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Manufacturing Companies' Strategies to Mitigate Supply Chain Disruptions

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Walden University

College of Management and Human Potential

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Trisha George

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Walden University
2024

Abstract

Manufacturing Companies' Strategies to Mitigate Supply Chain Disruptions

by

Trisha George

MS, DeVry University, 2004

BS, University of South Florida, 2002

Doctoral Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

June 2024

Abstract

Supply chain disruption has the potential for adverse business outcomes. In manufacturing facility settings, leaders are concerned that supply chain disruption decreases the quality of productivity and profitability. Grounded in dynamic capability theory, the purpose of this qualitative pragmatic inquiry was to explore strategies leaders used to mitigate supply chain disruptions. The participants were six supply chain leaders from three manufacturing facilities located in Mexico who mitigated supply chain disruption. Data were collected using semistructured interviews and public records. Through thematic analysis, four themes were identified: (a) cultural differences, (b) communication, (c) organizational structures, and (d) disciplines. A key recommendation is for supply chain leaders to focus on supplier diversification, technology investment, and collaborative relationships in enhancing supply chain resilience. The implications for positive social change include the potential to maintain sustainability and community growth to promote expansion in the workforce.

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Dedication

This doctoral study is dedicated to my Lord and Savior, Jesus Christ, who, without Him, I am nothing. My purpose is to glorify Him through my faith and the works of my life. I also dedicate this study to my family, who have supported me. I am eternally grateful for their unconditional love and patience as I pursued this lifetime dream.

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To my mentor and my exceptional editor, who has not only offered invaluable guidance and support but has also become a trusted mentor and friend, inspiring me with her dedication to excellence and commitment to my success. Beyond her exceptional editing skills, she provided insightful advice, encouragement, and genuine care, enriching every interaction.

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Section 1: Foundation of the Project

Background of the Problem

The complexities and extensive responsibilities of supply chain (SC) managers expose vulnerabilities to disruptions. The interrelationship between SC players, including suppliers, producers, distributors, and retailers, adds additional complexity in a global competitive scenario (Dohale et al., 2023). Disruptions in the SC can negatively impact an organization by reducing revenue, compromising credibility, impeding the production of goods and services, and causing delays. Disruption at one level of SCs spreads across other levels at a rapid pace and directly impacts the firms' performance (Dohale et al., 2023). SC agility requires members to respond rapidly and coordinate collective capabilities to changes in supply and demand (Gligor et al., 2019). The general business problem is that manufacturing companies lack clear strategies to mitigate SC disruptions and remain profitable.

Business Problem Focus and Project Purpose

A 2020 survey revealed that about 94% of the Fortune 1,000 companies were severely affected by the COVID-19 pandemic, disrupting SCs upstream and downstream (Dohale et al., 2023). A SC is a network of functions and organizations connected through products and services they offer to deliver to the end consumer (Olanrewaju et al., 2021). The sustainability of a business depends on its ability to improve its performance measures and remain profitable and competitive (Olanrewaju et al., 2021). The general business problem is that manufacturing companies lack clear strategies to mitigate SC disruptions and remain profitable. The specific business problem is that some

SC managers from manufacturing companies in Mexico fail to use relevant mitigation strategies to reduce SC disruptions. This qualitative pragmatic inquiry study aims to identify and explore manufacturing firm managers' strategies to mitigate SC disruptions and remain profitable. The study's targeted population consists of six supply chain managers from a manufacturing company in Mexico. These managers have successfully implemented strategies to reduce supply chain disruptions. The implications for positive social change include increased profits for manufacturing companies, resulting in positive stakeholder interest due to capital investment. Overall employee morale can also be increased due to improving company performance and achievement levels. Further, business expansion opportunities due to investment lead to additional employment opportunities, local community participation, and increased consumer expenditures.

I chose dynamic capability theory as the conceptual framework for this study because it provides a lens through which to examine how firms can navigate and thrive amidst relentless competition and rapidly changing environments. This theory was founded by David Teece in 1997 (Teece et al. 1992). This theory is relevant for understanding how companies can develop and leverage their capabilities to adapt to external pressures, enhance their supply chain resiliency, and maintain a competitive advantage. Since the 1990s, competition has compelled firms to strengthen and adapt their resources by leveraging the dynamic capability theory, which emphasizes the adaptation, integration, and reconfiguration of these resources to meet specific goals (Heaton et al., 2020). This theory focuses on the learned or persistent patterns through which companies improve and modify their methods to increase effectiveness (Brusset &

Teller, 2017). It supports supply chain resiliency by creating organizational processes and resources that help sustain a competitive advantage (Pereira et al., 2020). By focusing on dynamic capabilities, this study explored the mechanisms through which firms continuously evolve and respond to disruptions, making it a fitting choice for analyzing contemporary business challenges.

Research Question

What strategies do manufacturing firm managers use to mitigate supply chain disruptions to remain profitable?

Assumptions and Limitations

Assumptions

Assumptions are statements accepted by the researcher that are believed to be accurate (Saunders et al., 2018). The first assumption for this study is that participants know the attributes of mitigating disruptions within the SC. The second assumption is that participants were honest and helpful in responding to interview questions. The third assumption is that participants could answer questions about their companies without any organizational constraints. The fourth assumption related to access to company records, and the fifth assumption was that company records are current regarding managing SC disruptions. I assumed that the evaluation of data collected from interviews and company documents available via public websites would lead to themes for strategies to mitigate SC disruptions. These assumptions form the foundation of the research process and guided expectations regarding data collection, participant behavior, and the potential outcomes of the study (Saunders et al., 2018).

Limitations

Limitations are potential weaknesses or constraints affecting the study outside of the researcher's control (Yin, 2018). Some potential limitations of this study are related to participants, including (a) availability for interviews, (b) unbiased responses, (c) knowledge about the topics, and (d) understanding of questions due to language translations. These limitations needed to be acknowledged as they can impact the quality and generalizability of the study's results and the validity of the study's findings (see Yin, 2018).

Transition

This doctoral study explored strategies manufacturing companies utilize to mitigate supply chain disruptions and remain profitable. In this section, I discussed the background of the problem, including the business problem focus, project purpose, research question, and assumptions and limitations. Section 2 reviews professional and academic literature, Section 3 explores research project methodology, and Section 4 provides findings and conclusions.

Section 2: The Literature Review

A Review of the Professional and Academic Literature

SCs are integral to the global economy, ensuring that international networks of manufacturers and industry sectors operate efficiently, profitably, and productively. Many organizations consider supply chain management essential for gaining competitive advantages and achieving cost savings. From a global perspective, the influence of SCs reduces expenditure and fosters growth in international markets. Organizations of all sizes use SC management to gauge their innovative value by effectively addressing customer needs. SC strategies analyze a company's assets, resources, and ability to meet customer demand.

This qualitative exploratory pragmatic inquiry study aimed to investigate the strategies managers of manufacturing firms employ to mitigate the effects of disruptions in the SC and maintain profitability. The research question guiding this study was: "What methods do successful manufacturing managers employ to reduce SC disruptions and ensure profitability?" Through this literature review, I aimed to provide a comprehensive approach to exploring successful manufacturing managers' strategies to mitigate SC disruptions and sustain profitability.

Search Strategy

For the literature review, I used the following databases: Google Scholar, Galilei Scholar, SAGE Premier, ABI /Inform Complete, ProQuest Central, EBSCOhost, Emerald Management Journal, and government websites. The following keywords were used: *dynamic capability theory, supply chain resiliency, supply chain, supply chain*

collaboration, supply chain risk management, supply chain disruptions, mitigating supply chain disruptions, minimizing supply chain disruptions, preventing supply chain disruptions, reducing disruptions, shipping, logistics, global freight, sustainability, lean, agile, and Mexico. This study's total references included two books and 130 peer-reviewed journal articles. Of the 132 total study references, 117 (89%) met the publication requirements within 5 years of the study's estimated approval date by the chief academic officer. Of the 90 literature review references, 78 (86%) were peer-reviewed and published within 5 years of the study's estimated approval date by the chief academic officer.

Supply Chain Disruption

Prevalence of SC disruption and impacts Each year, about 70% of organizations experience an SC disruption, which impairs the flow of supplies, funds, or resources and affects an organization's capacity to provide customer services (Scholten et al., 2020). In 2020, the world's 1,000 largest companies were severely affected; 938 of the Fortune 1000 companies had their production and raw material supplies severely affected (Scholten et al., 2020). Large-scale disruptions in the SC system caused by this epidemic can result in high losses and additional manufacturer recovery costs (Chen & Wang, 2021). Some of these disruptions may be easy to manage, but others may not be and may significantly impact the firms' and SCs' performance (Abeysekara et al., 2019). For example, SCs experienced multiple implications from the COVID-19 pandemic about short-and long-term dynamics of demand and supply (Ivanov, 2024).

Disruptions in the SC hinder the efficiency of operations by impacting the quality,

cost, processing, sourcing, and delivery of products and services (Laguir et al., 2023). Alkhatib & Momani (2023) stated COVID–19 caused billions of dollars in losses worldwide, making the overall economic impact and duration of those losses challenging to assess. Businesses lack knowledge on how to deal with the COVID–19 crisis and make their SCs resilient (Belhadi et al., 2021). Supply disruption is a concern when the ability of suppliers to provide and deliver the quantity and quality of goods needed to support a firm’s operations (Guha et al., 2021). Catastrophic disruption can last for a significant time and could lead to substantial financial losses (Merz et al., 2021). SC disruptions are widespread, particularly in areas like purchase price and delivery times, affecting various business functions, including supply and demand (Sukoco et al., 2022). The evidence presented underscores the significance of addressing SC disruptions due to their potential to affect a wide range of organizations and result in substantial losses (Chen & Wang, 2021; Scholten et al., 2020).

Types of SC disruptions: SC disruptions occur in various ways, both internally and externally, and can be manufactured, natural, or unexpected (Laguir et al., 2023). The result of internal and external SCDs on firms differs depending on past experiences (Baghersad et al., 2022). Disruptions could include infrastructure, supply, or catastrophic disasters. Akhavan et al. (2021) note that unstable and dynamic business conditions such as globalization, increased outsourcing of activities, increased demand fluctuations, shortened product life cycles, reduced inventories, and tighter competition among companies lead to high uncertainty and behavior. Infrastructure is linked to a firm’s systematic vulnerabilities since it interrupts an SC chain of actions due to a loss of

connectedness among SC partners (Guha et al., 2021). SC needs to be structurally strong enough to sense the arrival of undesirable events and be ready with agile, adaptable, and alignment capabilities (Laguir et al., 2023).

Due to the integrality and interconnectedness of SC, material flow in the SC may experience disruption by unexpected events, such as natural disasters and pandemic outbreaks, which are different from artificial operational risks (Yang & Peng, 2023). While some problems occur within the SC, such as a production line breakdown, IT problems, demand fluctuations, sustainability problems, production delays, poor packaging, delivery delays, subpar products, logistical issues, or quality problems, others occur outside the SC and are brought on by things like labor disputes, regulatory changes, weather conditions, financial instability, terrorism, war, and counterfeiting, among others (Hamidu et al., 2023). For example, disruption resulting from the Russian–Ukraine War led to catastrophic levels relating to the supply of raw materials, food, and energy (Hamidu et al., 2023; UNIDO, 2022). Wartime SC disruptions, marked by unforeseen localization, limited resources, and hazards, necessitate innovative solutions, with strategies used in wartime potentially offering insights for managing other crises (Krykavskyy et al., 2023). Along with disorder comes inflation, political and government woes, and financial and operational struggles.

Impact of a pandemic on SC All business sectors, including the manufacturing industry, are undergoing an unprecedented crisis as the COVID–19 pandemic has negatively influenced all stakeholders, including suppliers, customers, the workforce, governments, and the financial markets (Anderson et al., 2020). Decisions and

policymakers have faced significant effects because of the recent pandemic disruption in all economic sectors worldwide, which is an unanticipated scenario (Phan & Wood, 2020). Even though Europe endured most of the pandemic, SC disruptions were already global, as the global supply chain extends beyond national borders, with suppliers located across different countries (Frankowska et al., 2022). The significant imbalance in food supply and oil and gas resources impacted the industries' SCs (Choudhary & Jain, 2022). The pandemic has affected the manufacturing sectors, introducing the sustainability aspect and the uncertainty regarding the long-term effects (Sarkis, 2021). Manufacturing sectors suffered dramatic reductions in demand of up to 75% in some (Bastas & Garza-Reyes, 2022). The sharp decrease in turnovers led to the shrinkage in critical markets, including the export markets, and periods of lockdown that enforced factory shutdowns in most manufacturing sectors (Bastas & Garza-Reyes, 2022). Disruptions in SCs have led to shortages affecting many product lines and industries internationally (Panwar et al., 2022). The long-term effects remain uncertain and require further research. Research has also emphasized the critical role of government support and the need for fundamental changes in SC structures to ensure business survival during uncertain times like the pandemic (Deshmukh & Haleem, 2020; Kumar et al., 2020; Okorie et al., 2020).

Strategies needed for manufacturing firms' recovery and resilience in response to disruptions highlight the widespread consequences of such events (Phan & Wood, 2020; UNIDO, 2022). The influence of organizational and inter-organizational cultures impacts the influence of organizational and inter-organizational cultures impacts perception and acceptance of resilient supply chain strategies (Smith & Fatorachian, 2023). SC

sustainability requires active advocacy to determine what processes require implementation now to prevent detrimental results from occurring in the future should another global pandemic arise (Sarkis, 2021). Disruptions in SC point to the need for backup plans, which themselves point to the need for the appropriate amount of resilience (Laguir et al., 2023). Forward-looking manufacturing companies should turn a disruptive event like a pandemic into an opportunity for workplace digital and technological innovation (Ambrogio et al., 2022).

Manufacturing companies could maintain disruption while developing future opportunities by fostering digital sourcing, such as additive manufacturing and product/process innovation (Ambrogio et al., 2022). A recovery strategy in manufacturing SC is needed to cope with long extended-term supply disruptions; some include those caused by the recent global outbreak of COVID-19 through a combination of product composition changes and safety inventory (Chen & Wang, 2021). The difference in the cost of lost sales can significantly impact total profit due to a lack of production caused by supply disruptions (Chen & Wang, 2021).

Ishida (2020) addressed the unprecedented situation of COVID-19 that wreaked havoc globally. The suggestion from this study involves organizations moving to the front line of competition in SC operations by shifting to a more inclusive initiative-taking model. Lean six-sigma illustrated activities proven to generate profits for businesses and improve customer relationships while also creating robust SC processes that are flexible and less risky (Andersson & Pardillo-Baez, 2020). Ishida noted the transformation of SC operations by adopting a more inclusive initiative-taking model and the positive impact

of lean six sigma on businesses, emphasizing profitability, customer relationships, and supply chain robustness. Ishida, Anderson, and Pardillo-Baez (2020) suggested strategies for organizations to enhance their SC operations and competitiveness, particularly relevant considering disruptions like the COVID-19 pandemic.

