A RESEARCH PROPOSAL ON RISK MANAGEMENT IN PROCUREMENT: EVALUATING STRATEGIES FOR MITIGATING SUPPLIER DISRUPTIONS

BY:

GODWIN ODIGIE OMHENIMHEM

PG/SPE2416322

SUPERVISOR:

PROF. MRS. E. L. LZILEIN

FACULTY OF SUSTAINABLE PROCUREMENT, ENVIRONMENTAL AND SOCIAL STANDARDS ENHANCEMENT, (SPESSE).

DEPARTMENT: PROCUREMENT MANAGEMENT.

UNIVERSITY OF BENIN, BENIN CITY.

NOVEMBER, 2025.

A RESEARCH PROPOSAL ON RISK MANAGEMENT IN PROCUREMENT: EVALUATING STRATEGIES FOR MITIGATING SUPPLIER DISRUPTIONS

BY

GODWIN ODIGIE OMHENIMHEM

MAT. NO.

PG/SPE2416322

BEING A THESIS SUBMITTED TO DEPARTMENT OF PROCUREMENT MANAGEMENTT, UNIVERSITY OF BENIN,

BENIN CITY.

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE (PROCUREMENT MANAGEMENT) OF THE DEPARTMENT OF PROCUREMENT MANAGEMENT, FACULTY OF SUSTAINABLE PROCUREMENT, ENVIRONMENTAL AND SOCIAL STANDARDS ENHANCEMENT, (SPESSE), UNIVERSITY OF BENIN,

BENIN CITY.

NOVEMBER, 2025

CERTIFICATION

We certify that this project**,** ***A RESEARCH PROPOSAL ON RISK MANAGEMENT IN PROCUREMENT: EVALUATING STRATEGIES FOR MITIGATING SUPPLIER DISRUPTIONS***, was carried out **GODWIN ODIGIE OMHENIMHEM** in the Department of Procurement Management, Faculty of Sustainable Procurement, Environmental and Social Standards Enhancement (SPESSE), University of Benin, Benin City, Nigeria.

Prof. Mrs. E. L. Lzilein
(Project Supervisor) **Date:……**

Prof. D.E. Oriakhi
(Deputy Centre Leader/HOD) **Date:……...**

Prof .Sylvester Osuji.
(Centre Leader.) **Date:……**

DEDICATION

This work is dedicated to Almighty God for His boundless mercy, love, and grace that continually guide me in my pursuit of excellence in procurement practice.

ACKNOWLEDGEMENT

I wish to express my heartfelt gratitude to my supervisor, **Prof. Mrs. E. L. Izilein**, for **her** invaluable guidance, constructive criticism, unwavering support, and constant encouragement throughout the course of this research. I am equally indebted to **Professor D. E. Oriakhi**, **Professor Sylvester Osuji**, and all the esteemed lecturers in the Department of Procurement Management. May God continue to bless and richly reward you all for the profound impact you have made on my academic journey.

My deepest appreciation goes to **my wife**, whose generous support and unwavering encouragement have helped me navigate the rigours of my academic pursuits with remarkable ease. I am also grateful to my family members for their steadfast emotional support and encouragement throughout the duration of this work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF CHARTS

ABSTRACT

In today's dynamic and uncertain business environment, disruptions from suppliers have become a frequent problem for many organizations. Challenges such as late deliveries, increasing costs, and unstable supply networks often arise when suppliers do not perform as expected. This study examines how companies handle these disruptions, highlighting the types of risks involved and assessing the effectiveness of measures used to reduce their impact.

The study used a survey approach involving 216 staff members from 12 medium and large organizations within the manufacturing, healthcare, and retail industries in Edo State, Nigeria. Data was collected through a structured questionnaire and analyzed using descriptive statistics and ANOVA to evaluate how well different risk management strategies work.

The findings indicate that supplier related risks such as delivery delays, poor product standards, and excessive dependence on a single supplier are widespread and have a significant influence on procurement activities. Organizations are addressing these risks through practices like using multiple suppliers, carrying out supplier assessments, and keeping buffer stock. These methods have produced moderate results, but further progress is still needed.

The study concludes that although companies are taking steps to manage supplier risks, adopting more proactive, technology-driven approaches and improving cooperation with suppliers will strengthen supply chain resilience. It recommends expanding the supplier base, investing in real-time tracking tools, and fostering stronger supplier partnerships to reduce the effect of future disruptions.

CHAPTER ONE

INTRODUCTION

1.1 Preamble

In the modern global economy, procurement has shifted from being a routine administrative activity to becoming a central strategic function within organizations. It is essential for ensuring that both private and public institutions have uninterrupted access to the goods, services, and materials required for their daily operations. Through effective procurement, organizations are able to maintain steady workflows and achieve operational efficiency (Shrivastava, Chakkaravarthy, and Shah, 2023).

As supply chains expand across multiple countries and industries, they are increasingly exposed to risks that can disrupt supplier performance. Natural disasters, political instability, public health crises such as COVID-19, economic fluctuations, and technology failures have all exposed significant weaknesses in supply chain management. Among these risks, issues linked to supplier disruptions remain one of the most critical challenges. Such disruptions not only lead to delays in the supply of essential items but also negatively affect organizational performance, customer trust, and financial outcomes (Anzolin and Aloisi, 2022).

