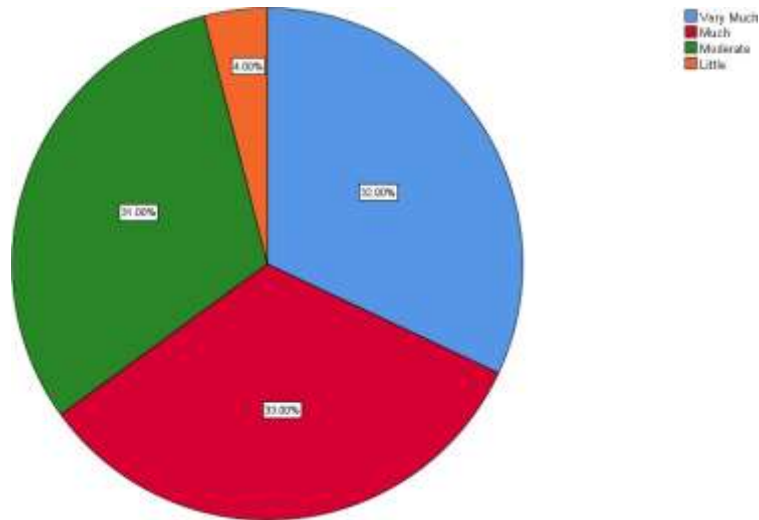


Chart 7

The data highlights the significant impact of the pandemic on accelerating the adoption of digital technologies in the logistics industry. Together, 65 percent of respondents report a significant increase in the integration of digital technologies,

with an additional 31 percent reporting moderate change. These data suggest that the pandemic has been a catalyst for significant and widespread adoption of digital technology in the logistics industry.

❖ How significantly have transportation costs increased due to pandemic-related challenges?

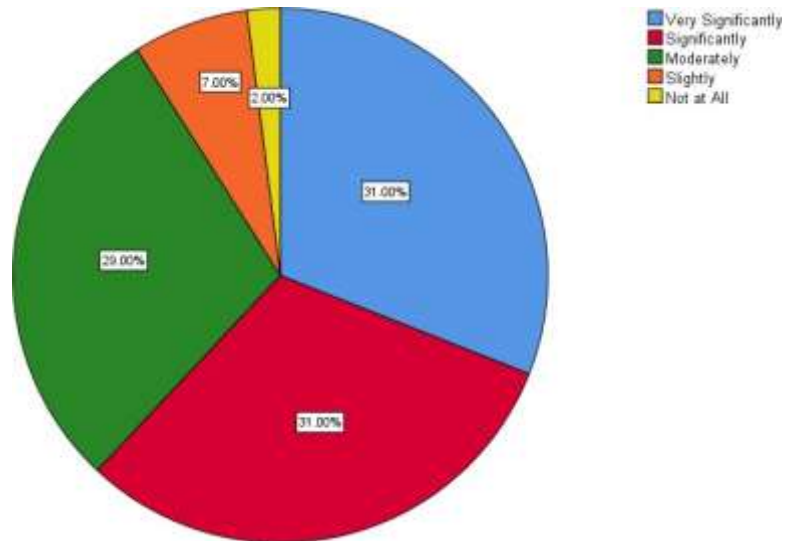


Chart 8

The data shows that a significant majority of respondents experienced a significant increase in transportation costs due to challenges related to the pandemic. About 62% of respondents experience a major impact, while 29% add a moderate increase.

This suggests that the majority of survey respondents observed a significant increase in transport costs due to the impact of the pandemic on the industry.



6. FINDINGS

The data was gathered via a survey method, and 100 internet-savvy respondents were polled using a questionnaire as a tool. The questionnaire consisted of a set of questions about the respondents' experience with the logistics and supply chain industry during the COVID-19 pandemic. The findings of the survey showed that the pandemic had a significant impact on the logistics and supply chain industry.

- **Disruption of global supply chains:** The pandemic has significantly disrupted global supply chains, causing factory closures, transport restrictions and labour shortages. Organizations that rely heavily on single-source suppliers or remote manufacturing centres experienced the most severe disruptions, highlighting the need to diversify and increase resilience in supply chain networks.
- **Growing importance of digital technologies:** Research shows increased adoption of digital technologies to improve supply chain visibility, agility and risk management. Real-time monitoring, data analysis and AI-based demand forecasting emerged as organizations sought to navigate uncertainty and optimize their operations remotely.
- **Accelerated growth of e-commerce:** Demand for e-commerce has grown rapidly as lockdowns and social distancing have limited traditional retail options. Warehousing and last-mile delivery operations have been reconfigured to accommodate increased online orders, spurring innovations in contactless delivery methods and demand forecasting models.
- **Inventory management and demand fluctuation:** Research has shown that fluctuations in demand and disruptions in supply have led to challenges in inventory management. Organizations have struggled to balance inventory, with critical product shortages in some sectors and excess inventory in others, underscoring the importance of accurate demand forecasting and inventory optimization.
- **Resilience and risk reduction:** The crisis highlighted the importance of supply chain resilience and risk management strategies. Companies have noticed the need to increase layoffs, develop contingency plans and assess vulnerabilities in their supply chains to better prepare for future disruptions.
- **Impact on sustainability:** While immediate emergency management was paramount, efforts to maintain supply chains were affected. The focus shifted to short-term survival, which could delay or alter long-term sustainability initiatives.
- **Lessons for future preparation:** The results of study highlight the importance of scenario planning, continuous monitoring and flexibility in supply chain strategies. Experiences from the pandemic are expected to inform future unforeseen disruptions.
- **Change consumer behaviour:** Consumer behaviour has changed during the pandemic, affecting demand patterns and preferences. Supply chains have had to adapt to

changes in consumer buying habits, such as an increase in online shopping, changing product preferences and a focus on essential products.

7. CONCLUSION

In conclusion, the COVID-19 pandemic has ushered in an era of unprecedented challenges and changes in the logistics and supply chain industry. The results of many studies have illuminated the profound effects of the crisis and highlighted both vulnerabilities and opportunities in global supply chains. As supply chain professionals grappled with disruption and uncertainty, several important considerations emerged that highlight the industry's flexibility and adaptability. The pandemic has exposed the fragility of complex globalized supply chains, prompting organizations to reassess their strategies and prioritize sustainability. Disruptions in production, transportation, and labour availability highlighted the risks associated with too many single-source suppliers and remote manufacturing centres. In response, a shift to diversification, regionalization, and dual sourcing emerged as a strategy to mitigate future disruption.

Essentially, the COVID-19 pandemic has been a catalyst for change in the logistics and supply chain industry. Challenges and disruptions have spurred innovation, collaboration and a new commitment to building sustainable and responsive supply chains. While the road to recovery remains dynamic and difficult, the industry's response to the crisis has highlighted its ability to change and adapt. As organizations continue to navigate the changing landscape, the lessons learned from the crisis will undoubtedly drive the evolution of supply chain strategies, promoting a more resilient, agile and future-proof industry.

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