Supply rather than demand will decide the market for the year's first half (Elmersjö & Rosqvist, 2022). Due to delays in raw material and logistics concerns, supply becomes a weakness. Logistics activities can create customer value through efficiency, effectiveness, or differentiation (Marchesini & Alcântara, 2016). Port conflicts, a recurring global phenomenon, pose significant disruptions to supply chains, mainly due to labor strikes and countermeasures by port operators (Rogerson et al., 2022). Volvo Group said strong demand for trucks, a strained SC, and higher costs for raw materials and freight will continue to drive inflation (Elmersjö & Rosqvist, 2022). Elmersjö and Rosqvist discussed the primacy of supply in influencing market conditions and highlighted the weaknesses arising from delays in raw materials and logistics. Elmersjö and Rosqvist noted the potential for logistics to add value through efficiency and differentiation. They cited an example from Volvo Group regarding the impact of supply-related issues on inflation. Marchesini and Alcântara underscored the importance of supply-related factors in shaping market conditions. Elmersjö and Rosqvist (2022) suggested that effective communication and quality management in the SC can address the challenges.

The battle to secure enough semiconductors continues to snarl production lines, has affected deliveries, and has fallen short of demand for higher raw-material prices and shipping constraints, adding to the SC woes (Karkaria, 2022). Another suggestion would

be to pay more attention to quality management on production lines (Karkaria, 2022).

When the pandemic hit, the focus was on how to recover and resume business as usual.

Ishida (2020) addressed how the SC implements new standards instead of returning to the old habits. The assigned concepts included a practical evaluation of implications from a global SC perspective in various industries (Ishida, 2020). The ongoing challenges in securing semiconductors and their impact on production suggest a focus on quality management and the need to rethink SC strategies considering changing circumstances (Karkaria, 2022). Karkaria and Ishida highlighted the challenges related to semiconductor shortages and the need for quality management in production. It also emphasizes the importance of adapting SC strategies to the *new normal*.

Park et al. (2022) mentioned that discrete event simulation models (DESM) were used to understand how systems react over time and compare performance under various conditions. DESM analyzes tactical, strategic, and operational issues, focusing on planning, scheduling, management, cost reduction, replenishment control policies, and forecasting. The findings reveal that disruptions within circular flows experience more substantial ripple effects than those without, especially in SC findings (Park et al., 2022). Managers should reduce potential ripple effects by adjusting their safety stocks and overproduction rates (Park et al., 2022). Park et al. discussed the utility of discrete event simulation models in understanding system behavior over time and their application to various aspects of SC management, highlighting the importance of addressing disruptions and reducing ripple effects in SCs. Park et al. (2022) demonstrated how discrete event simulation models can be used to analyze SC issues and recommend strategies for

mitigating ripple effects caused by disruptions.

Bland et al. (2022) studied the impact of COVID-19 shocks on SC at the macro level using a developed hybrid system dynamics and input/output simulation to model the economic impact of various SC disruptions. The evidence discusses the specific research approach used to study the effects of COVID-19 shocks on the SC at a macro level (Bland et al., 2022). Bland et al. noted the methodology used to analyze the economic impact of SC disruptions caused by COVID-19 to analyze the economic impact effects of SC disruptions caused by COVID-19. Bland et al. provided insights into the financial consequences of SC disruptions at a macro level, contributing to our understanding of how such disruptions affect economic systems.

Supply Chain Resiliency

Global instability and interconnectivity influence SC operations and make them vulnerable to disruption. SC resiliency sustainability focuses on the ability of SC to bounce back to its original conditions or improved settings once a disorder occurs (Brandon–Jones et al., 2022). While risks in SC are unavoidable, resiliency management responses are imperative. SC risks affect the performance of organizations with a specific focus on reliability and consistency (Brandon–Jones et al., 2022). Brandon-Jones et al. (2022) defined SC resilience as the ability of a system to return to its original state within an acceptable time after a disruption. Brandon-Jones et al. introduced the concept of SC resilience and its importance in the face of disruptions. Brandon–Jones et al. emphasized the need for effective risk management to provide a formal definition of SC resilience. Brandon–Jones et al. (2022) stated that SC resilience involves a potential impact on

organizational performance and competitiveness, highlighting its role in addressing SC disruptions and ensuring the safe operation of SCs.

Given the frequent disruptions in modern society and their adverse effects, supply chain managers aim to enhance coordination and resilience to minimize impacts (Tao et al., 2023). SC resilience offers an array of strategies to improve organizational performance from a global perspective. Strategic objectives may align through theory and practice. Some critical methods and ideas from the studies include the resource-based view, lean and agile strategies, dynamic capability view theory, socioemotional wealth theory, and complex adaptive systems theory. The various strategies and theories associated with SC resilience highlight the potential benefits of improving organizational performance globally. The text links the strategies and theories to the broader concept of SC resilience, emphasizing their role in achieving strategic objectives and maintaining global competitiveness.

SC resilience is a powerful tool for maintaining the safe operation of the SC. SC resilience may aid in competitive advantages and continuously maintain global core competitiveness. To find and secure new sources of supply, which are supported by retaining collaboration, flexibility, and redundancy in supply management, SC resilience helps businesses alleviate the supply problem. This part of the paragraph emphasizes the role of SC resilience in ensuring the safe operation of SCs, gaining competitive advantages, and maintaining global competitiveness. It also mentions the importance of collaboration and flexibility in supply management. The text links SC resilience to its potential benefits for businesses in addressing SC challenges and maintaining

competitiveness in the global market.

SC requires readiness, enables a resourceful and operative reaction, and the capability of returning to the previous form or even better after a disruption. Performance is affected by the magnitude and duration of the disturbance and the SC's knowledge and experience in addressing risks and disruptions. This part of the paragraph highlights the key attributes that supply chains must possess to be resilient, including readiness, resourcefulness, and the ability to recover from disruptions. It also mentions the impact of disruption characteristics and SC knowledge on performance.

Bastas and Garza-Reyes (2022) affirm that manufacturing organizations are striving to respond to the challenges posed by the COVID-19 pandemic. Firms can recover from disruption by capturing learning processes, gaining insight, and creating risk management plans, especially in catastrophic situations. Bastas and Garza-Reyes noted that manufacturing organizations have addressed the challenges brought about by the COVID-19 pandemic. The challenges emphasize the importance of learning from disruptions and creating risk management plans, particularly in severe situations (Bastas & Garza-Reyes, 2022).

Bastas and Garza-Reyes (2022) resolved that responses including (a) revised health and safety practices associated with virus transmission risk-mitigating measures, (b) isolation of employees from internal and external stakeholders where possible, (c) digitalization and software application efforts, (d) diversification strategies, (e) alternative sourcing approaches, (f) staff retention policies, and (g) executing essential business interactions via online methods. The responses encompass a range of measures,

supply chain resilience, specifically a shift towards integrating stability and sustainability in supply chains.

Supply Chain Management

Effective SC management strategies are crucial for modern organizations, offering competitive advantages and cost savings. SC management involves various aspects like material movement, storage, product tracking, and its role in reducing operating costs and maximizing profits. SC focuses on the fundamental business strategy encompassing planning, sourcing, manufacturing, delivery, and logistics. Supply chain systems, also known as production–distribution or logistics networks, operate on management's strategic, tactical, and operational levels (Azaron et al., 2021). Effective SC management minimizes costs, reduces waste, and enhances customer satisfaction by providing transparency and minimizing errors. SC management remains critical for cost management, meeting customer expectations, and optimizing various aspects of the SC.

Supply Chain Collaboration

Supply chain collaboration and resiliency are essential concepts in modern supply chain management that can lead to various benefits, including positive social change. Ajayi and Laseinde (2023) mentioned that SC aims to incorporate multiple activities throughout and within an organization to ensure customer value. SC collaboration enhances SC performance and connection to sustainable development goals. Collaborative innovation, process, and production development highlight the fundamental mechanisms driving SC collaboration. The text references the importance of family-owned enterprises, big data analytics, lean, agile strategies, and end-to-end

synchronization in achieving positive change. SC collaboration and SC resiliency have the potential to create positive social change by fostering collaboration, promoting sustainability, and enhancing SC performance. The significance of the concepts includes SC collaboration and its potential to bring about positive change in various industries and sectors.

Risk Management

Every firm's SC is vulnerable to risk (Hamidu et al., 2023). SC risk management never appeared more critical than today when global SC intensely struggled with the COVID-19 pandemic (Hsu et al., 2022). Firms must attain dynamic control and adaptive management after disruptive incidents (Donnan et al., 2020). Risks in a firm's supply chains can arise from sources such as the firm's operations, suppliers, customers, and the environment (Kamalahmadi et al., 2022). Organizations use supply chain risk management to mitigate risks, ensuring profitability and continuity, with growing interest supported by extensive literature reviews (Kamalahmadi et al., 2022).

Cuvero et al. (2021) maintained that communication remains vital in coordinating efforts with third parties and the health sector entities to adjust current infrastructure to boost distribution through SC risk management. Recognizing the vulnerability of supply chains to risk and the critical role of supply chain risk management is the first step in understanding the challenges and strategies involved in maintaining a resilient SC. The unexpected COVID-19 crisis shocked SC throughout the world. All observed demand and supply ripples, chaos, and resonance effects propagated across global networks (Sarkis, 2021). The risk posed by the ripple effect of uncertainty will damage the regular

operation of the entire SC, so it is essential to enhance the resilience of enterprises that manufacture electronics to reduce the ripple effects of SC (Hsu et al., 2022).

Ripples affected the propagation of disruptions in the SC and the impact on SC performance in terms of sales, on-time delivery, and profits (Hsu et al.). Yilmaz et al. (2021) argued that ripple effects are sudden disruptions at one or more points in the SC that can severely disrupt the rest of the network overall. Understanding the ripple effects and uncertainties in SCs. This is especially relevant during unexpected crises like the COVID-19 pandemic, emphasizing the importance of effective risk management strategies in SC operations.

By stockpiling additional raw materials, short-term disruptions may avoid component shortages. Additionally, cost-benefit analysis shows that every risk–reduction strategy is worthwhile (Hashemi et al., 2023). The management team could sometimes reassess the SC in a multi-stage SC model. Hashemi et al. revealed a model that shows direct and reverse flows of goods to determine the effects of risk on the profit of an SC network and the realization of demand. The SC model may maximize profit, minimize unmet needs, reduce delivery time, alleviate disruption risks in facilities and transportation, and decrease SC visibility (Hashemi et al., 2023).

DuHadway et al. (2019) maintain that evidence from RM strategies for specific disruptions and risk detection is essential for both intentional and unintentional disruptions. On the other hand, effective risk management practices differ in terms of risk mitigation and risk recovery. DuHadway et al. stated that risk management offers information sharing, SC visibility, and supplier integration as deterrents to intentional and

unintentional disruptions. DuHadway et al. noted risk detection can balance risk mitigation approaches that consider behavioral intent appropriately. Organizational information processing theory explains how organizations can proactively respond to disruptions (DuHadway et al., 2019).

Organizational information processing theory presents an appropriate lens through which to examine SC disruptions that are difficult to predict and are thus significant sources of uncertainty and equivocality (DuHadway et al., 2019). The importance of proactive risk management strategies in SCs addresses short-term disruptions and those that may be challenging to predict (DuHadway et al., 2019). Proactive risk management strategies emphasize the role of risk detection, cost-benefit analysis, and innovative models in enhancing SC resilience and performance.

Tarei et al. (2020) presented the risk in the modern SC can result in serious adverse consequences such as substandard product quality, devastation of infrastructure and machinery, loss of the firm's brand image, delivery delays, conflict among various shareholders, and a sharp decline in the firm's share price. The connection between the relationships between risk mitigation strategies and practices examined to design and enact a suitable SC risk mitigation plan (Tarei et al., 2020). SC risk mitigation strategies and techniques of globalization, single sourcing, and lean manufacturing are some of the critical drivers of SC risk (Sytch et al., 2022). The SC risk mitigation process involves identifying, assessing, mitigating, and controlling hazards (Tarei et al., 2020). Reduced supply chain vulnerability can protect businesses from adverse events through supply chain risk mitigation (Tarei et al., 2020).

Gonyora et al. (2022) examined the impact of open innovation strategy challenges on automotive component manufacturers' competitiveness in South Africa. The results identified the challenges faced by automotive component manufacturers' lack of resources, dynamic capabilities, and high-risk exposure, with the lack of resources being the most significant (Tarei et al., 2020; Gonyora et al., 2022). The significant risks associated with supply chain disruptions emphasize that disruptions can lead to various adverse consequences, including damage to infrastructure, brand reputation, and financial performance (Tarei et al., 2020; Gonyora et al., 2020). Gonyora et al. also explained how open innovation strategy challenges can impact competitiveness as faced by automotive component manufacturers in South Africa. The critical role of SC risk mitigation strategies in protecting businesses from adverse events in the modern supply chain requires strategic measures to address challenges related to innovation and resource deficiencies (Tarei et al., 2020).

Bag et al. (2021) evaluated circular economy-based models as the resources stay in the system as it experiences one of the 10 Rs (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover) processes. The processes require the development of advanced manufacturing capabilities. However, 10 R processes suffer various challenges and can be effectively overcome through technological applications. Sedamaki and Kattepur (2022) focused on quantifying the risk profiles of each supplier based on their historic delivery patterns, and forecast deviations can help superior decisions in multi-supplier scenarios. Excellent connectivity initially decreases risk through risk dispersing and diversification and increases the overall

robustness of the SC (Hsu et al., 2022). Hsu et al. (2022) discussed evaluating circular economy–based models that align with the 10 Rs processes, highlighting the importance of advanced manufacturing capabilities in their implementation. It also acknowledges the challenges associated with the processes and suggests that technology can help overcome challenges.

Additionally, the passage mentions the quantification of supplier risk profiles and the role of excellent connectivity in reducing risk and enhancing SC robustness. This passage underscores the significance of circular economy models and advanced manufacturing capabilities in promoting sustainable practices in the SC. It also emphasizes the use of technology to address challenges, such as the role of supplier risk quantification and connectivity in SC risk management and resilience.

International Business

Global supply chains are crucial in ensuring that international networks of manufacturers and industry sectors are efficient, profitable, and productive. Organizations view supply chain management as essential for competitive advantages and cost savings. Supply chain management influence from a global perspective helps reduce expenditure and promotes growth in international markets. It also enables organizations to measure innovative value by addressing customer needs and analyzing company assets, resources, and the ability to meet customer demand. Nezhyva et al. (2021) emphasized the importance of a practical risk assessment approach in managing risks for the economic security of businesses operating in the international trade environment. Companies need to manage various risks, including corruption, political instability, and terrorism, create a

stable and competitive business environment, and make strategic investment decisions. The critical role of global supply chains in ensuring efficiency and profitability across various industries remains imperative—the strategic importance of supply chain management in gaining competitive advantages and cost savings. Given the increasing international trade volumes and challenges such as corruption and political instability, businesses need to manage risks effectively. Supply chain management and risk assessment are vital components of operating in the global business environment. Managing risks to economic security and growth underscores the need for proactive risk management strategies.

Economic globalization is a complex and abstract process driven by productivity, leading to increased interactions and integration of world economies. Zhang (2022) highlighted the significance of enterprise risk management in the context of Big Data, emphasizing its characteristics like comprehensiveness, early warning, and complexity. Effective RM enables firms to enhance production, reduce risk-related losses, and improve economic efficiency and revenue. However, Zhang pointed out that misconceptions about RM among managers hinder the implementation of collective strategies to enhance performance.