Managing procurement risk involves recognizing potential threats, evaluating their impact, and developing strategies to prevent or minimize disruption. Supplier related risks receive particular attention due to their frequency and wide-ranging consequences (Ivanov and Dolgui, 2021).

Today, organizations are increasingly expected to build strong, proactive, and resilient procurement systems that can safeguard supply continuity and support long term sustainability. As procurement becomes more strategic, understanding how institutions manage supplier risks has become even more important (Braun and Clarke, 2021).

Many organizations now depend extensively on external suppliers for key materials and services sourced from various parts of the world. This reliance exposes procurement activities to numerous threats such as supplier bankruptcy, political conflict, natural hazards, and transportation challenges (Hohenstein, 2022). Without a structured and reliable system for detecting and managing these risks, organizations may face production delays, cost increases, reputational damage, and reduced customer satisfaction. Ivanov and Dolgui (2021) emphasized that procurement today shapes organizational competitiveness and the ability to create value.

A strong approach to risk management helps ensure steady supply, protects financial and contractual obligations, improves relationships with major suppliers, enhances regulatory compliance, and promotes flexible decision making. In an era marked by uncertainty, taking a proactive stance on risk is essential not only to prevent disruptions but also to develop procurement systems that can adapt to rapid changes in the market (Shrivastava, Chakkaravarthy, and Shah, 2023).

Supplier disruptions can arise from many unpredictable occurrences including natural disasters, political crises, labor disputes, financial instability, pandemics, cyber incidents, and transport failures (Hohenstein, 2022). These events can trigger production stoppages, cost escalation, declining service quality, and in severe cases, total operational shutdowns (Anzolin and Aloisi, 2022).

Recent global experiences have shown how fragile supply chains can be. The COVID-19 pandemic clearly demonstrated the vulnerability of procurement systems when suppliers halt operations or when logistics networks become restricted. Similarly, geopolitical tensions, trade disputes, and embargoes have underlined the need for stronger procurement frameworks capable of withstanding major shocks (Anzolin and Aloisi, 2022). This has led to increased interest in procurement risk management across academic fields and professional practice. Organizations are now encouraged to adopt comprehensive strategies that allow them to identify risks early, evaluate their severity, and implement timely solutions. These strategies include diversifying supply sources, strengthening supplier engagement, adopting digital tools for real time monitoring, and adding flexibility to contracts and logistics plans (Braun and Clarke, 2021).

In today's business landscape, managing procurement risk is indispensable. The rising complexity and interdependence of global supply networks expose organizations to constant threats. Rapid technological development, geopolitical uncertainty, climate related risks, and increasing regulatory requirements all contribute to supply chain instability (Hohenstein, 2022). Matope, Chingombe, and Nzewi (2019) stressed that recent events such as pandemics, cyberattacks, and trade conflicts highlight how easily procurement can be disrupted.

For this reason, organizations must broaden their focus beyond cost savings and place greater emphasis on resilience. Modern procurement risk management requires the use of advanced tools and techniques such as supplier risk evaluations, scenario analysis, digital risk dashboards, and multisourcing strategies. Many organizations are also turning to analytics and artificial intelligence to forecast potential disruptions and respond quickly. Additionally, issues related to

sustainability, ethical sourcing, and regulatory compliance have expanded the scope of procurement risk management.

In summary, the ability to predict, evaluate, and manage procurement risks is essential for organizational survival and growth in a rapidly evolving global environment (Anzolin and Aloisi, 2022). This study therefore examines how organizations manage procurement risks, with specific attention to strategies used to reduce supplier disruptions, and aims to provide practical insights that support the creation of stronger and more resilient procurement systems.

1.2 Statement of the Problem

The global business environment has become increasingly unpredictable, placing greater pressure on the procurement function to maintain steady access to essential goods and services. Despite its importance, many organizations continue to struggle with managing supplier related risks, a challenge that requires deeper investigation. Recent events such as the COVID-19 pandemic, political conflicts, cyber incidents, and natural disasters have revealed significant weaknesses in procurement processes and have resulted in serious supplier disruptions (Kovács and Falagara, 2021). These disruptions have repeatedly caused production stoppages, higher operating costs, loss of revenue, damaged reputation, and missed strategic opportunities, making this issue worthy of thorough academic inquiry. Although organizations understand the value of managing risks in procurement, their efforts are often incomplete, reactive, and poorly coordinated. Many risk assessments are narrow in scope and lack the tools needed to anticipate supplier failures or interruptions. In several cases, procurement risk management is not aligned with overall organizational strategy, increasing exposure to sudden and unexpected disruptions. This concern forms one of the key motivations for the present study.

In addition, although a range of risk reduction measures exist, including supplier diversification, dual sourcing, buffer stock, and digital monitoring technologies, many organizations find it difficult to choose or apply these methods effectively. This challenge is more pronounced among small and medium enterprises as well as in developing countries where financial resources, technology, and supplier alternatives are limited (Lindfors and Ammenberg, 2021). The central problem lies in the absence of a structured, evidence based assessment of how well current mitigation practices perform. Without clear guidance on which strategies produce the best results in different circumstances, organizations may rely on risk management approaches that deliver little value or inconsistent outcomes, leaving them vulnerable to continued supply interruptions.