Farzanegan et al. (2021) discussed the impact of the COVID-19 pandemic on globalization. Due to the pandemic, many countries imposed restrictions on social interactions, international trade, and cultural exchanges, significantly affecting globalization. Farzanegan et al. conducted multivariate regression analyses to examine the relationship between the globalization index and COVID-19 case fatality rates in over

100 countries, considering other drivers of the pandemic outbreak. The focus examines various dimensions of globalization, including economic, social, and political aspects, and how it integrates countries into the global community (Sytch et al., 2022).

The complex nature of economic globalization remains driven by productivity. The role of enterprise risk management, particularly in the context of Big Data, includes improving production, reducing risks, and enhancing economic efficiency. It also emphasizes the importance of addressing misconceptions about risk management among managers. Additionally, the passage highlights the impact of the COVID-19 pandemic on globalization and its various dimensions, suggesting that globalization may have unintended consequences in countries with specific institutional weaknesses. The passage connects the themes of economic globalization, risk management, and the impact of the COVID-19 pandemic on globalization. It underscores the need for effective risk management practices in the face of complex global challenges and the potential consequences of globalization in countries with specific institutional limitations.

External Factors

Supply chain disruptions caused by unforeseen external factors and global market shocks have a ripple effect, leading to supplier concerns about price escalation and motivating organizations to seek a competitive advantage. Additionally, manufacturing materials face challenges related to price increases and the availability of raw materials. Sytch et al. (2022) conducted an empirical analysis of supply chain networks, focusing on three global automotive manufacturers and using computational experiments. Sytch et al. found that adopting regionalized supplier-selection practices can lead to a more robust

global supply chain network (GSCN). However, building such a network can be challenging due to contemporary issues, limited management, and unregulated sectors.

Stych et al. (2022) also observed that various types of shocks, including pandemics, social and political unrest, and natural or human-made affect geographically proximate businesses. For instance, Stych et al. provided an example of how the first wave of COVID-19 related shutdowns in China in 2020 had a ripple effect, disrupting business operations and the supply chain due to travel bans. Stych et al. stated that the consequences of supply chain disruptions stemming from external factors and global market shocks emphasize suppliers' concerns regarding price increases and the importance of organizations seeking a competitive edge in response to the disruptions. Stych et al. noted that the research demonstrates the benefits of regionalized supplier selection practices in building a more resilient global supply chain network but also acknowledges the challenges associated with achieving this resilience.

Furthermore, it discusses the diverse types of shocks, including pandemics, which can impact businesses and the supply chain. The themes of supply chain disruptions, the quest for a competitive advantage, challenges in managing supply chain networks, and the impacts of various shocks, particularly the example of the COVID-19 pandemic in China. The importance of robust supply chain strategies and practices in addressing disruptions caused by external factors and global market dynamics.

The increased global connectedness in the economy has made supply chains vulnerable to disruptions in various domains, including environmental, political, economic, and public health. The disruptions can lead to geographical contagion and

affect single suppliers. Machado et al. (2020) argued that manufacturing companies often prioritize higher investment returns without considering their environmental impact, leading to waste generation and mismanagement concerns. In the retail supply chain context, Mittendorf et al. (2022) presented a two-period model demonstrating the multifaceted impacts of supply chain interactions, including retailer pricing hikes and supplier deep discounts. The results indicate that deep discounts can encourage mutually beneficial investments and alleviate inefficiencies along the supply chain. A concern in repeated buyer-supplier relationships may be addressed through price concessions, which reduce double marginalization and promote greater supply chain efficiency (Mittendorf et al., 2022).

Moyer et al. (2022) identified intermediaries as a significant limiting factor for economic growth among smallholder firms, highlighting challenges such as climate change, limited information communication technologies, failed agricultural extension services, and fragmented supply chains—qualitative conversations to examine existing supply chain models and technological enhancements facilitated by ICTs. Additionally, the passage discusses global logistics and freight issues, which imbalances in shipping containers have further exacerbated. Moyer et al. noted fluctuations in regulated fleet growth patterns in global logistics and the challenges posed by imbalances in shipping containers, with a significant portion of containerized shipments filled with air. The complex challenges faced by supply chains remain to global interconnectedness. The logistics system is critical in managing chain disruptions and recovery (Choi, 2020).

Organizations need to consider the environmental impact and waste management

in manufacturing, the potential benefits of deep discounts in supply chain dynamics, and the importance of addressing concerns like ratcheting in buyer-supplier relationships. Additionally, organizations need to emphasize the limitations imposed by intermediaries on economic growth for smallholder firms and suggest qualitative conversations and technological enhancements as potential solutions, which include the imbalances in shipping containers and the impact on global logistics, especially in the wake of the COVID–19 pandemic. The passage connects the themes of global supply chain disruptions, environmental considerations in manufacturing, supply chain dynamics, the role of intermediaries, and logistics challenges. It underscores the need for adaptive strategies and collaborative approaches to address the complex issues in supply chain management.

Firm Performance

Various factors influence market structure and supply chain management, including commonalities, policy references, transparency, governance, and interactions with government and external policies. Maurer (2017) suggested that organizations across industries often function within a self–governance framework, primarily focusing on profitability while addressing concerns related to environmental sustainability, product safety, and limiting the spread of biological weapons. This approach positions organizations to manage better issues than relying solely on government intervention. Andersson and Pardillo-Baez (2020) highlighted the effectiveness of lean six sigma in improving supply chain performance, emphasizing continuous improvement, waste elimination, and efficient resource utilization. Andersson and Pardillo-Baez noted the

importance of supply chain management becomes evident as the risk of disruptions increases due to factors like outsourcing, globalization, and volatility in the trading environment. Supply chain management manages and mitigates internal and external risks to create a resilient supply chain (Andersson & Pardillo-Baez, 2020).

Mangla et al. (2020) emphasized the significance of planning and synchronizing operations for sustainability in supply chains, especially as organizations face growing pressures to integrate environmental and social sustainability into their operations. Mangla et al. introduced the concept of the sustainable supply chain that integrates ecological, economic, and societal measures into supply chain operations. Maloni et al. (2017) also explored supply management in family-owned enterprises, highlighting competitive priorities such as cost, innovation, quality, time, sustainability, and flexibility. Maloni et al. remarked on the multifaceted nature of factors influencing supply chain management and market structure, ranging from self-governance to methodologies like L6S, stressing the importance of addressing internal and external risks in SCM, integrating sustainability into operations, and recognizing the distinct characteristics of family-owned businesses. Maloni et al. noted the connection of various themes, including self-governance in organizations, the effectiveness of L6S methodologies, risk management in SCM, sustainability considerations, and the influence of family ownership on supply management. The elements collectively contribute to a broader understanding of supply chain management and its impact on market structures.

Conceptual Framework

Various research studies provide insights into different aspects of supply chain

management, including circular economy supply chains, cloud-based simulation services, AI applications, blockchain adoption, lean manufacturing methods, digital manufacturing supply chain, the impact of COVID–19 shocks, and risk profiling of suppliers. Ratnayake (2022) presents a framework for circular economy supply chains producing feedstock metal powder for additive manufacturing parts. Kiss et al. (2022) focus on cloud–based simulation services in manufacturing processes, emphasizing scalability, cost reduction, and convenient access. Teerasoponpong and Sugunnasil (2022) explore AI applications in the manufacturing industry from a supply chain perspective. Agrawal et al. (2022) discuss manufacturing firms' hindrances in adopting Blockchain for supply chains. Alkhudary et al. (2024) maintain blockchain proves beneficial in these domains by seamlessly merging the communication systems of the supply chain into a cohesive platform, enhancing information–sharing and processing capacities as a distributed ledger technology.

Sharakhin et al. (2022) highlighted the benefits of lean manufacturing methods in reducing waste and improving efficiency in supply chain information processes. Weerabahu et al. (2021) categorized enabling factors of digital manufacturing supply chains and provide insights into Industry 4.0 adoption. Bland et al. (2022) analyzed the economic impact of COVID–19–related supply chain disruptions. Sedamaki and Kattepur (2022) quantified supplier risk profiles using machine learning techniques. Flynn et al. (2016) collected data from manufacturing plants to study key relationship factors in organizational structure, centralization, environment, and formalization. Flynn et al. provided a comprehensive overview of diverse research studies on supply chain

management, highlighting the breadth of topics and methodologies explored in this field. From circular economy frameworks to AI applications and risk profiling, the studies contribute valuable insights into optimizing supply chain operations and addressing contemporary challenges. The research studies collectively contribute to advancing the field of supply chain management by addressing various facets of supply chain optimization, resilience, and innovation. They offer valuable perspectives for businesses and researchers looking to enhance supply chain performance and adapt to evolving market dynamics.

Dynamic Capability Theory

Since the 1990s, relentless competition has driven firms to produce, extend, and adapt their resources by adapting, integrating, and reconfiguring to achieve a specific goal using the dynamic capability theory (Heaton et al., 2020). The dynamic capability theory follows a behavior that could include learned or persistent patterns by which a company generates and adapts its method to become more effective (Brusset & Teller, 2017). The value of dynamic capabilities varies depending on the situation (Wilden et al., 2013). What works for one firm may not work for another, following behaviors and trends closely so managers can collaborate with teams to adjust accordingly. The concept of relentless competition drives firms to adapt and transform their resources. It mentions the dynamic capability theory and how it entails a behavioral approach for companies to become more effective. Furthermore, it highlights the situational dependency of dynamic capabilities and the importance of closely monitoring behaviors and trends for managers. The discussion sets the stage for understanding the role of dynamic capability theory in

helping firms adapt to competitive stressors and changing environments.

The dynamic capability theory enables firms to adapt to dynamic settings through creating, implementing, and streamlining all resources, creating a competitive advantage for the company. The dynamic capability theory aligns with supply chain resiliency by developing organizational processes and resources to ensure and maintain a competitive edge (Pereira et al., 2020). The dynamic capability theory assumes that a company may establish a market position by developing capabilities of supply chain resiliency to enable it to operate better in unpredictable environments (Piening & Salge, 2015). For example, supply chain resiliency refers to a dynamic skill that can provide a competitive advantage and is critical during disruption to achieve SC performance (Teece et al., 1992).

Juntarukka and Ueasangkomsate (2022) stated dynamic capability theory may help firms adapt to dynamic environments. It also highlights the alignment of dynamic capability theory with SC resiliency and the competitive advantage derived from such adaptability. Dynamic capability theory shows organizations may utilize dynamic capabilities more flexibly and effectively over competitors, thus gaining competitive advantages (Song et al., 2024). The insights emphasize the interconnectedness of dynamic capability theory, SC resiliency, and their impact on a company's competitive advantage, particularly in SC performance (Teece et al., 1992).

Juntarukka and Ueasangkomsate (2022) presented dynamic capabilities theory, which is primarily concerned with researching strategic and organizational management. The dynamic capability theory manifests itself in learned and persistent behavior patterns by which a company produces and adapts its methods to become more effective (Brusset

& Teller, 2017). Organizations must overcome hurdles to achieve short and long-term objectives (Kissi et al., 2020; Sabahi & Parast, 2020). The dynamic capabilities theory focuses on strategic and organizational management, highlighting the behavioral aspects and illustrating how companies adapt to become more effective and the challenges they face in achieving their objectives. The insights set the stage for understanding the relevance of dynamic capabilities theory in organizational management and adaptability's importance in achieving short-and long-term objectives (Juntarukka & Ueasangkomsate, 2022).

Parast (2020) states that although innovation remains a critical component of a firm's long-term survival and development, innovation's role in increasing an enterprise's resilience remains disregarded. The dynamic capability theory examines relationships among a firm's (a) research and development investment, (b) supply chain disruption risk, (c) supply chain performance, and (d) overall firm performance (Parast, 2020). Examining research and development investment enhances the firm's resilience capability. Research and development investment also significantly mitigates the effects of process, supply, and demand disruption on firm performance. The role of innovation in enhancing an enterprise's resilience remains overlooked. Dynamic capability theory investigates the relationships between R&D investment, SC disruptions, SC performance, and firm performance. The findings underscore the significance of innovation, research, and development investment in improving a firm's resilience and mitigating the adverse effects of SC disruptions, which aligns with the principles of dynamic capabilities theory (Parast, 2020).

Buzzao and Rizzi (2021) proposed a unifying framework that distinguishes different facets of dynamic capabilities for sustainability based on the various types of performance. The authors found that dynamic capabilities for sustainability are numerous and context dependent. The more sustainability plays a central role in the investigated dynamics, the more the conceptual model of study should include specific and detailed measures of dynamic capabilities for sustainability (Buzzao & Rizzi, 2021). Dynamic capabilities for sustainability underscore the importance of considering sustainability in the conceptual model and measures. The insights emphasize the significance of dynamic capabilities for sustainability in the context of different types of performance and highlight the need for a tailored approach when sustainability is a central concern (Buzzao & Rizzi, 2021).

Sainsbury (2020) explored the dynamic capability theory of economic growth as a central role for firms and governments. The rate at which a country's economy grows depends on whether its firms can build the capabilities to generate and take advantage of windows of opportunity for innovation and new markets and whether they can enhance their abilities to move into higher value-added activities (Sainsbury, 2020). Sainsbury noted the exploration of dynamic capability theory in economic growth and its significance for firms and governments, influencing a country's economic growth. Sainsbury underscored the crucial role of dynamic capability theory in economic growth and the interconnection between firms and government in shaping a country's economic trajectory.

Pisano (2019) focused on societal returns to innovation through identifying and

selecting capabilities that lead to competitive advantage. The author found that Porter's *five forces* framework contributes to the intensity of current and future competition, entry barriers, and availability of substitutes (Pisano, 2019). Pisano focused on societal returns to innovation and the role of identifying capabilities for competitive advantage. It also mentions the use of Porter's framework in assessing competitive factors. Pisano noted that managers provided a new perspective on identifying attractive product market entry opportunities and the importance of strategic capabilities in achieving competitive advantage (Pisano, 2019).

Pisano (2019) suggested other theories, including dynamic capability theory, can support the study. Kazmi and Ahmed (2022) evaluated the factors contributing to enhancing SC activities, specifically among manufacturing industries, revealing that demand and managing practices positively impact SC performance by creating dynamic distribution capabilities. Further findings show that distribution capabilities integrate both efficient and effective handling of resources (Kazmi & Ahmed, 2022). Demand sensing practices positively and significantly impact dynamic distribution capabilities and SC performance. Pisano suggested adding other theories to support the study. Kazmi and Ahmed stated SC activities and the positive impact of demand sensing and managing practices on SC performance through dynamic distribution capabilities. Kazmi and Ahmed demonstrated the significance of dynamic distribution capabilities and their impact on SC performance, emphasizing the relevance of dynamic capability theory.

Ramos et al. (2023) focused on the dynamic capability view theory to analyze how three key SC capabilities – organizational flexibility, integration, and agility –

should be combined to obtain the desired SC performance. Organizational flexibility drives higher agility in agri–food SCs, positively affecting SC performance (Ramos et al., 2023). Ramos et al. focused on the dynamic capability view theory in analyzing SC capabilities. It highlights the importance of organizational flexibility in driving agility and its positive impact on SC performance. Ramos et al. remarked on the relevance of the dynamic capability view theory and its application to SC capabilities, particularly the role of organizational flexibility in enhancing agility and overall SC performance (Ramos et al., 2023).

Gupta et al. (2020) incorporated the dynamic capability view and the distinct mechanism of the capability–building resource-based view to understanding how to create economic competitiveness for a firm. In efforts to locate a firm’s position in the market via its resources, the capability-building resource-based view was the first concept in the management strategy literature (Teece et al., 1992). Gupta et al. (2019) noted that the resource-based view supports firms in creating economic advantages over the competition but cannot address how firms utilize resources and capabilities in a dynamic market. The dynamic capability view is applied as an extension of the resource-based view, promoting innovation. Gupta et al. (2020) noted incorporating dynamic capability and resource–based views to explore economic competitiveness. It highlights the historical significance of the resource-based view in management strategy literature and the need for a dynamic capability view to address dynamic market conditions and promote innovation. Gupta et al. (2019) underscored the relevance of the dynamic capability view in understanding how firms can leverage their resources and capabilities

in a dynamic market, building upon the foundations of a resource-based view (Gupta et al., 2019).

A dynamic capability view requires implementation when organizations primarily focus on sustainable business operations and can develop distinct but adaptable capabilities. Dynamic resource capabilities assist organizations in leveraging the capabilities by providing their operations with adaptability through building and reconfiguring their internal and external processes (Gupta et al., 2020). Gupta et al. (2020) emphasized the application of the dynamic capability view in organizations that prioritize sustainable business operations and the importance of developing adaptable capabilities. It highlights the role of dynamic resource capabilities in facilitating adaptability through process building and reconfiguration. Gupta et al.'s research underscored the significance of the dynamic capability view in achieving sustainable business operations and the role of dynamic resource capabilities in enabling adaptability (Gupta et al., 2020).

The dynamic capability view facilitates organizational alignment for systematically leveraging big data (Laguir et al., 2023). Sunder and Marathe (2023) incorporated the dynamic capabilities approach in efforts toward an emergent organizational learning system, a dynamic evolving process, and a culture-building machine. Sunder and Marathe noted the before-the-cycle time reductions or controlling process errors. Sunder and Marathe discussed how the dynamic capability view supports organizational alignment for systematic extensive data utilization. Incorporating the dynamic capabilities approach aids in developing an organizational learning system and

culture–building (Sunder & Marathe, 2023). Laguir et al. (2023) stated the role of the dynamic capability view in aligning organizations for systematic extensive data utilization, while Sunder and Marathe demonstrated its application in the development of organizational learning and culture–building.

Transition

This qualitative pragmatic study aims to explore strategies manufacturing companies utilize to mitigate supply chain disruptions and remain profitable. In this section, I discussed the review of professional and academic literature and the conceptual framework. The literature review contains information from studies on the research topic and contrasting theories for mitigating supply chain disruption. Furthermore, the section discusses dynamic capability theory, illustrating how managers may adapt, integrate, and reconfigure behavioral approaches for companies to become more effective.

Section 3 includes information on my research approach containing (a) the project ethics, (b) the nature of the project, (c) population, sampling, and participants, (d) data collection activities, (e) interview questions, (f) data organization and analysis techniques, and (g) reliability and validity.

Section 4 addresses the findings and conclusions, including (a) the presentation of the findings, (b) business contributions and recommendations for professional practices, (c) implication for social change, (d) recommendations for future research, and (d) the conclusion of the pragmatic inquiry study.

Section 3: Research Project Methodology

The role of the researcher is essential in any study process. A typology of researcher roles is provided to aid researchers in dialogue and navigating tensions and potentials by adopting distinct roles (Kågström et al., 2023). I remained responsible for gathering all data, including interviewing participants and gathering company information, such as activity reports of work disruptions and solutions. I managed and analyzed the data to present the findings. What researchers learn through their process aids the study's results (Elmersjö & Rosqvist, 2022).

Project Ethics

As a researcher with over 20 years of experience in the construction and manufacturing industry, I understand the importance of mitigating supply chain challenges. This consistent focus in my professional career fueled my extensive academic and professional interest in the study's topic. Over the years, my work expanded globally, providing me with insights into the importance of successful supply chain mitigation from an international perspective. Having been actively involved in this research area through conferences, publications, and scholarly communities, I anonymized all identifying information and used pseudonyms in reports and presentations.

The study underwent review and approval by an institutional review board (IRB) or ethics committee, ensuring compliance with ethical standards and regulatory requirements. I received an approval number 02–23–24–0313876 before the collection of the data. Additionally, in line with the *Belmont Report* protocol, I upheld the principles of respect for persons, beneficence, and justice (Robinson, 2014; U.S. Department of Health

and Human Services, 1979). This involved obtaining informed consent and respecting participant autonomy, minimizing risks while maximizing benefits, and ensuring fair and equitable participant selection. Obtaining informed consent is fundamental to ethical research and should be secured before interviews or data collection (Gaikwad, 2017). I sent an email and consent form to potential participants. The consent form provided participants with background and procedural information about the study, ensuring they understood its nature and ethical considerations. Participants were also informed that they could withdraw from the study at any time by contacting me, and their data would be excluded and destroyed upon withdrawal. To appreciate participants' time and effort, a small monetary compensation or gift card was offered. To protect participants' confidentiality, I anonymized all identifying information and used pseudonyms in reports and presentations. Data will be securely stored for 5 years, with digital data on a password-protected, encrypted drive and physical documents in a locked cabinet. After 5 years, all data will be securely destroyed to ensure continued confidentiality.

Nature of the Project

The specific research design utilized a qualitative pragmatic inquiry study design to address the research questions in this qualitative study. A qualitative pragmatic inquiry study helped me gather adequate in-depth knowledge of strategies managers manufacturing in organizations use to manage the SC. Lewis et al. (2024) stated a qualitative approach explored the detailed and nuanced experiences of the participants, enabling researchers to uncover the depth and richness of these experiences. Therefore, I chose a qualitative approach and obtained observations and expressions from the

participants.

In a pragmatic inquiry study design, the researcher collects and explores various perspectives regarding a current phenomenon within its real-world setting (Yin, 2018). Using a qualitative pragmatic inquiry, I identified and analyzed the SC strategies that various manufacturing facilities implement business documents available via the public company website and conducted semistructured interviews suitable for the study's objectives. The collection of data enabled comprehensive results through document analysis and semistructured interviews, contributing to a deeper understanding of the research topic (Toloui-Wallace et al., 2022; Yin, 2018).

The qualitative research designs that I considered include (a) case study, (b) phenomenological, (c) ethnography, and (d) pragmatic inquiry study design. Case study design involves the researcher seeking to obtain thorough knowledge and present a clear picture of an individual, a program, or a situation, sometimes over a long period (Range, 2023). The phenomenological study occurs through individualized experience and, therefore, was unsuitable for the study as the focus of understanding SC instability from a global perspective. The ethnographic design was not appropriate as it is used to understand a problem through observations and interactions with participants within a group setting (Yin, 2018).

Utilizing the pragmatic inquiry study design involved at least one case bounded by time and place in a real-life context (Yin, 2018). The pragmatic inquiry study represented typical manufacturing firm managers in Mexico. The participating organization for this traditional capstone DBA study potentially demonstrated success in

addressing the specific business problem. Semistructured interviews prompt the type of data necessary to evaluate the business strategies (Toloui-Wallace et al., 2022). I utilized Otter.ai to transcribe interviews and NVivo to organize data.

Population, Sampling, and Participants

A principal factor for success in pragmatic inquiry study research involves selecting appropriate participants (Yin, 2018). Researchers require choosing participants with adequate knowledge and experience with the subject matter and providing abundant and diverse information (Yin, 2018). The target population comprised six supply chain managers from manufacturing companies in Mexico. The participants experienced success in mitigating supply chain disruptions. I selected individuals with knowledge and experience on the research topic and added merit to this study. The eligibility for the study included potential participants with at least three years of SC management experience and who had worked as a manager in the supply chain role.

Data Collection Activities

Researchers are the primary data collection instrument in qualitative research (Clark & Veale, 2018). Yin (2018) noted pragmatic inquiry study evidence comes from sources such as (a) documentation, (b) archival records, (c) interviews, (d) direct observations and interaction with selected participants, and (e) physical artifacts. The data collection instrument obtained included active participants in the interviewing process by influencing the conversational context to contribute to the clarification of participant responses and determine the type of information gathered for the study (Clark & Veale, 2018).

Sekaran & Bougie (2019) stated semistructured interviews give more detailed information about specific variables of interest. Therefore, I conducted semistructured interviews to reach saturation. The interview ensured consistency, reliability, and validity in data collection, mitigating bias and covering all relevant topics. The process included obtaining consent, conducting and recording interviews, and post-interview transcription and member checking. The interview questions were located on page 43 with the Table of Contents listing all appendices for reference. This protocol ensured ethical, reliable, and valid data collection for research study.

I conducted semistructured interviews and collected public company documentation via LinkedIn content to facilitate extensive data collection. I asked seven open-ended questions during a semistructured interview to find the answer to the central research question. The open-ended questions relate to strategies to mitigate supply chain disruptions. I collected operational procedures, including public material records, company reports, procurement policies, and meeting minutes. Yin (2018) stated company records, essays, and artifacts provide contextual and facilitative evidence that can link data to the study.

I am the primary data collection instrument in this qualitative research. Researchers use qualitative research's primary data collection instruments (Clark & Veale, 2018). Sources of pragmatic inquiry study evidence included documentation, archival records, interviews, direct observations and interactions with selected participants, and physical artifacts (Yin, 2018). The section highlights that the data collection instrument actively participates in the interviewing process, influencing the

conversational context and the type of information gathered (Clark & Veale, 2018). The researcher conducted semistructured interviews, reviewed archival records, and collected public company documentation to facilitate extensive data collection. The seven open-ended questions allowed the participants to share their experiences, and the questions addressed the central research question. The types of company documents collected remain available via public websites, including company reports and procurement policies. The company records, essays, and artifacts provided contextual and facilitative evidence that linked the data to the study (Yin, 2018).

The section provided a comprehensive overview of the data collection process, outlining the various methods and sources of data. It underscored the importance of the researcher's active role in data collection and how this role can influence the quality and context of the data gathered. Including specific details, such as the number of open-ended questions and types of company documents, demonstrates a well-planned data collection strategy. The section effectively communicated the researcher's approach to data collection in qualitative research, demonstrating a thorough understanding of the sources and methods employed to address the central research question.

Interview Questions

1. What key barriers have you overcome in developing strategies to mitigate SC disruptions?
2. What resources do you use to implement strategies to mitigate supply chain disruptions?
3. What challenges have you encountered while implementing strategies to mitigate

supply chain disruptions to remain profitable?

4. How did implementing the strategies help to mitigate the supply disruptions?
5. How did you measure the effectiveness of selected strategies to mitigate supply disruptions?
6. What strategies were least effective?
7. Do you have any additional information you would like to include about strategies you used to mitigate supply chain disruptions?

Data Organization and Analysis Techniques

The section discusses the tools and techniques for organizing and managing qualitative research data in a pragmatic inquiry study design, including outlines of data security measures and data retention policies. Qualitative researchers utilized standard tools for data organization, analysis, and reporting, such as Microsoft Excel, NVivo, and Otter AI for data organization (Robins & Eisen, 2017). The researcher used alphanumeric codes (e.g., P1, P2, P3, P4, P5, and P6) to identify participants. The coding process remains a crucial stage of qualitative data analysis, involving the sorting and organization of data into meaningful categories or themes (Peesker et al., 2019). The data organization process involved transcribing interviews word for word and coding responses based on themes using NVivo for thematic analysis.

The thematic analysis included headings to identify data elements such as participant coding, document code, question number, and response. Security measures included storing electronic data on a password-protected laptop and physical data in a locked safe. Data retention policies, as outlined, require the storage of all data obtained

for 5 years, followed by the destruction of all the physical data. The section provides a clear and detailed plan for managing qualitative research data, from coding and organization to data security and retention. The inclusion of specific tools like Excel, NVivo, and Otter AI demonstrates a practical approach to data management. The emphasis on data security and retention aligns with ethical considerations in research. The researcher's comprehensive data management ensured that it aligned with best practices in qualitative research. The data was organized, secure, and retained in accordance with ethical standards and legal requirements.

The study utilized methodological triangulation in the research, involving multiple data collection techniques and a structured data analysis approach. It also highlighted the importance of reliability and validity. The researcher employed methodological triangulation involving three different data collection techniques. Yin's (2018) recommendation involves collecting data from single sources to ensure reliability and validity. Data collection techniques included semistructured interviews and examination of company documents available via the company website (e.g., records, policy manuals, procurement policies). Methodological triangulation requires utilizing at least three data sources to analyze the gathered data (Arias Valencia, 2022).

The researcher adapted Yin's five-stage data analysis approach: data collection, grouping data into categories, regrouping data into themes, interpreting data meaning, and developing conclusions. Yin (2018) noted that analytical techniques enable patterns to emerge and strengthen the validity of the study. Yin mentioned researchers utilized multiple data collection techniques, including interviews, document analysis, and artifact

Review, contributing to a comprehensive understanding of the research topic. Therefore, I applied various data collection techniques, including interviews. Yin stated that the data analysis approach ensures a structured and systematic analysis process. Using methodological triangulation and a structured data analysis approach strengthens the research design by incorporating multiple data sources and systematic analysis, enhancing the credibility and robustness of the research findings (Yin, 2018).

Reliability and Validity

Reliability

Multiple steps were taken to ensure reliability in the research process, including collecting data from diverse sources and employing methodological triangulation. The data for the study were obtained from three primary sources: semistructured interviews, a literature review, and company documents. Methodological triangulation involves investigating multiple data sources, such as interviews, observations, archives, and questionnaires, to obtain diverse perspectives and enhance reliability (Arias Valencia, 2022). By gathering data from these various sources, the researcher ensures a comprehensive approach that reduces the likelihood of bias and strengthens the credibility of the study's outcomes.

Additional strategies to ensure dependability include member checking and transcript reviews. After the initial interviews, participants received copies of the transcripts and the analyses for their review to confirm the accuracy of the data collected. Furthermore, a pilot test was conducted to refine the interview questions and process, ensuring consistency and dependability throughout the study. Maintaining an audit trail,

which includes detailed records of all research activities, decisions, and justifications, allows others to trace the research steps and verify that the findings are grounded in the data.

Validity

To ensure validity, the study employs the criteria of credibility, transferability, dependability, and confirmability, emphasizing the rigor and trustworthiness of qualitative research (Lincoln & Guba, 1985). Qualitative research methods offer rigorous, theoretical, and rational techniques for analyzing subjective and nebulous phenomena (Bhangu et al., 2023). Member checking is a crucial technique used to enhance the accuracy of the collected data. This involves distributing summaries of the interviews to the participants for their review and feedback (Motulsky, 2021). By engaging participants in this validation process, the researcher ensures that the findings accurately reflect their perspectives, thereby enhancing the study's credibility.

Detailed descriptions of the research context, participants, and findings are provided to address transferability. This thorough documentation allows readers to determine the applicability of the results to other contexts, thereby extending the relevance and usefulness of the findings to future research. To ensure confirmability, the researcher maintains an audit trail to document all research activities, decisions, and justifications, which helps verify that the findings are data-driven and free from researcher bias.

Finally, data saturation was ensured by continuing interviews until no new themes or information emerged. This approach confirmed that the data collected was

comprehensive and that the findings accurately represented the participants' experiences and perspectives. By achieving data saturation, the study's conclusions are well-founded and exhaustive, ensuring that significant insights are not overlooked. Utilizing member checking, methodological triangulation, and thorough documentation ensures reliability and validity (Lincoln & Guba, 1985; Quintao et al., 2020). In summary, the study provided trustworthy and meaningful findings aligned with established qualitative research standards.