Although research interest in supply chain risk management has increased, many earlier studies (Matope, Chingombe, and Nzewi, 2019; Sheffi, 2017; Chao, Zhang, and Zhang, 2018) tend to examine risk at the overall supply chain level rather than focusing on procurement specific disruptions. These studies often overlook the unique challenges, decision making patterns, and vulnerabilities within the procurement function. Another significant gap is that much of the existing literature is based on advanced economies (Singh, Kumar, and Kumar, 2023; Chen and Yu, 2023; Zhang and Li, 2023; Zhang, 2022) or on large global corporations (Ahmed, Khalid, and Al-Fahad, 2022; Sanchez Graells, 2022; Remko, 2020). As a result, little is known about how smaller organizations or firms in emerging markets manage procurement risk, even though their exposure to disruptions and their capacity to respond differ considerably. There is also limited empirical comparison of how various mitigation strategies perform in practical procurement environments. Many current frameworks and models (Kovács and Falagara, 2021; Araz, Choi, Olson, and Salman, 2020; Goodman and Choksi, 2021) are largely theoretical and

lack validation with real industry data, reducing their usefulness for practitioners seeking practical solutions.

This study therefore seeks to bridge these gaps by providing a detailed evaluation of procurement risk management practices, with specific attention to strategies used to minimize supplier disruptions. The goal is to generate evidence based insights that can support organizations in building stronger, more adaptive, and more resilient procurement systems.

1.3 Research Questions

This study is guided by the following research questions:

i. What major risks do organizations face when supplier disruptions occur in the procurement process?

ii. Which risk management approaches are currently being used by organizations to address supplier disruptions?

iii. How successful are these strategies in ensuring continuous procurement operations and maintaining a stable supply chain?

iv. What further measures can be adopted to enhance the procurement risk management framework against supplier related disruptions?

1.4 Objectives of the Study

The purpose of this research is to examine procurement risk management with a focus on assessing strategies used to reduce supplier disruptions and recommending improved measures for strengthening procurement resilience. The specific objectives are:

i. To identify the major risks that arise when supplier disruptions occur within the procurement process.

ii. To assess the current risk management approaches organizations use to minimize the impact of supplier disruptions.

iii. To determine how effective these existing mitigation strategies are in supporting continuous procurement operations and maintaining supply chain stability.

iv. To recommend improved risk management strategies that can better address supplier disruptions in procurement.

1.5 Hypotheses of the Study

The hypotheses formulated for this research, presented in their null form, will be tested at the 5 percent level of significance. They include:

Ho1: There is no significant relationship between supplier disruptions and the risks encountered in procurement.

Ho2: Organizations do not employ any particular risk management strategy to address supplier disruptions in the procurement process.

Ho3: The risk mitigation strategies currently in use do not have a significant effect on sustaining procurement operations and ensuring supply chain stability.

Ho4: No additional measures can be introduced to improve the existing risk management framework for handling supplier disruptions in procurement.

1.6 Significance of the Study

This study is significant because it offers contributions to both academic research and practical applications in procurement and supply chain management. In today's environment of growing global uncertainty, organizations are increasingly exposed to supplier disruptions caused by pandemics, geopolitical conflicts, natural disasters, and cyber threats. By exploring how procurement functions identify, manage, and mitigate these risks, the study provides valuable insights for a wide range of stakeholders.

For procurement professionals, supply chain managers, and sourcing specialists, the study offers evidence-based guidance on identifying vulnerabilities, assessing risk levels, and implementing effective mitigation strategies. These insights can support better decision-making, improve supply chain resilience, and minimize the negative effects of supplier failures or delays.

For senior executives, operations directors, and strategic planners, the research emphasizes the need to integrate risk management into core procurement processes. The findings highlight how aligning procurement strategies with broader organizational goals, such as cost control, operational continuity, and acceptable risk levels, can safeguard against financial losses and reputational damage. This knowledge can help leaders develop policies that strengthen business continuity and enhance competitive advantage.

Government agencies, regulatory bodies, and policymakers involved in trade, commerce, and economic development can benefit from the study by gaining a clearer understanding of common causes of supplier disruptions and organizational responses. Such insights can inform the design of standards, frameworks, and incentives that promote best practices in procurement risk management, particularly in critical sectors like healthcare, energy, and infrastructure.

Small and medium enterprises (SMEs), which often face constraints such as limited resources, smaller supplier networks, and weaker negotiation power, can also benefit from the study. By highlighting practical and cost-effective strategies for mitigating supplier risks, the research can help SMEs build resilience and improve their capacity to respond to unexpected disruptions.

From an academic perspective, the study contributes to the literature on supply chain and procurement risk management, particularly by addressing the underexplored area of risk mitigation strategies within procurement. It provides empirical evidence and focused insights that can serve as a foundation for future research and the development of conceptual frameworks.

Finally, the study is relevant for developers of procurement software, risk assessment tools, and digital supply chain solutions. By understanding organizational needs in managing procurement risks, the findings can guide the design and improvement of analytics platforms, risk monitoring systems, and automated supplier evaluation tools, fostering innovation in technology-driven procurement solutions.