Member checking was used to help ensure data reliability and validity. To ensure the accuracy of the data collected, I employed member checking. A week after the initial interview, I emailed the participants a copy of the analysis. I scheduled a follow-up request to verify the information and gather their feedback on the reported data. All participants responded, acknowledging the review and approval of the information gathered. After collecting the interview information and data, I synthesized and analyzed the responses. First, I organized the data by categorizing key themes and patterns that emerged from the participants' answers. Then, I compared these themes to identify commonalities and differences. I integrated the findings into a cohesive narrative, highlighting the main discussion points and ensuring the analysis accurately reflected the participants' perspectives. This synthesis provided a comprehensive overview of the data and formed the basis for the subsequent analysis and interpretation.

Transition and Summary

The focus of this qualitative pragmatic inquiry study explores the effectiveness of strategies of supply chain managers in Mexico. A supply chain network includes

functions and organizations connected through products and services they offer to deliver to the end consumer (Olanrewaju et al., 2021). The sustainability of a business depends on its ability to improve its performance measures and remain profitable and competitive (Olanrewaju et al.). The problem remains that some supply chain managers from manufacturing companies in Mexico fail to use relevant mitigation strategies to reduce supply chain disruptions. This qualitative pragmatic inquiry study aims to identify and explore manufacturing firm managers' strategies to mitigate supply chain disruptions to remain profitable.

Section 3 examined my research approach containing (a) the project ethics, (b) the nature of the project, (c) population, sampling, and participants, (d) data collection activities, (e) interview questions, (f) data organization and analysis techniques, and (g) reliability and validity. Section 4 addresses the findings and conclusions, including (a) the presentation of the findings, (b) business contributions and recommendations for professional practices, (c) implication for social change, (d) recommendations for future research, and (d) the conclusion of the pragmatic inquiry study.

Section 4: Findings and Conclusions

Presentation of the Findings

Businesses have increasingly faced more frequent and severe interruptions, underscoring the vulnerability inherent in their operations (Chen et al., 2022). Grounded in dynamic capability theory, this qualitative pragmatic inquiry explored strategies managers use to mitigate supply chain disruptions. The research question guiding this study was “What methods do successful manufacturing managers employ to reduce supply chain disruptions and ensure profitability?” The findings from the study revealed four main themes: skills and behaviors, processes and routines, organizational structures, and disciplines. This section breaks down the elements of the dynamic capability theory based on interview excerpts, offering a comprehensive understanding of organizational dynamics and operational strategies. The elements connected in the conceptual framework reflect various aspects of organizational dynamics and operational strategies, including how skills and behaviors influence performance, the importance of effective processes and routines, organizational structures, and the disciplines necessary for success. A central element of understanding dynamic capabilities requires an aggregate of three entrepreneurial capacities involving skills, processes, procedures, practices, rules, structures, and disciplines (Alexander et al., 2022). Teece’s dynamic capability theory highlights the importance of agility, innovation, and strategic foresight in driving long-term success in dynamic and uncertain markets (Alexander et al., 2022).

To protect the identities of the four research participants, I coded participants as P1, P2, P3, P4, P5, and P6.

Theme 1: Skills and Behaviors

This theme represents an aspect within the skills and behaviors category that supports supply chain mitigation strategies in manufacturing firms. This theme consisted of inputs from all six participants with 47 references to the database of study codes sharing how managers successfully mitigate disruptions (see Table 1). Five subthemes supported this theme: addressing cultural differences, effective communication, encountering language barriers, managing time zone differences, and providing adequate training and development opportunities for personnel are essential. Negotiating strategies, flexibility, adaptability to changes, and ensuring visibility into supply chain operations also fall under this category. Manufacturing companies enhance visibility and control over their operational systems, allowing them to fully implement exploitation to improve and refine existing resources and processes for current viability (Gastaldi et al., 2022).

Table 1

Theme 1 Skills and Behaviors Subthemes

Subtheme	# of sources	Frequency
Communication	6	22
Cultural differences	3	3
Language barriers	4	5
Time zone differences	5	9
Training and development	3	8

The findings from various interviews underscore the significance of several key themes in mitigating supply chain disruptions. Communication emerged as a critical factor with all six participants. Communication is a critical success factor that is often not considered when implementing solutions (Montano, 2023). All six participants

commented that communication was the most crucial factor for successfully mitigating supply chain disruption. P1 mentioned, “We use a lot of direct communication with people, which is the biggest goal.” P2 shared, “If we do communicate well and succeed, we could resolve many of the troubles.” Two participants mentioned direct communication channels such as chats, emails, and video calls ensure clarity and collaboration. Language barriers and coordination issues due to different time zones occur as challenges, necessitating effective communication strategies to overcome them. P4 noted that the most significant concerns were the high costs from logistics operators, language barriers, and other time zones for coordination with suppliers. Effective leadership is crucial for the success of virtual teams, which consist of geographically dispersed members facing cultural differences, communication barriers, and conflicts, necessitating efforts to foster trust, cooperation, and commitment (Petreska, 2022).

On the other side of communication, one participant noted the least effective strategy is not staying in contact with employees and ensuring they understand their responsibilities. P2 stated,

I don't know if it's a lack of communication to say it correctly, but we need to help the person understand everything in time and how it must be done. We need to manage the personnel to get the work done.

This issue connects leadership with effective communication and training. Training and development remain essential for equipping personnel with the necessary skills and understanding to navigate supply chain complexities successfully. Recruiting, training, and retaining qualified supply chain managers involves a series of human resource

activities, aiming to select, train, and retain competent individuals with the necessary talents to execute comprehensive SCM strategies, manage operational challenges, and engage with global network partners (Fernando & Wulansari, 2021). P2 shared the need to train people and teach them that if they are not entirely sure and do not understand their work and how it reflects on the final job, this can hurt the supply chain.

Negotiating strategies with suppliers and maintaining flexibility in operations are also vital for adaptation and resilience: negotiating strategies and the ability to say *no* when necessary for maintaining honesty and managing expectations. Continuously assess and adjust strategies to ensure alignment with evolving environments. Supplier evaluation significantly enhances productivity and profitability while also improving the competitiveness of the entire supply chain when well-managed (Tekez et al., 2019). P3 shared that relying on a few suppliers is ineffective, so they diversified suppliers to ensure backup and support for primary suppliers, which proved to be the most helpful strategy.

Lastly, visibility into processes and proactive planning remain essential for effective supply chain management. P3 shared, “We have had to review the whole process with our big suppliers and come back with other options and final prices.” Consistently evaluating processes and remaining open to change is vital for maintaining a competitive and resilient supply chain. These practices foster a culture of continuous improvement, innovation, and adaptability. These insights highlight the multifaceted nature of supply chain mitigation efforts and the importance of proactive, collaborative, and adaptable approaches in addressing disruptions.

Theme 2: Processes and Routines

This theme represents an aspect of the processes and routines that support supply chain mitigation strategies in manufacturing firms. This theme consisted of inputs from all six participants with 42 references to the database of study codes sharing how managers successfully mitigate disruptions (see Table 2). Five subthemes supported this theme: the evidence for the critical roles of bureaucratic transparency and collaboration, environmental analysis, talent management, efficient inventory management, and logistics management in processes and routines comes from the responses obtained during the interviews. Effective logistics management, understanding and optimizing supply chain processes, automation of processes where possible, meeting timelines, and daily monitoring of operations are crucial elements in this category.

Table 2

Theme 2 Processes and Routine Subthemes

Subtheme	# of sources	Frequency
Bureaucratic transparency and collaboration	2	4
Environmental analysis	4	5
Talent management	3	12
Inventory management	4	15
Logistics management	5	6

The interview findings underscore the significance of critical processes and routines in mitigating supply chain disruptions. Bureaucratic transparency and collaboration emerge as crucial factors, with respondents highlighting challenges associated with bureaucratic procedures and advocating for greater transparency and knowledge sharing. Government transparency has become integral to an open

government strategy encompassing citizen participation and collaboration (Chen & Chang, 2020). P1 stated the importance of involving bureaucracy and those who manage it, and despite significant investment in training, some bureaucrats fail to share customer knowledge.

Environmental analysis is essential for anticipating and preparing for disruptions, with respondents emphasizing the need to monitor geopolitical events and natural disasters. P5 added,

I wanted to give the example that we have a supplier that is struggling a little bit more with the things that are going on with Ukraine because they are buying some of the key components of their product to Russia, and since everything that is happening now, it's not possible to buy from Russia.

P4 shared, "It is important to be up to date with global situations and the changes that occur every day so that planning from point zero of purchasing and suppliers' selections is adequate for a successful supply chain." Global supplier collaboration and understanding the impact of uncontrollable factors such as wartime are essential in mitigating the supply chain.

Talent management remains a critical challenge, particularly in hiring qualified personnel with the necessary skills for supply chain management. P6 said, "The least effective strategy is hiring the right people. I wish there were more people in the supply chain industry." P2 said,

I continue talking about personnel; we need to revise job profiles periodically. We have to make sure to let the personnel know the exact descriptions and actions

they have to do to accomplish the company's day-to-day goals they need to meet. Talent management is crucial for organizations as it ensures the recruitment, development, and retention of skilled and motivated employees, directly contributing to sustained competitive advantage and organizational success.

Inventory management strategies, including implementing software and maintaining inventory reserves, are highlighted as effective measures for ensuring supply chain resilience. Gupta et al. (2021) argued that logistics providers focus on the progress of developing mutual trust with all stakeholders to become the top-notch choice of their customers. P4 shared that having inventory in a national territory in strategically controlled areas helps avoid shortages and have material available. Logistics management is a major challenge for four participants, with transportation issues and supplier rate increases posing significant hurdles. P3 stated that the key barriers have been the availability of products and transportation.

The COVID-19 pandemic has highlighted the need for a paradigm shift in supply chain and logistics operations to respond to myriad disruptions, resulting in a more resilient, agile, flexible, and adaptable supply chain (Kasheem et al., 2024). Dynamic capability theory indicates that the success of an organization depends on its ability to adapt to rapidly changing environments and to exploit available resources effectively (Xi et al., 2024). Five of the six participants noted logistics management as one of the main factors for mitigating disruptions. One participant mentioned that an internal strategy is to have inventory reserves or use the strategic control compromises offered by logistic companies to manage better and control inventories to avoid shortages.

Understanding processes and automating routines are essential for streamlining operations and reducing human involvement. Meeting timelines remain crucial for ensuring timely delivery to customers, with daily monitoring cited as a critical practice for promptly identifying and addressing potential disruptions. P6 said the biggest challenge was to expedite things, but it was not always possible. Overall, the findings highlight the importance of robust processes and routines in building resilience and mitigating supply chain disruptions.

Theme 3: Organizational Structures

This theme represents aspects within the organizational structures that support supply chain mitigation strategies in manufacturing firms. It consisted of inputs from all six participants and 62 references to the database of study codes sharing how managers successfully mitigate disruptions. Four subthemes supported this theme: workforce turnover, diversified suppliers, software investment, and strategic partner collaboration.

Table 3

Theme 3 Organizational Structures Subthemes

Subtheme	# of sources	Frequency
Workforce turnover	3	12
Diversify suppliers	5	17
Software investment	4	17
Strategic partner collaboration	6	16

The findings highlight several crucial processes and routines within organizational structures that play critical roles in mitigating supply chain disruptions. Workforce turnover emerges as a significant challenge, with three respondents noting the impact of losing skilled personnel on supply chain operations. The world grapples with a

persistent shortage of qualified employees, exacerbated by factors like staff migration, turnover, and unforeseen crises such as wars, pandemics, and other societal disruptions (Szajna & Kostrzewski, 2022). Four participants emphasized diversifying suppliers as a strategic approach to reducing dependency and enhancing resilience in the face of disruptions, with respondents advocating for adopting multiple supplier options to mitigate risks.

Discussing workforce turnover involves examining its causes, impacts, and mitigation strategies. Workforce turnover, the rate at which employees leave a company and are replaced, is a critical factor in organizational performance, particularly in the supply chain and manufacturing industries. P1 mentioned everything revolved around the people within the firm. P6 shared, “That’s the biggest problem because when we have the right people with the right knowledge, these people leave and go to another place.” High workforce turnover can significantly disrupt operations, increase costs, and negatively impact employee morale, making it essential for organizations to implement effective retention strategies.

Three participants identified investment in software as instrumental in improving supply chain visibility and efficiency. However, challenges related to software implementation and learning curves are acknowledged. While two participants mentioned that the new software rollout was advantageous to their firm, another reported conflicting results. The problem resulted from the lack of communication and training follow-through to ensure employees were confident in their responsibilities with the software program. P5 shared, “There is a curve to learn about the software, and the people that

work with us, all of our managers, struggle a little bit learning the software.” Effective software implementation streamlines operations enhances efficiency, and drives innovation, boosting overall performance and competitiveness.

Enhanced visibility in sustainable supply chains is crucial for stakeholders to exchange essential information, benefiting sustainability objectives by mitigating waste and environmental risks and improving social, ethical, and operational aspects (Apeji & Sunmola, 2022). Kalkanci et al. (2019) contend that innovation should include various stakeholders because successful innovation requires profit firms to collaborate with the government, civil society, and individuals. Strategic management practices, including collaboration with key partners, are cited as essential for addressing supply chain vulnerabilities and ensuring timely responses to disruptions. P3 shared, “The most important is having key partners and partnering with our customers.” Additionally, P5 mentioned the significance of healthy relationships with clients and suppliers.

Supply chain relationships facilitate innovation through the exchange of technology and information, the commitment of the partners, and the coordination of work (Bouncken et al., 2020). Many reasons account for the importance of strategic decisions, such as collaborating partner selection (Tirkolae et al., 2020; Xia et al., 2020). Chauhan et al. (2022) expressed that retailers collaborate with manufacturers to purchase products and depend on strategic partners who help create competitively differentiated and sustainable products.

Understanding the global macro environment is deemed critical by all participants for anticipating and preparing for potential disruptions, with respondents underscoring

the importance of staying informed about global economic factors and geopolitical events. Globalization is inevitably shaping our daily lives as the interrelationships and interdependencies among and between countries have increased and steadily grown (Fernando & Wulansari, 2021). Partnering with dependable logistic service providers is highlighted as a critical strategy for optimizing supply chain performance and mitigating risks associated with transportation delays. P4 identified reliable logistics service providers with extensive experience, specialized cargo expertise, and substantial financial resources that can effectively handle any arising issues. P6 mentioned the weather added to logistical delays in receiving material on time. Overall, the findings underscore the importance of robust processes and routines within organizational structures for building resilience and effectively managing supply chain disruptions.

Theme 4: Disciplines

This theme represents aspects within the disciplines that support supply chain mitigation strategies in manufacturing firms. This theme consisted of inputs from all six participants with 76 references to the database of study codes sharing how managers successfully mitigate disruptions. Seven subthemes supported this theme: emphasis on customer relationship management, ensuring customer satisfaction, timely operations, cost management, performance management, continuous evaluations, and proactive risk management. Risk management strategies are essential for maintaining a resilient and efficient supply chain, particularly in the face of natural disasters. Customer satisfaction, flexibility, agility, and operational performance significantly influence the successful implementation of a supply chain strategy; inadequate supply chain management and

failure to meet market demands may result in potential business losses (Fernando & Wulansari, 2021).

Table 4

Theme 4 Discipline Subthemes

Subtheme	# of sources	Frequency
Customer relationship management	6	15
Customer satisfaction	6	15
Timely operations	6	20
Cost management	2	6
Performance management	5	10
Continuous evaluations	4	4
Risk management	4	6

The findings underscore the significance of various processes, routines, and disciplines within organizational structures for effectively managing supply chain operations and mitigating disruptions. Customer relationship management emerges as a focal point, emphasizing measuring performance metrics such as lead times, prices, and responses from suppliers to ensure customer satisfaction. As Usman et al. (2020) explained, operational performance can be achieved by a person or group of people to achieve organizational goals by the authority and responsibility concerned. P2 shared, “We hold daily meetings to ensure product actions and customer information are effectively managed, using indicators to measure success, provide clear instructions, and achieve our daily goals while maintaining open communication.” P3 stated, “We measure performance in lead times, prices, and responses from our suppliers; that’s how we measure them and, in the end, how we perform to our customers.” The effectiveness of customer relationship management initiatives hinges on the company’s capacity to

recognize and utilize distinctions among its customers (Padilla & Ascarza, 2021).

Close collaboration with clients remained essential for understanding their expectations and delivering timely solutions. P3 emphasized that supplier performance is a crucial indicator of success in providing effective services to customers. Process management, particularly timely operations, is critical for optimizing supply chain efficiency, with software implementation playing a pivotal role in real-time monitoring and reporting. P1 shared that through determining profitability, businesses must track financials from production costs to profit margins. The ideal approach is a real-time measurement of each process component and its costs. Cost management and measurement through financial indicators remain emphasized for assessing profitability and identifying areas for improvement.

The challenges related to high-cost logistics and performance measurements, including meeting delivery times and minimizing stoppage lengths, are acknowledged as key barriers to effective supply chain management. Continuous evaluations remain emphasized for adapting strategies and addressing shortcomings to achieve organizational objectives. Risk management, particularly in response to natural disasters like the COVID-19 pandemic, is highlighted as essential for identifying and mitigating potential disruptions. Risk management and resilience involve considering both predictable and unpredictable events. Abrupt and dramatic change combines with slow and steady change to produce, at times, quantum shifts in what might otherwise have occurred (Alexander et al., 2022). Overall, the findings underscore the importance of

robust processes, ongoing evaluations, and strategic management practices for building resilience and ensuring the smooth functioning of supply chain operations.

Business Contributions and Recommendations for Professional Practice

The findings of this study hold significant implications for the professional practice of business, particularly in the realm of supply chain management. By uncovering the strategies employed by manufacturing companies to mitigate supply chain disruptions, this research offers valuable insights that can inform and enhance business practices in several ways.

Firstly, the emphasis on cultural differences and communication underscores the importance of fostering cultural intelligence and establishing effective communication channels within supply chains. Businesses need to recognize the impact of cultural diversity on operations and invest in training programs to enhance cross-cultural understanding among employees and partners. Additionally, leveraging technology platforms for communication, such as video conferencing and collaborative tools, can facilitate seamless interaction across geographical boundaries.

Organizational structures are critical in ensuring supply chain resilience, and leaders must prioritize workforce stability and knowledge retention. Strategies such as talent management, supplier diversification, and investment in software solutions can strengthen organizational capabilities and enhance agility in responding to disruptions. Moreover, proactive risk management practices, including continuous evaluation and scenario planning, are essential for identifying vulnerabilities and mitigating potential threats.

In applying dynamic capability theory, business managers should adopt a learning-oriented approach to strategy formulation and execution. This approach fosters innovation and adaptability, and employees are encouraged to experiment with new ideas and processes. Strategic flexibility enables organizations to pivot quickly in response to changing market conditions and emerging risks.

To effectively disseminate these findings, business leaders, supply chain managers, and policymakers must consider the implications of their respective domains. Industry conferences, workshops, and training sessions can serve as platforms for sharing best practices and facilitating knowledge exchange among professionals. Furthermore, academic journals and industry publications offer avenues for publishing research articles and case studies highlighting successful strategies for mitigating supply chain disruptions.

Concrete recommendations for business managers include:

1. Invest in cultural intelligence training programs to enhance cross-cultural understanding and communication within supply chains.
2. Develop robust talent management strategies to retain skilled employees and build organizational resilience.
3. Diversify supplier networks to mitigate risks associated with reliance on a single supply source.
4. Embrace technology solutions for supply chain visibility and collaboration, such as inventory management software and real-time tracking systems.
5. Foster a continuous learning and innovation culture to adapt to evolving

market dynamics and emerging risks.

6. Implement proactive risk management practices, including scenario and contingency planning, to identify and address potential disruptions before they escalate.

By implementing these recommendations, businesses can improve outcomes, enhance supply chain resilience, and position their organizations for sustained success in an increasingly volatile and uncertain business environment.

Implications for Social Change

The findings explain tangible avenues for enhancing supply chain resilience, which can profoundly impact individuals, communities, organizations, and societies. The research underscores the potential for improved operational performance, reduced disruptions, and enhanced customer satisfaction within supply chains by emphasizing the importance of effective communication, strategic management, and risk mitigation. Such improvements translate into tangible benefits for individuals and communities reliant on these supply chains for essential goods and services. Moreover, by promoting a culture of collaboration, transparency, and adaptability, the research fosters the development of resilient organizational structures capable of weathering unforeseen challenges.

Consequently, these insights advance human and social conditions by fortifying the foundations upon which economic activities, livelihoods, and societal well-being exist. Ultimately, by bolstering the resilience and effectiveness of supply chains, the research facilitates positive social change by promoting the worth, dignity, and development of individuals, communities, organizations, and societies through more

robust and responsive resource distribution and allocation systems.

Recommendations for Further Research

Further research projects related to improving business practices in supply chain resiliency could include exploring the impact of cultural intelligence training on supply chain managers' ability to navigate cultural differences and enhance communication within global supply chains. Additionally, investigating the effectiveness of collaborative platforms and digital tools in facilitating transparent communication and information sharing among supply chain stakeholders could provide valuable insights into mitigating risks and enhancing agility. Assessing the role of strategic supplier diversification strategies in building resilience against geopolitical risks and natural disasters, particularly in industries reliant on global sourcing, could offer practical implications for risk management. Exploring the potential of advanced predictive analytics and artificial intelligence technologies in proactively identifying and mitigating supply chain disruptions could lead to enhanced decision-making and operational efficiency.

Furthermore, examining the influence of organizational culture, leadership styles, regulatory frameworks, and sustainability practices on supply chain resilience could provide collective perspectives on resilience-building strategies. Investigating the effectiveness of cross-functional collaboration, workforce development initiatives, and talent management strategies in aligning supply chain strategies with broader organizational goals could offer valuable insights for enhancing supply chain resilience. It is important to acknowledge potential limitations related to participant availability, unbiased responses, knowledge about the topics, and understanding of questions due to

language translations, as these factors could impact the validity and transferability of the study's findings.

Conclusion

In conclusion, this research paper delved into the strategies employed by manufacturing companies to mitigate supply chain disruptions, exploring key factors such as cultural differences, communication, organizational structures, and disciplines. Through interviews with industry professionals, several recurring themes emerged, shedding light on the challenges faced and the approaches adopted to address them.

Cultural differences emerged as a significant barrier, impacting the understanding of processes and communication within the supply chain. Participants emphasized overcoming these differences through effective communication channels and cultural intelligence training. Communication remains crucial for ensuring transparency, collaboration, and timely information sharing among stakeholders. Language barriers and coordination issues due to different time zones further complicated communication efforts, necessitating innovative solutions and proactive engagement.

Organizational structures played a pivotal role in mitigating disruptions, with workforce turnover challenging knowledge retention and continuity. Strategies such as supplier diversification and investment in software were employed to enhance resilience and adaptability. Dynamic capability theory provided a lens through which to analyze these findings, emphasizing the importance of organizational learning, resource deployment, and strategic flexibility in responding to environmental changes.

Disciplines such as customer relationship, process, and cost management were

integral to effective supply chain management. Customer satisfaction, operational performance, and meeting delivery timelines emerged as critical metrics for evaluating success. Evaluation and risk management practices remain essential for proactive decision-making and performance improvement.

In applying the dynamic capability theory, the research revealed how manufacturing companies leverage their internal capabilities to respond to external disruptions, emphasizing the need for strategic alignment, organizational agility, and learning orientation. The findings underscored the dynamic nature of supply chain management, requiring companies to constantly adapt and innovate to remain competitive in an evolving global landscape.

Furthermore, further research could explore the efficacy of specific interventions, such as cultural intelligence training and technology adoption, in enhancing supply chain resilience. Investigating the influence of organizational culture, leadership styles, and regulatory frameworks on supply chain dynamics could provide deeper insights into practical strategies for mitigating disruptions.

Overall, this research contributes to the body of knowledge on supply chain management by providing practical insights and recommendations for manufacturing companies seeking to navigate disruptions and build resilient supply chains in an increasingly complex and uncertain business environment.

References

- Abeyssekara, N., Wang, H., & Kuruppuarachchi, D. (2019). Effect of supply-chain resilience on firm performance and competitive advantage: A study of the Sri Lankan apparel industry. *Business Process Management Journal*, 25(7), 1673–1695. <https://doi.org/10.1108/BPMJ-09-2018-0241>
- Agrawal, A., Sharma, A., & Srivastava, P. K. (2022). Blockchain adoption in Indian manufacturing supply chain using T–O–E framework. In *9th International Conference on Computing for Sustainable Global Development (INDIACom)*, 737–742. <https://doi.org/10.23919/INDIACom54597.2022.9763168>
- Ajayi, M. O., & Laseinde, O. T. (2023). A review of supply chain 4IR management strategy for appraising the manufacturing industry’s potentials and shortfalls in the 21st century. *Procedia Computer Science*, 217(2023), 513–525. <https://doi.org/10.1016/j.procs.2022.12.247>
- Akhavan, P., Rajabion, L., & Philsoophian, M. (2021). The concept of resilience in the supply chain: A grounded theory approach. In *2021 International Conference on Computational Science and Computational Intelligence (CSCI)*, 1881–1885. <https://doi.org/10.1109/CSCI54926.2021.00353>
- Alexander, A., Blome, C., Schleper, M. C., & Roscoe, S. (2022). Managing the ‘new normal’: The future of operations and supply chain management in unprecedented times. *International Journal of Operations & Production Management*, 42(8), 1061–1076. <https://doi.org/10.1108/IJOPM-06-2022-0367>
- Alkhatib, S. F., & Momani, R. A. (2023). Supply chain resilience and operational

performance: the role of digital technologies in Jordanian manufacturing firms. *Administrative Sciences*, 13(2), 1–25. <https://doi.org/10.3390/admsci13020040>

Alkhudary, R., Queiroz, M. M., & Féliès, P. (2024). Mitigating the risk of specific supply chain disruptions through blockchain technology. *Supply Chain Forum: International Journal*, 25(1), 1–11. <https://doi.org/10.1080/16258312.2022.2090273>

Ambrogio, G., Filice, L., Longo, F., & Padovano, A. (2022). Workforce and supply chain disruption as a digital and technological innovation opportunity for resilient manufacturing systems in the COVID–19 pandemic. *Computers & Industrial Engineering*, 169, Article 108158, 1–20. <https://doi.org/10.1016/j.cie.2022.108158>

Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Deirdre Hollingsworth, T. (2020). How will country–based mitigation measures influence the course of the COVID–19 epidemic? *The Lancet*, Lancet Publishing Group, 395, Article 10228, 931–934. [https://doi.org/10.1016/S0140–6736\(20\)30567–5](https://doi.org/10.1016/S0140–6736(20)30567–5)

Andersson, R., & Pardillo–Baez, Y. (2020). The six sigma framework improves. The awareness and management of supply–chain risk. *The TQM Journal*, 32(5), 1021–1037. <https://doi.org/10.1108/TQM–04–2019–0120>

Apeji, U. D., & Sunmola, F. T. (2022). Principles and factors influencing visibility in sustainable supply chains. *Procedia Computer Science*, 200(2022), 1516–1527. <https://doi.org/10.1016/j.procs.2022.01.353>

Azaron, A., Venkatadri, U., & Farhang Doost, A. (2021). Designing profitable and

responsive SC under uncertainty. *International Journal of Production Research*, 59(1), 213–225. <https://doi.org/10.1080/00207543.2020.1785036>

Bag, S., Gupta, S., & Kumar, S. (2021). Industry 4.0 adoption and 10R advance manufacturing capabilities for sustainable development. *International Journal of Production Economics*, 231, Article 10844, 1–12. <https://doi.org/10.1016/j.ijpe.2020.107844>

Bag, S., Wood, L. C., Xu, L., Dhamija, P., & Kayikici, Y. (2020). Big data analytics as an operational excellence approach to enhance sustainable supply chain performance. *Resources, Conservation and Recycling*, 153, Article 104559, 1–10. <https://doi.org/10.1016/j.resconrec.2019.104559>

Baghersad, M., Zobel, C. W., Lowry, P. B., & Chatterjee, S. (2022). The roles of prior experience and the location on the severity of supply chain disruptions. *International Journal of Production Research*, 60(16), 5051–5070. <https://doi.org/10.1080/00207543.2021.1948136>

Bastas, A., & Garza-Reyes, J. A. (2022). Impact of the COVID–19 pandemic on manufacturing operations and supply chain resilience: effects and response strategies. *Journal of Manufacturing Technology Management*, 33(5), 962–985. <https://doi.org/10.1108/JMTM-09-2021-0357>

Belhadi, A., Kamble, S., Jabbour, C. J. C., Gunasekaran, A., Ndubisi, N. O., & Venkatesh, M. (2021). Manufacturing and service supply chain resilience to the COVID–19 outbreak: Lessons learned from the automobile and airline industries. *Technological Forecasting & Social Change*, 163, Article 120447, 1–19.

<https://doi.org/10.1016/j.techfore.2020.120447>

Bevilacqua, M., Ciarapica, F. E., & Marcucci, G. (2019). Supply chain resilience research trends: A literature overview. *IFAC–PapersOnLine*, 52(13), 2821–2826.

<https://doi.org/10.1016/j.ifacol.2019.11.636>

Bhangu, S., Provost, F., & Caduff, C. (2023). Introduction to qualitative research methods – Part I. *Perspectives in Clinical Research*, 14(1), 39–42.

https://doi.org/10.4103/picr.picr_253_22

Bland, W. S., Hong, A. E., Rayson, L. A., Richkus, J. A., & Rosen, S. L. (2022, December). A system dynamics model for studying the resiliency of supply chains and informing mitigation policies for responding to disruptions. In *2022 Winter Simulation Conference (WSC)*, 1235–1246.

<https://doi.org/10.1109/WSC57314.2022.10015279>

Bouncken, R. B., Ratzmann, M., Tiberius, V., & Brem, A. (2020). Pioneering strategy in supply chain relationships: How coercive power and contract completeness influence innovation. *IEEE Transactions on Engineering Management*, 69(6), 2826–2841.

<https://doi.org/10.1109/TEM.2020.3019965>

Brandon-Jones, E., Squire, B., Autry, C. W., & Petersen, K. J. (2022). A contingent resource-based perspective of supply chain resilience and robustness. *Journal of Supply Chain Management*, 50(3), 55–73. <https://doi.org/10.1111/jscm.12050>

Brusset, X., & Teller, C. (2017). Supply chain capabilities, risks, and resilience. *International Journal of Production Economics*, 184(2017), 59–68.