1.7 Scope and Limitations of the Study

This research primarily examines the procurement function within medium and large-scale organizations, focusing on sectors that are particularly exposed to supply chain risks, such as manufacturing, healthcare, and retail. While the findings aim to have broader relevance, certain limitations exist. These include potential constraints in accessing confidential or sensitive information and variations in risk management practices across industries and geographic locations. The study does not explore downstream logistics, warehousing operations, or demand-side disruptions in detail. Instead, it maintains a clear emphasis on supplier-related risks and the procurement strategies employed by medium and large-scale organizations in Edo State, Nigeria.

1.8 Definition of Key Terms

Procurement: The process of acquiring goods, services, or works from external providers, typically through contracts or purchase agreements, to fulfill an organization's operational requirements.

Risk Management: A structured approach to identifying, evaluating, and addressing potential threats or uncertainties that could adversely affect organizational objectives. In procurement, this refers to reducing risks that may disrupt the supply of essential goods and services.

Supplier Disruption: Any event or circumstance that prevents a supplier from delivering products or services as expected. This can include delays, quality issues, insolvency, natural disasters, political instability, or transportation failures.

Risk Mitigation Strategies: Measures or plans designed to lower the probability or impact of identified risks. In procurement, these may include supplier diversification, maintaining buffer inventory, employing technology for risk monitoring, or developing contingency plans.

Supply Chain Resilience: The capacity of a supply chain to anticipate, adapt to, and recover from unexpected disruptions while ensuring continuous operations and minimizing negative consequences.

Supplier Risk Assessment: The evaluation of suppliers based on factors such as financial stability, operational capacity, geopolitical exposure, compliance history, and reliability to identify potential vulnerabilities in the supply chain.

Contingency Planning: The creation of proactive strategies and alternative approaches that an organization can deploy in response to supplier disruptions or procurement failures to maintain business continuity.

Global Sourcing: The practice of procuring goods or services from international suppliers, often to reduce costs or access specialized expertise, which may also expose organizations to global risks.

1.9 Organization of the Study

The study is structured into five chapters. Chapter One introduces the research topic, covering the background, problem statement, research objectives, research questions, significance, scope, and key definitions. Chapter Two reviews relevant literature, including theories and previous studies on procurement risk management. Chapter Three outlines the research methodology, describing the data collection methods and analytical procedures. Chapter Four presents the research findings and provides detailed discussion and interpretation of the results. Finally, Chapter Five offers the study's conclusions and provides practical recommendations for policy and organizational practice.

CHAPTER TWO

BACKGROUND TO THE STUDY

2.1 Evolution of Procurement as a Strategic Function

Procurement was traditionally regarded as a routine operational task concerned mainly with purchasing goods and services at the lowest cost. Over time, and especially in today's global and highly connected business environment, procurement has shifted into a strategic function that supports the achievement of broader organizational goals. It is no longer seen as a back-end activity but as a vital component that drives efficiency and continuity within both public and private sector institutions (Shrivastava, Chakkaravarthy and Shah, 2023).

This shift is linked to the increasing awareness that procurement choices have significant effects on an organization's competitiveness, value creation, and performance outcomes (Ivanov and Dolgui, 2021). Modern organizations depend on effective procurement systems to secure reliable access to quality inputs, services, and materials required for operations. As a result, procurement responsibilities now extend beyond cost reduction to include supplier management, sustainability, and strategic risk control.

The strategic importance of procurement means it plays a key role in strengthening supply chain resilience, enhancing operational flexibility, and enabling organizations to respond to unexpected disturbances. Strong procurement practices help maintain consistent operations during challenging conditions, supporting both financial performance and customer satisfaction. This broadened scope highlights the need for organizations to design robust procurement strategies that align with their mission, changing market conditions, and long-term goals.

2.2 Impact of Supplier Disruptions on Organizations

Supplier disruptions refer to unexpected events that hinder a supplier's ability to deliver required goods or services, and they can significantly affect an organization's operations. These disruptions may be triggered by natural disasters, political tensions, industrial actions, supplier bankruptcy, public health crises, cyber incidents, or transportation breakdowns (Hohenstein, 2022). Whatever the cause, such disruptions introduce considerable challenges to procurement activities and overall organizational efficiency.

A major consequence of supplier interruptions is delayed delivery of essential inputs. Such delays can disrupt production schedules, increase lead times, raise inventory-related expenses, and cause organizations to miss critical deadlines. Industries that rely on just-in-time inventory systems are especially vulnerable, as disruptions may halt production entirely and limit the organization's ability to meet customer needs promptly (Anzolin and Aloisi, 2022).

In addition to operational setbacks, supplier disruptions often result in higher costs. Organizations may need to source from alternative suppliers at premium prices or pay extra for urgent logistics. There may also be financial penalties tied to contractual violations and added

administrative effort spent on managing emergency responses. Loss of revenue, dissatisfied customers, and reputational damage further intensify the financial burden.

In more severe situations, long-term supplier failures can bring operations to a standstill, particularly when an organization depends on a small pool of key suppliers. These shutdowns can affect not only internal processes but also propagate through the wider supply chain, influencing customers and other connected partners. Disruptions may also strain long-standing supplier relationships, making future cooperation more difficult.

Given the far-reaching implications, organizations place strong emphasis on identifying and addressing supplier disruptions to safeguard operational continuity and maintain financial stability. A clear understanding of these impacts is crucial for designing effective procurement risk management frameworks that strengthen resilience and reduce vulnerability.

2.3 Nature and Causes of Supplier Disruptions

Supplier disruptions are unexpected events that prevent a supplier from delivering goods or services in line with agreed terms. These disruptions can differ in scale, duration, and seriousness, but each one has the potential to interrupt procurement activities and affect the broader supply chain. Understanding the nature and sources of these disruptions is essential for organizations that aim to build strong risk management systems.

The causes of supplier disruptions are varied and often interconnected. Natural events such as floods, earthquakes, hurricanes, and wildfires can destroy production facilities, damage infrastructure, or obstruct transportation networks, leading to serious delays or complete stoppages in supply. Geopolitical challenges, including political unrest, trade conflicts, sanctions,

and border restrictions, can also slow international trade or complicate customs procedures, disrupting supply chains at both regional and global levels.

Labor related issues such as strikes, absenteeism, or shortages of skilled workers can reduce production capacity or stop operations entirely. Financial instability, including insolvency or bankruptcy, presents additional risk by leaving companies without essential materials. In recent times, cybersecurity breaches have become a major source of disruption, as attacks on supplier information systems can shut down operations and compromise sensitive data.

The COVID 19 pandemic illustrates a disruption with multiple causes. It brought about factory closures, transportation limitations, and shortages of raw materials in many industries, exposing significant weaknesses in global procurement systems. Failures in transportation, whether due to logistical problems or inadequate infrastructure, also contribute to frequent supplier delays, especially in large and complex supply networks.

Since these disruptions can happen suddenly, organizations need to maintain strong monitoring and early warning processes. Understanding the different forms and triggers of supplier disruptions helps procurement professionals develop effective strategies that reduce risk and builds

2.4 Impact of Supplier Disruptions on Organizations

Supplier disruptions can create widespread challenges for organizations, affecting productivity, financial outcomes, customer relations, and overall corporate image. When suppliers are unable to deliver goods or services as scheduled, the resulting interruptions can severely hinder operational activities.

A major consequence of such disruptions is the setback in production and delivery timelines. Organizations that rely on consistent and timely supplies may encounter production stoppages or service delays, which can lengthen lead times and cause unmet deadlines. These delays can spread across the supply chain, generating bottlenecks and reducing the efficiency of operations (Anzolin and Aloisi, 2022).

Financial repercussions also play a significant role when disruptions occur. Companies may face higher expenses due to emergency shipping arrangements, switching to alternative suppliers who charge more, or paying penalties for failing to meet contractual agreements. In addition, lost sales and the costs of implementing backup plans or risk reduction measures can further impact revenue and profitability (Hohenstein, 2022).

Customer experience and brand image are equally vulnerable. When disruptions lead to late or incomplete deliveries, customers may lose confidence in the organization's reliability. In competitive environments, this can decrease customer loyalty and harm market positioning. In severe situations, ongoing disruptions can force temporary shutdowns, which negatively affect internal operations and reduce stakeholder trust (Anzolin and Aloisi, 2022).

In summary, supplier disruptions have effects that reach far beyond operational delays. They influence financial stability, customer perception, and organizational resilience. Managing these risks through strong procurement risk management practices is essential for ensuring continuity, competitiveness, and long term sustainability.

tronger supply chain resilience.

2.5 Risk Management in Procurement

Risk management within procurement has grown into a critical area of practice, focusing on identifying, evaluating, and reducing risks that could disrupt the smooth flow of supply activities. Since supplier disruptions represent one of the most serious threats to procurement operations, many organizations now adopt structured approaches to maintain continuity and strengthen resilience.

The process begins with identifying potential risks throughout the procurement cycle. This involves recognizing weak points linked to supplier reliability, political and economic instability, financial challenges, natural hazards, and newer risks such as cyberattacks. After these risks are identified, they are assessed based on how likely they are to occur and the extent of their possible impact. This level of assessment enables organizations to rank risks and direct their mitigation efforts efficiently.

To address these risks, organizations make use of both preventive and corrective strategies. One common method is expanding the supplier base, which reduces overdependence on a single source and increases the ability to respond when disruptions occur. Building strong relationships with suppliers also promotes openness and collaboration, which are essential for detecting risks early and responding in a coordinated manner.

Advancements in technology have improved the management of procurement related risks. Tools such as real time monitoring platforms, analytics, and artificial intelligence help organizations anticipate disruptions, track supplier performance, and react quickly to emerging threats. These digital solutions also support scenario planning and the development of contingency measures that prepare companies for different types of risk events.

Risk management in procurement is also closely tied to compliance and sustainability requirements. Integrating environmental, social, and governance principles into risk frameworks helps organizations avoid legal and reputational challenges while encouraging ethical and responsible sourcing.

Given the growing complexity and uncertainty surrounding global supply chains, strong procurement risk management is essential not only for preventing interruptions but also for building flexible and resilient supply networks that support long term organizational performance.

2.6 Influence of Recent Global Events

Recent global developments have highlighted how easily supply chains can be disrupted, making procurement risk management a central concern for many organizations. One of the most significant events was the COVID 19 pandemic, which showed how supplier activities could be interrupted by lockdowns, transport limitations, and shortages of materials and labour. The pandemic revealed that even mature procurement structures are vulnerable to unexpected and long lasting shocks that affect supply continuity across various sectors (Anzolin and Aloisi, 2022).