<https://doi.org/10.1016/j.ijpe.2016.09.008>

- Buzzao, G., & Rizzi, F. (2021). On the conceptualization and measurement of dynamic capabilities for sustainability: Building theory through a systematic literature review. *Business Strategy & the Environment*, 30(1), 135–175.
<https://doi.org/10.1002/bse.2614>
- Chauhan, C., Kaur, P., Arrawatia, R., Ractham, P., & Dhir, A. (2022). Supply chain collaboration and sustainable development goals (SDGs): Teamwork makes achieving SDGs dream work. *Journal of Business Research*, 147(2022), 290–307.
<https://doi.org/10.1016/j.jbusres.2022.03.044>
- Chen, D., Sun, D., Yin, Y., Dhamotharan, L., Kumar, A., & Guo, Y. (2022). The resilience of logistics network against node failures. *International Journal of Production Economics*, 244, Article 108373, 1–15. <https://doi.org/10.1016/j.ijpe.2021.108373>
- Chen, J., & Wang, H. (2021, July). A recovery strategy in manufacturing supply chains for long-term supply disruption. In *2021 40th Chinese Control Conference (CCC)* (6487–6492). IEEE. <https://doi.org/10.23919/CCC52363.2021.9550232>
- Chen, Y. C., & Chang, T. W. (2020). Explaining government's online transparency on collaborative policy platforms: Risk management and configurational conditions. *Public Performance & Management Review*, 43(3), 560–586.
<https://doi.org/10.1080/15309576.2019.1574591>
- Choi, Tsan-Ming. (2020). Innovative 'bring-service-near-your-home' operations under Coronavirus (COVID-19/SARSCoV-2) the outbreak: Can logistics become the Messiah? *Transportation Research Part E: Logistics and Transportation Review*, 40, Article 101961, 1–17. <https://doi.org/10.1016/j.tre.2020.101961>

- Choudhary, P., & Jain, N. K. (2022). System dynamics based on analysis of oil and gas supply chain disruptions during COVID-19. *Engineering Management Review*, 50(3), 1–20. <https://doi.org/10.1109/EMR.2022.3180003>
- Clark, K. R., & Vealé, B. L. (2018). Strategies to enhance data collection and analysis in qualitative research. *Radiologic Technology*, 89(5), 482CT-485CT. <http://www.radiologictechnology.org>
- Cuvero, M., Pilkington, A., & Barnes, D. (2021, December). Supply chain management and resilience during disruption. Evaluation of the Covid-19 pandemic on the supply of personal protective equipment. In *2021 IEEE International Conference on Industrial Engineering and Engineering Management 2021(IEEM)*, (233–237). <https://doi.org/10.1109/IEEM50564.2021.9672913>
- Deshmukh, S. G., & Haleem, A. (2020). Framework for manufacturing in post-COVID-19 world order: An Indian perspective. *International Journal of Global Business and Competitiveness*, 15(1), 49–60. <https://doi.org/10.1007/s42943-020-00009-1>
- Dohale, V., Verma, P., Gunasekaran, A., & Ambilkar, P. (2023). COVID-19 and supply chain risk mitigation: a pragmatic inquiry study from India. *The International Journal of Logistics Management*, 34(2), 417–442. <https://doi.org/10.1108/IJLM-04-2021-0197>
- Donnan, S., Rauwald, C., Deaux, J., & King, I. (2020 March 20). A COVID-19 supply chain shock born in China is going global. *Bloomberg.com*. <https://www.bloomberg.com/news/articles/2020-03-20/a-covid-19-supply-chain-shock-born-in-china-is-going-global>

DuHadway, S., Carnovale, S., & Hazen, B. (2019). Understanding risk management for intentional supply chain disruptions: Risk detection, risk mitigation, and risk recovery. *Annals of Operations Research*, 283(2019), 179–198.

<https://doi.org/10.1007/s10479-017-2452-0>

Elmersjö, M., & Rosqvist, H. (2022). The role of the researcher in participatory processes: A study of learning about place and place attachment in communities. *Forskning & Forandring*, 5(1), 85–101.

<https://doi.org/10.23865/fof.v5.3283>Links to an external site.

Farzanegan, M. R., Feizi, M., & Gholipour, H. F. (2021). Globalization and the outbreak of COVID–19: An empirical analysis. *Journal of Risk and Financial Management*, 14(3), 105. <https://doi.org/10.3390/jrfm14030105>

Fernando, Y., & Wulansari, P. (2021). Perceived understanding of supply chain integration, communication, and teamwork competency in the global manufacturing companies. *European Journal of Management and Business Economics*, 30(2), 191–210. <https://doi.org/10.1108/EJMBE-06-2020-0157>

Flynn, B. B., Koufteros, X., & Lu, G. (2016). On theory in supply chain uncertainty and its implications for supply chain integration. *Journal of Supply Chain Management*, 52(3) 3–27. <https://doi.org/10.1111/jscm.12106>

Frankowska, M., Swierczek, A. & Cheba, K. (2022). The role of double–loop learning in manufacturing supply chains. The study of the disruptions driven by COVID–19 in Poland. *Technological and Economic Development of Economy*. 29(1) 253–

277. <https://doi.org/10.3846/tede.2022.17799>

Gaikwad, P. (2017). Including rigor and artistry in case study as a strategic qualitative methodology. *The Qualitative Report*, 22(13), 3431–3446. <https://doi.org/10.46743/2160-3715/2017.3436>

Gastaldi, L., Lessanibahri, S., Tedaldi, G., & Miragliotta, G. (2022). Companies' adoption of smart technologies to achieve structural ambidexterity: An analysis with SEM. *Technological Forecasting and Social Change*, 174, Article 121187, 1–12. <https://doi.org/10.1016/j.techfore.2021.121187>

Gligor, D., Gligor, N., Holcomb, M., & Bozkurt, S. (2019). Distinguishing between the concepts of supply chain agility and resilience: A multidisciplinary literature review. *The International Journal of Logistics Management*, 30(2), 467–487. <https://doi.org/10.1108/IJLM-10-2017-0259>

Gonyora, A. M., Migiro, S., Mashau, P., & Ngwenya, B. (2022). The impact of open innovation challenges on automotive component manufacturers' competitiveness: An insight from the South African automotive industry. *African Journal of Science, Technology, Innovation & Development*, 14(4), 1139–1148. <https://doi.org/10.1080/20421338.2021.1937814>

Guha, C., Vieceili, A. K., Wong, G., Manera, K., & Tong, A. (2021). Qualitative research methods and their application in nephrology. *Nephrology*, 26(10), 755–762. <https://doi.org/10.1111/nep.13888>

Gupta, S., Drave, V. A., Dwivedi, Y. K., Baabdullah, A. M., & Ismagilova, E. (2020). Achieving superior organizational performance via big data predictive analytics:

- A dynamic capability view. *Industrial Marketing Management*, 80(2019), 581–592. <https://doi.org/10.1016/j.indmarman.2019.11.009>
- Gupta, S., Qian, X., Bhushan, B., & Luo, Z. (2019). Cloud ERP and big data's role in firm performance is a dynamic capability view theory perspective. *Management Decision*, 57(8), 1857–1882. <https://doi.org/10.1108/MD-06-2018-0633>
- Gupta, A., Singh, R. K., & Mangla, S. K. (2021). Evaluation of logistics providers for sustainable service quality: Analytics based decision-making framework. *Annals of Operations Research* (315)2022, 1617–1664. <https://doi.org/10.1007/s10479-020-03913-0>
- Hamidu, Z., Boachie-Mensah, F. O., & Issau, K. (2023). Supply chain resilience and performance of manufacturing firms: role of supply chain disruption. *Journal of Manufacturing Technology Management*, 34(3), 361–382. <https://doi.org/10.1108/JMTM-08-2022-0307>
- Hsu, C. H., Zeng, J. Y., Chang, A. Y., & Cai, S. Q. (2022). Deploying Industry 4.0 enablers to strengthen supply chain resilience to mitigate ripple effects: an empirical study of top relay manufacturer in China. *IEEE Access*, 10(2022), 114829–114855. <https://doi.org/10.1109/ACCESS.2022.3215620>
- Hashemi, S. R., Arasteh, A., & Paydar, M. M. (2023). Risk management of disruption and sustainable development of supply chains. *Interdisciplinary Journal of Management Studies (Formerly known as Iranian Journal of Management Studies)*, 16(1), 277–297. <https://doi.org/10.22059/ijms.2022.329830.674732>
- Heaton, S., Lewin, D., & Teece, D. J. (2020). Managing campus entrepreneurship:

- Dynamic capabilities and university leadership. *Managerial & Decision Economics*, 41(6), 1126–1140. <https://doi.org/10.1002/mde.3015>
- Ishida, S. (2020). Perspectives on SCM in a pandemic and the post–COVID–19 era. *IEEE Engineering Management Review*, 48(3), 146–152. <https://doi.org/10.1109/EMR.2020.3016350>
- Juntarukka, S., & Ueasangkomsate, P. (2022). The research trends and directions on innovation and dynamic capability in SMEs. 2022 IEEE technology & engineering management conference – Asia Pacific (TEMSCON–ASPAC), *Technology & Engineering Management Conference – Asia Pacific (TEMSCON–ASPAC)*, 2022(IEEE), 114–119. <https://doi.org/10.1109/TEMSCON–ASPAC52831.2022.9916549>
- Kågström, M., Faith–Ell, C., & Longueville, A. (2023). Exploring researcher’ roles in collaborative spaces supporting learning in environmental assessment in Sweden. *Environmental Impact Assessment Review*, 99, Article 106990, 1–8. <https://doi.org/10.1016/j.eiar.2022.106990>
- Kalkanci, B., Rahmani, M., & Toktay, L. B. (2019). The role of inclusive innovation in promoting social sustainability. *Production and Operations Management*, 28(12), 2960–2982. <https://doi.org/10.1111/poms.13112>
- Kamalahmadi, M., Shekarian, M., & Parast, M. (2022). The impact of flexibility and redundancy on improving supply chain resilience to disruptions. *International Journal of Production Research*, 60(6), 1992–2020. <https://doi.org/10.1080/00207543.2021.1883759>

- Karkaria, U. (2022 January 26). Quick action helps Volvo weather supply chain storm; Q&A: Ernie Norcross. *AutomotiveNews.com*
<https://www.autonews.com/dealers/volvo-dealers-quick-action-helps-weather-chip-shortage-storm>
- Kasheem, M. A., Shamsuddoha, M., & Nasir, T. (2024). Digital-era resilience: navigating logistics and supply chain operations after COVID-19. *Businesses*, 4(1), 1-17.
<https://doi.org/10.3390/businesses4010001>
- Kazmi, S. W., & Ahmed, W. (2022). A dynamic capability view is understanding dynamic distribution capabilities to enhance supply chain performance. *Benchmarking: An International Journal*, 29(9), 2822-2841.
<https://doi.org/10.1108/BIJ-03-2021-0135>
- Kissi, E., Agyekum, K., Musah, L., Owusu-Manu, D. G., & Debrah, C. (2020). Linking supply chain disruptions with organisational performance of construction firms: The moderating role of innovation. *Journal of Financial Management of Property and Construction*, 26(1), 158-180. <https://doi.org/10.1108/JFMPC-11-2019-0084>
- Kiss, T., Terstyanszky, G., Arjun, R., Sardesai, S., Goertz, M. D., & Wangenheim, M. (2022, July). Supply chain simulation as a service to increase adaptation capability in manufacturing. *2022 Annual Modeling and Simulation Conference (ANNSIM)*, 2022, IEEE (863-876).
<https://doi.org/10.23919/ANNSIM55834.2022.9859375>
- Krykavskyy, Y., Chornopyska, N., Dovhun, O., Hayvanovych, N., & Leonova, S. (2023).

Defining supply chain resilience during wartime. *Eastern–European Journal of Enterprise Technologies*, 121(13), 32–46.

<https://doi.org/10.15587/1729–4061.2023.272877>

Kumar, A., Luthra, S., Kumar Mangla, S., & Kazançoğlu, Y. (2020). COVID–19 impact on sustainable production and operations management, *Sustainable Operations and Computers*, 1(2020), 1–7, <https://doi.org/10.1016/j.susoc.2020.06.001>

Ivanov, D. (2024). Exiting the COVID–19 pandemic: after–shock risks and avoidance of disruption tails in supply chains. *Annals of Operation Research*, 335(3), 1627–1644. <https://doi.org/10.1007/s10479–021–04047–7>

Laguir, I., Modgil, S., Bose, I., Gupta, S., & Stekelorum, R. (2023). Performance effects of analytics capability, disruption orientation, and resilience in the supply chain under environmental uncertainty. *Annals of Operations Research*, 324(1/2), 1269–1293. <https://doi.org/10.1007/s10479–021–04484–4>

Lewis, D., Bakke, A., Cook, A., James, J., & Griffiths, C. (2024). The experience of multilingual doctoral students related to academic success: A descriptive qualitative study. *Journal of Educational Research and Practice*, 14(1) 337–341. <https://doi.org/10.5590/JERAP.2024.14.1.03>

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Machado, C. G., Winroth, M. P., and da Silva, E.H.D. (2020). Sustainable manufacturing in Industry 4.0: An emerging research agenda, *International Journal of Production Research*, 58(5), 1462–1484.

<https://doi.org/10.1080/00207543.2019.1652777>

- Maloni, M. J., Hiatt, M. S., & Astrachan, J. H. (2017). Supply management and family business: A review and call for research. *Journal of Purchasing & Supply Management*, 23(2), 123–136. <https://doi.org/10.1016/j.pursup.2016.12.002>
- Mangla, S. K., Kusi-Sarpong, S., Luthra, S., Bai, C., Jakhar, S. K., & Khan, S. A. (2020). Operational excellence for improving sustainable supply chain performance. *Resources, Conservation, and Recycling*, 162, Article 105025, 1–3. <https://doi.org/10.1016/j.resconrec.2020.105025>
- Marchesini, M. M. P., & Alcântara, R. L. C. (2016). Logistics activities in supply chain business process: A conceptual framework to guide their implementation. *International Journal of Logistics Management*, 27(1), 6–30. <https://doi.org/10.1108/IJLM-04-2014-0068>
- Maurer, S. M. (2017 January, 30). The new self-governance: A theoretical framework. *Business & Politics*, 19(1), 4–67. <https://doi.org/10.1017/bap.2016.4>
- Merz, B., Blöschl, G., Vorogushyn, S., Dottori, F., Aerts, J. C., Bates, P., Bertola, M., Kemter, M., Lall, U., & Macdonald, E. (2021). Causes, impacts and patterns of disastrous river floods. *Nature Reviews Earth & Environment*, 2(9), 592–609. <https://doi.org/10.1038/s43017-021-00195-3>
- Mittendorf, B., Shin, J., & Yoon, D.-H. (2022). Information disclosure policy and its implications: ratcheting in supply chains. *Journal of Marketing Research (JMR)*, 59(2), 290–305. <https://doi.org/10.1177/00222437211035115>
- Motulsky, S. L. (2021). Is member checking the gold standard of quality in qualitative research? *Qualitative Psychology*, 8(3), 389–406.