Geopolitical tensions, including trade disputes, sanctions, and regional conflicts, have also placed additional strain on global supply operations. These issues have introduced inconsistent trade barriers, higher tariffs, and restrictions on the movement of goods across borders,

reinforcing the importance of procurement systems that can adjust quickly to changes in the political environment (Anzolin and Aloisi, 2022).

Cybersecurity risks have become another major source of disruption. The rising number of attacks on supplier digital systems can halt operations, compromise sensitive information, and delay deliveries. Consequently, organizations now place greater emphasis on incorporating cybersecurity evaluations into procurement risk frameworks (Hohenstein, 2022).

Environmental and climate related events have likewise contributed to supply interruptions. Increasing occurrences of extreme weather and natural disasters have made it necessary for organizations to consider environmental uncertainty in their procurement strategies (Braun and Clarke, 2021).

According to Matope, Chingombe, and Nzewi (2019), these global challenges demonstrate the limitations of traditional procurement models that focus primarily on cost. They advocate for a shift toward procurement systems that emphasize resilience and risk awareness. To withstand and recover from global disruptions, organizations now need agile and diversified sourcing, advanced technology for monitoring risks in real time, and stronger collaborative relationships with suppliers.

2.7 Contemporary Trends in Procurement Risk Management

As global supply chains become more complex and unpredictable, procurement risk management has advanced to include modern tools, innovative approaches, and broader risk perspectives. Many organizations are shifting from reactive methods to proactive and technology based practices that strengthen supply chain resilience and support rapid response to disruptions.

A major trend is the adoption of digital technologies such as advanced data analytics, artificial intelligence, and real time monitoring platforms. These digital systems allow organizations to collect and interpret large volumes of supply chain information, identify early indicators of possible disruptions, and simulate risk scenarios that guide strategic decisions. For instance, artificial intelligence can forecast supplier related risks by detecting patterns in historical and current data, thereby enabling timely actions that reduce the likelihood or impact of interruptions (Ivanov and Dolgui, 2021).

Supplier diversification and multi sourcing have also become central practices in managing procurement risks. Organizations are increasingly spreading their sourcing activities across several suppliers and geographical locations to avoid overreliance on a single source. This approach increases adaptability during disruptions. The trend is further supported by improved supplier relationship management, which promotes closer collaboration, transparency, and shared responsibility for managing risks (Braun and Clarke, 2021).

Environmental, social, and governance considerations have also become significant in modern procurement. Companies now recognize that ethical and sustainable sourcing helps maintain long term stability and protects organizational reputation. Including ESG factors in procurement choices reduces risks tied to regulations, social expectations, and environmental challenges, while aligning procurement with wider sustainability objectives (Anzolin and Aloisi, 2022).

Scenario planning and stress testing are gaining importance as organizations prepare for a variety of potential disruptions ranging from natural disasters to political instability. These tools help procurement teams establish contingency measures and introduce flexibility in contracts and logistics arrangements, enabling quicker adjustments to changing market conditions.

In summary, contemporary procurement risk management adopts a comprehensive and forward looking perspective. By combining technology, strategic sourcing, and sustainability principles, organizations can build stronger, more agile, and more resilient supply chains that remain effective in times of uncertainty.

2.8 Summary

This chapter reviewed how procurement has transformed from a simple administrative task into a strategic pillar of organizational performance. It showed that as supply chains expand globally and become more interconnected, organizations face a growing range of supplier-related risks, including environmental events, political instability, public health crises, and cyber threats.

The discussion examined the nature and drivers of supplier disruptions, highlighting their ability to trigger operational setbacks, financial strain, and damage to organizational reputation. The chapter stressed the need for strong procurement risk management systems that focus on identifying risks, assessing their impact, and implementing appropriate mitigation measures to strengthen supply chain resilience.

Recent global disruptions such as the COVID-19 pandemic and geopolitical instability have further exposed weaknesses in traditional supply chain structures. These events have encouraged organizations to adopt enhanced, technology driven risk management practices. Modern trends such as real time digital tracking, diversified sourcing, and the incorporation of environmental, social, and governance considerations demonstrate a growing shift toward proactive and integrated procurement risk management.

In summary, effective management of procurement risks is now essential for ensuring operational continuity, sustaining competitiveness, and promoting long term stability in a highly

unpredictable global environment. The subsequent chapters will examine practical models, tools, and strategies that organizations apply to manage supplier disruptions and improve procurement resilience.

CHAPTER THREE

LITERATURE REVIEW

3.1 Literature Review

This chapter examines existing literature on procurement risk management, focusing on strategies to mitigate supplier disruptions. The discussion is organized under the following subheadings:

3.2 Conceptual Framework

3.2.1 Risk Management

Risk management is an essential practice for organizations, governments, businesses, and individuals, aimed at identifying, evaluating, prioritizing, and addressing risks that could negatively affect their goals, operations, or overall performance. It involves a systematic and proactive approach to anticipate potential threats and implement measures to reduce their likelihood or impact. All activities, whether in finance, project execution, healthcare, cybersecurity, or daily operations, carry inherent uncertainties that must be managed (Nel, 2024).