<https://doi.org/10.1037/qup0000215>

Montano, F. J. M. (2023). A model for improving communication in manufacturing and services companies in an industry 4.0 environment. *2023 Future of Educational Innovation–Workshop Series Data in Action*, 2023(1), 1–5.

<https://doi.org/10.1109/IEEECONF56852.2023.10105031>

Moyer, D., Ostertag, M., & Gershenson, J. (2022). Mitigation intermediary transactions within Kenya’s agricultural supply chain. *2022 IEEE Global Humanitarian Technology Conference (GHTC), Global Humanitarian Technology Conference (GHTC), 2022(IEEE)*, 250–256.

<https://doi.org/10.1109/GHTC55712.2022.9910996>

Nezhyva, M., Olha, Z., & Viktoriia, M. (2021, June). International trade RM under the impact of globalization. *SHS Web of Conferences*, 111, Article 01016, 1–10.

<https://doi.org/10.1051/shsconf/202111101016>

Okorie, O., Ramesh, S., Charnley, F., Patsavellas, J., Widdifield, D., & Salonitis, K. (2020). Manufacturing in the time of COVID–19: an assessment of barriers and enablers. *IEEE Engineering Management Review*, 48(3), 167–175,

<https://doi.org/10.1109/EMR.2020.3012112>

Olanrewaju, A., Sulaiman, A., Olayinka, S., & Taiwo, O. (2021). SCM practices and manufacturing firms’ performance: Professionals’ experience in Nigeria.

Economics and Culture, 18(2), 28–40. <https://doi.org/10.2478/jec-2021-0012>

Padilla, N., & Ascarza, E. (2021). Overcoming the cold start problem of customer relationship management using a probabilistic machine learning approach.

Journal of Marketing Research (JMR), 58(5), 981–1006.

<https://doi.org/10.1177/00222437211032938>

Panwar, R., Pinkse, J., & De Marchi, V. (2022). The future of global supply chain in a post–COVID–19 world. *California Management Review*, 64(2), 5–23.

<https://doi.org/10.1177/00081256211073355>

Park, Y. W., Blackhurst, J., Paul, C., & Scheibe, K. P. (2022). An analysis of the ripple effect for disruptions occurring in circular flows of a supply chain network.

International Journal of Production Research, 60(15), 4693–4711.

<https://doi.org/10.1080/00207543.2021.1934745>

Parast, M. M. (2020). The impact of R&D investment on mitigating supply chain disruptions: Empirical evidence from US firms. *International Journal of Production Economics*, 227, Article 107671, 1–15.

<https://doi.org/10.1016/j.ijpe.2020.107671>

Peesker, K. M., Ryals, L. J., Rich, G. A., & Boehnke, S. E. (2019). A qualitative study of leader behaviors perceived to enable salesperson performance. *Journal of Personal Selling & Sales Management*, 39(4), 319–333.

<https://doi.org/10.1080/08853134.2019.1596816>

Pereira, C. R., da Silva, A. L., Tate, W. L. & Christopher, M. (2020). Purchasing and supply management (PSM) contribution to supply–side resilience, *International Journal of Production Economics*, 228, Article 107740, 1–16.

<https://doi.org/10.1016/j.ijpe.2020.107740>

Petreska, E. (2022). Managing virtual teams. *Economic Development / Ekonomiski*

Razvoj, 24(4), 160–173. Accessed April 27, 2024.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=bth&AN=164714970&site=eds-live&scope=site>

Phan, P. H., & Wood, G. (2020). Doomsday scenarios (or the black swan excuse for unpreparedness). *Academy of Management Perspectives*, 34(4), 425–433.

<https://doi.org/10.5465/amp.2020.0133>

Piening, E. P., & Salge, T. O. (2015). Understanding process innovation's antecedents, contingencies, and performance implications: A dynamic capabilities perspective. *Journal of Product Innovation Management*, 32(1), 80–97.

<https://doi.org/10.1111/jpim.12225>

Pisano, G. P. (2019). Response to comments on a prescriptive theory of dynamic capabilities. *Industrial & Corporate Change*, 28(2), 419–421.

<https://doi.org/10.1093/icc/dtz001>

Quintão, C., Andrade, P., & Almeida, F. (2020). How to improve the validity and reliability of a case study approach? *Journal of Interdisciplinary Studies in Education*, 9(2), 264–275. <https://doi.org/10.32674/jise.v9i2.2026>

Ramos, E., Patrucco, A. S., & Chavez, M. (2023). Dynamic capabilities in the “new normal”: A study of organizational flexibility, integration, and agility in the Peruvian coffee supply chain. *SCM: An International Journal*, 28(1), 55–73.

<https://doi.org/10.1108/SCM-12-2020-0620>

Range, L. M. (2023). *Case study methodologies*. Salem Press Encyclopedia of Health.

Ratnayake, R. C. (2022, December). On the necessity for improving effectiveness of

qualification process for spare parts additive manufacturing in a circular economy supply chain. In *2022 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, 0417–0422. IEEE.

<https://doi.org/10.1109/IEEM55944.2022.9989736>

Robins, C. S., & Eisen, K. (2017). Strategies for effectively using NVivo in a large-scale study: Qualitative analysis and the repeal of don't ask, don't tell. *Qualitative Inquiry*, 23(10), 768–778. <https://doi.org/10.1177/1077800417731089>

Robinson, O. C. (2014). Sampling in the interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology*, 11, 25–41. <https://doi.org/10.1080/14780887.2013.801543>

Rogerson S., Svanberg M., & Santén V. (2022). Supply chain disruptions: Flexibility measures when encountering capacity problems in a port conflict. *The International Journal of Logistics Management*, 33(2), 567–589. <https://doi.org/10.1108/IJLM-03-2020-0123>

Sabahi, S., & Parast, M. M. (2020). Firm innovation and supply chain resilience: A dynamic capability perspective. *International Journal of Logistics Research and Applications*, 23(3), 254–269. <https://doi.org/10.1080/13675567.2019.1683522>

Sainsbury, D. (2020). Toward a dynamic capability theory of economic growth. *Industrial & Corporate Change*, 29(4), 1047–1065.

<https://doi.org/10.1093/icc/dtz054>

Sarkis, J. (2021). Supply chain sustainability: Learning from the COVID-19 pandemic. *International Journal of Operations & Production Management*, 41(1), 63–73.

<https://doi.org/10.1108/IJOPM-08-2020-0568>

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52(2018), 1893–1907.

<https://doi:10.1007/s11135-017-0574-8>

Scholten, K., Stevenson, M., & Van Donk, D.P. (2020). Dealing with the unpredictable: supply chain resilience, *International Journal of Operations and Production Management*, 40(1), 1–10. <https://doi.org/10.1108/IJOPM-01-2020-789>

Sedamaki, K., & Kattepur, A. (2022, December). Supply chain delay mitigation via supplier risk index assessment and reinforcement learning. In *2022 IEEE 1st International Conference on Data, Decision and Systems (ICDDS)* (1–6). IEEE.

<https://doi.org/10.1109/ICDDS56399.2022.10037409>

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.

Sharakhin, P. S., Levchenko, A. V., & Kaminskiy, S. S. (2022, September). Automation of routine information processes in the supply chain: Search methodology and tool, evaluation of potential based on lean manufacturing. In *2022 International Conference on Quality Management, Transport and Information Security, Information Technologies (IT&QM&IS)* (pp. 278–283). IEEE.

<https://doi.org/10.1109/ITQMIS56172.2022.9976798>

Smith, C., & Fatorachian, H. (2023). COVID-19 and supply chain disruption management: A behavioral economics perspective and future research

- direction. *Journal of Theoretical & Applied Electronic Commerce Research*, 18(4), 2163–2187. <https://doi.org/10.3390/jtaer18040109>
- Song, H., Chang, R., Cheng, H., Liu, P., & Yan, D. (2024). The impact of manufacturing digital supply chain on supply chain disruption risks under uncertain environment—Based on dynamic capability perspective. *Advanced Engineering Informatics*, 60, Article 102385, 1–16. <https://doi.org/10.1016/j.aei.2024.102385>
- Sukoco, A., Vanany, I., & Purnomo, J. D. T. (2022). Supply chain disruptions during the COVID-19 pandemic in general trading companies. *2022 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM), Industrial Engineering and Engineering Management (IEEM), 2022 IEEE International Conference On*, 1010–1014. <https://doi.org/10.1109/IEEM55944.2022.9989867>
- Sunder M, V., S, G. L., & Marathe, R. R. (2023). A dynamic capabilities view of lean in a service context. *IEEE Transactions on Engineering Management, Engineering Management, IEEE Transactions on, IEEE Trans. Eng. Manage*, 70(11), 3887–3901. <https://doi.org/10.1109/TEM.2021.3089850>
- Sytch, M., Kim, Y., & Page, S. (2022). Supplier–selection practices for robust global supply chain networks: A simulation of the global auto industry. *California Management Review*, 64(2), 119–142. <https://doi.org/10.1177/00081256211070335>
- Szajna, A. T. & Kostrzewski, M. (2022). AR–AI tools as a response to high employee turnover and shortages in manufacturing during regular, pandemic and war times.

Sustainability, 14(11), 1–17. <https://doi.org/10.3390/su14116729>

- Tao, Y., Lai, X., & Zhou, S. (2023). Information sharing in a transparent supply chain with transportation disruptions and supplier competition. *Annals of Operations Research*, 329(1/2), 307–329. <https://doi.org/10.1007/s10479-020-03724-3>
- Tarei, P. K., Thakkar, J. J., & Nag, B. (2020). Benchmarking the relationship between supply chain risk mitigation strategies and practices: an integrated approach. *Benchmarking: An International Journal*, 27(5), 1683–1715. <https://doi.org/10.1108/BIJ-12-2019-0523>
- Teece, D. J., Pisano, G. P., & Shuen, A. (1992). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7) 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AIDSMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AIDSMJ882>3.0.CO;2-Z)
- Teerasoponpong, S., & Sugunnasil, P. (2022, January). Review on artificial intelligence applications in manufacturing industrial supply chain–industry 4.0's perspective. In *2022 Joint International Conference on Digital Arts, Media, and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON)* (406–411). IEEE. <https://doi.org/10.1109/ECTIDAMTNCN53731.2022.9720417>
- Tekez, E. K., Kar, F., & Toklu, M. C. (2019). A new model for continuous evaluation of suppliers with real execution data. *Journal of Engineering Research* (2307–1877), 7(2), 298–314. <https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=edb&>

[AN=137046142&site=eds-live&scope=site>](#)

Tirkolae, E. B., Mardani, A., Dashtian, Z., Soltani, M., & Weber, G. W. (2020). A novel hybrid method using fuzzy decision making and multi-objective programming for sustainable–reliable supplier selection in two-echelon supply chain design.

Journal of Cleaner Production, 250, Article 119517, 1–6.

<https://doi.org/10.1016/j.jclepro.2019.119517>

Toloui-Wallace, J., Forbes, R., Thomson, O. P., & Setchell, J. (2022). When worlds collide: Experiences of physiotherapists, chiropractors, and osteopaths working together. *Musculoskeletal Science and Practice*, 60, Article 102564, 1–7.

<https://doi.org/10.1016/j.msksp.2022.102564>

Usman, I., Hartani, N. H., & Sroka, M. (2020). Operational performance of SME: the impact of entrepreneurial leadership, good governance, and business process management. *Polish journal of management studies*, 21(1), 408–418.

<https://doi.org/10.17512/pjms.2020.21.1.30>

United Nations Industrial Development Organization (UNIDO) (2022), World manufacturing production report.

<https://stat.unido.org/content/publications/world-manufacturing-production.org>

Valencia, A. (2022). Principles, scope, and limitations of the methodological triangulation. *Investigacion y Educacion en Enfermeria*, 40(2), 33–46.

<https://doi.org/10.17533/udea.iee.v40n2e03>

Wamba, S. F., Dubey, R., Gunasekaran, A., & Akter, S. (2020). The performance effects of big data analytics and supply chain ambidexterity: The moderating effect of

- environmental dynamism. *International Journal of Production Economics*, 222, Article 107498, 1–14. <https://doi.org/10.1016/j.ijpe.2019.09.019>
- Weerabahu, W. S. K., Samaranayake, P., Nakandala, D., & Hurriyet, H. (2021, December). Enabling factors of digital manufacturing supply chains: a systematic literature review. In *2021 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)* (118–123). <https://doi.org/10.1109/IEEM50564.2021.9672941>
- Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic capabilities and performance: strategy, structure, and environment. *Long range planning*, 46(1/2), 72–96. <https://doi.org/10.1109/IEEM50564.2021.9672941>
- Xi, M., Liu, Y., Fang, W., & Feng, T. (2024). Intelligent manufacturing for strengthening operational resilience during the COVID-19 pandemic: A dynamic capability theory perspective. *International Journal of Production Economics*, 267, Article 109078, 1–11. <https://doi.org/10.1016/j.ijpe.2023.109078>
- Xia, W., Li, B., & Yin, S. (2020). A prescription for urban sustainability transitions in China: Innovative partner selection management of green building materials industry in an integrated supply chain. *Sustainability*, 12(7), 1–25. <https://doi.org/10.3390/su12072581>
- Yang, Y., & Peng, C. (2023). MPC-based change management of supply chain under disruption risks: The case of battery industry. *IEEE/CAA Journal of Automatica Sinica*, 10(9), 1896–1898. <https://doi.org/10.1109/JAS.2023.123294>
- Yılmaz, Ö. F., Özçelik, G., & Yeni, F. B. (2021). Ensuring sustainability in the reverse

supply chain in case of the ripple effect: A two-stage stochastic optimization model. *Journal of Cleaner Production*, 282, Article 124548, 1–17.

<https://doi.org/10.1016/j.jclepro.2020.124548>

Yin, R. K. (2018). *Pragmatic inquiry study research and applications: Design and methods* (6th Edition). Sage.

Zhang, Y. (2022). Economic globalization and corporate accounting risks: An analysis of enterprise RM based on big data. *Security & Communication Networks*, 2023(1), 1–11. <https://doi.org/10.1155/2022/8673357>

Appendix A: Email Invitation for Potential Participants

There is a new study about supply chain strategies that could help managers mitigate supply chain disruption. For this study, you are invited to describe your experiences as a supply chain manager in the manufacturing industry.

About the study:

- One 30–60–minute phone interview that will be audio–recorded (no videorecording)
- You would receive a \$50 Visa gift card as a thank you
- To protect your privacy, the published study will not share any names or details that identify you.

Volunteers must meet these requirements:

- Current position as Supply Chain Manager within the firm
- Minimum 3-years experience in supply chain management

This interview is part of the doctoral study for Trisha George, a DBA student at Walden University. Interviews will take place during March 14–March 15.

Please reach out to let the researcher know of your interest. You are welcome to forward it to others who might be interested.

Appendix B: Interview Questions

1. You What key barriers have you overcome in developing strategies to mitigate SC disruptions?
2. What resources do you use to implement strategies to mitigate supply chain disruptions?
3. What challenges have you encountered while implementing strategies to mitigate supply chain disruptions to remain profitable?
4. How did implementing the strategies help to mitigate the supply disruptions?
5. How did you measure the effectiveness of selected strategies to mitigate supply disruptions?
6. What strategies were least effective?
7. Do you have any additional information you would like to include about strategies you used to mitigate supply chain disruptions?