According to Paul (2020), effective risk management does not seek to eliminate all risks but rather to handle them strategically and intelligently. The process generally begins with risk identification, which involves recognizing potential threats such as financial losses, legal liabilities, accidents, natural disasters, operational failures, or reputational harm. After identification, risks are assessed to determine the likelihood of occurrence and the magnitude of potential consequences. This step often utilizes qualitative and quantitative methods, including risk matrices, simulations, or statistical models, to prioritize risks based on severity and probability (Bowman, 2015).

Once assessed, organizations develop and implement mitigation strategies. Common approaches include risk avoidance, which eliminates activities that generate risk; risk reduction, which minimizes the likelihood or impact of risks; risk transfer, such as through insurance or outsourcing; and risk acceptance, which involves acknowledging and bearing the risk. Risk management is a continuous process requiring ongoing monitoring and review, as new risks emerge and existing risks evolve due to changes in the internal and external environment (Paul, 2020).

Nel (2024) emphasizes that risk management is a strategic process designed to safeguard organizational assets, operations, and reputation. By anticipating potential threats and

implementing mitigation strategies, organizations can make informed decisions, protect resources, and achieve objectives more effectively. Effective risk management enhances resilience and sustainability, ensures compliance with regulations, supports strategic planning, and improves project success by increasing the likelihood of completing initiatives on time and within budget. At a societal level, it promotes public safety, economic stability, and environmental protection (Bowman, 2015).

The increasing complexity of global systems, driven by technological advances, climate change, geopolitical tensions, and interdependent markets, highlights the importance of robust risk management frameworks. Modern approaches include enterprise risk management, which considers risks holistically across the organization, and integrated risk management, which aligns risk strategies with overall organizational goals (Enzokuhl, 2024).

3.2.1.1 Key Aspects of Risk Management

Risk management is a multifaceted discipline that involves strategic, analytical, and operational practices. The success of any risk management framework depends on how effectively its components are implemented and integrated into the overall organizational structure. The following are the key elements that support a comprehensive risk management system:

Risk Identification

The starting point of risk management is the accurate recognition of potential risks. This involves identifying threats or opportunities that may affect the achievement of organizational objectives (Shrivastava, Chakkaravarthy, & Shah, 2022). Risks can emerge from internal sources, such as poor governance, operational inefficiencies, or human error, as well as external factors like natural disasters, economic shifts, cyber threats, or geopolitical instability. Common techniques

for identifying risks include brainstorming, SWOT analysis, expert interviews, process mapping, historical data reviews, and scenario planning (Enzokuhl, 2024). A detailed risk register documenting all identified risks, their context, and potential impact is a key output of this stage. Effective risk identification ensures that critical threats are not overlooked, allowing proactive measures to be taken (Bowman, 2015).

Risk Assessment and Analysis

After identification, risks must be evaluated in terms of likelihood and potential impact. Assessment can be qualitative, using subjective categories such as low, medium, or high, or quantitative, employing statistical methods to estimate probabilities and financial consequences (Enzokuhl, 2024). The goal is to prioritize risks, enabling decision-makers to allocate resources efficiently to the most critical threats. Understanding interdependencies among risks is also crucial, particularly in complex projects or supply chains. Tools such as risk matrices, sensitivity analysis, Monte Carlo simulations, and expert judgment are commonly employed to classify and prioritize risks (Borjeson & Bostrom, 2018; Mwalukasa & Sallwa, 2024).

Risk Response Planning and Mitigation

Once risks are assessed, organizations determine how to respond. Risk treatment strategies generally fall into four categories: accept, avoid, reduce, or transfer (Castañeda-Navarrete, Hauge, & López-Gómez, 2021).

- **Acceptance:** Acknowledging the risk and preparing to manage its consequences, often chosen when mitigation costs exceed potential losses.
- **Avoidance:** Eliminating activities that expose the organization to risk. While effective, avoidance can also mean missing potential opportunities.

- **Reduction:** Implementing measures to lessen the probability or impact of risk, such as improving IT security to prevent cyberattacks.
- **Transfer:** Shifting risk to another party, commonly through insurance or outsourcing.

Effective mitigation may require investment in technology, training, safety procedures, or legal safeguards. Responses should align with the organization's risk appetite and the nature of the risk (Byju, Chhabda & Ankit, 2023; Bowman, 2015).

Risk Evaluation and Prioritization

Following analysis, risks are evaluated against organizational risk appetite and tolerance to determine which require active management and which can be monitored or accepted. Tools such as heat maps, scoring systems, and risk matrices provide visual representations of risk exposure to support decision-making (Lundin & Wennberg, 2022).

Monitoring and Review

Risk management is an ongoing process. Continuous monitoring ensures that mitigation measures remain effective and that emerging risks are addressed promptly. This involves tracking key risk indicators, reviewing incident reports, and conducting regular audits. Adjustments to strategies are made as conditions change, maintaining organizational agility and responsiveness (Byju, Chhabda & Ankit, 2023).

Communication and Reporting

Timely and transparent communication is essential across all organizational levels. Risk information should be shared with stakeholders, including management, employees, investors, regulators, and partners (Choy, Lee, & Tan, 2023). Structured reporting tools such as dashboards and risk registers enhance accountability and facilitate informed decisions. Building a risk-aware

culture through training and dialogue reinforces risk-conscious behavior throughout the organization (Mwalukasa & Sallwa, 2024).

Governance and Risk Ownership

Effective governance ensures clear roles, responsibilities, and accountability for managing risk. Boards typically oversee overall risk strategy, while committees, compliance officers, and auditors manage implementation. Departments should have designated risk owners responsible for identifying and controlling risks within their scope, ensuring consistency and alignment with strategic goals (Flynn & Davis, 2022; Lundin & Wennberg, 2022).

Integration with Strategic Planning

Risk management should be embedded into organizational strategy and operational planning, informing decisions about investments, market entry, product launches, and mergers. Integrating risk into strategic planning allows organizations to anticipate challenges and leverage risks as potential advantages (Shrivastava, Chakkaravarthy, & Shah, 2022).

Use of Technology and Data Analytics

Modern risk management increasingly relies on digital tools to enhance identification, analysis, and response. Artificial intelligence, machine learning, big data analytics, and specialized software help organizations detect patterns, predict potential disruptions, and respond more effectively. Real-time monitoring supports rapid interventions, improving overall resilience and decision-making (Mwalukasa & Sallwa, 2024).

3.2.1.2 Risk Management Approaches

Risk management approaches refer to the overarching strategies that organizations adopt to identify, control, and mitigate risks. These approaches provide both the philosophical and operational foundation for managing risks effectively.

Risk Avoidance

Risk avoidance involves taking deliberate steps to prevent a risk from occurring. This approach is typically applied when the potential impact of a risk is too severe or unacceptable. For example, a company may choose not to launch a product in a politically unstable region to avoid geopolitical risks (White et al., 2022). While effective in eliminating specific risks, avoidance can result in missed business opportunities and may limit innovation and growth. Successful avoidance effectively reduces the probability of a loss to zero, making it one of the first strategies considered in risk management (Byju, Chhabda & Ankit, 2023).

Loss Prevention

Loss prevention focuses on limiting potential losses rather than eliminating the risk entirely. This method acknowledges the presence of risk but implements measures to reduce the damage if the risk occurs. For instance, inventory stored in a warehouse is exposed to theft. While this risk cannot be completely avoided, security measures such as surveillance cameras, security personnel, and secured storage can help minimize potential losses (Lindfors & Ammenberg, 2021; Lundin & Wennberg, 2022).

Risk Reduction (Mitigation)

Risk reduction or mitigation aims to decrease either the likelihood of a risk occurring or the severity of its consequences. This proactive approach may involve safety protocols, cybersecurity measures, or employee training programs to reduce human error (Mwesiumo, Nujen & Buvik, 2021). For example, a company storing flammable materials may install

advanced sprinkler systems to limit potential fire damage. Mitigation is widely applied because most risks cannot be entirely eliminated but can be managed to acceptable levels (Smith & Taylor, 2022).

Risk Transfer

Risk transfer involves shifting the potential burden of a risk to a third party, typically through financial or legal arrangements. Examples include purchasing insurance or outsourcing high-risk operations. For instance, a firm may hedge against currency fluctuations to reduce financial exposure. While transfer does not remove the risk entirely, it alleviates the direct impact on the organization (McCrudden, 2021).

Risk Retention (Acceptance)

Risk retention, or acceptance, occurs when an organization chooses to acknowledge a risk and tolerate it, usually because the cost of mitigation exceeds the potential loss. This approach is often applied to risks that are low in probability and impact. Acceptance is not passive; it requires contingency planning and a clear understanding of the organization's risk tolerance, ensuring preparedness for any consequences (White et al., 2022).

Duplication

Duplication involves creating backups or alternative systems to maintain continuity in case of failure. This is particularly common in technology management. For example, a secondary server can take over if the primary server fails, or disaster recovery services can ensure business operations continue during system outages (Lundin & Wennberg, 2022).

Diversification

Diversification spreads business resources across multiple lines of products, services, or

industries. By diversifying, organizations reduce the risk that a significant loss in one area will jeopardize overall business performance. This strategy contributes to long-term sustainability and profitability and is a vital component of effective risk management (Byju, Chhabda & Ankit, 2023).

3.2.2 Procurement

Procurement is a core organizational process that involves acquiring goods, services, or works from external sources. It covers a wide range of activities, including identifying organizational requirements, sourcing suitable suppliers, negotiating contracts, and ensuring timely delivery. Procurement is not just a transactional function; it is strategic, significantly affecting operational efficiency, cost management, and overall competitiveness (Shrivastava, Chakkaravarthy & Shah, 2022). Consequently, it is essential for both public and private sector organizations, helping them achieve objectives through efficient resource management.

The procurement process begins with need identification, which entails analyzing the type, quantity, and timing of required goods or services. Accurate identification ensures that only necessary resources are procured, reducing waste and optimizing organizational efficiency (Rao, Vihari & Jabeen, 2021). After determining the requirements, procurement teams conduct market research to identify potential suppliers capable of meeting these needs. Supplier evaluation is critical, assessing factors such as quality, reliability, cost, compliance with regulations, and sustainability practices. For many large-scale or government projects, procurement may involve formal bidding or tendering procedures to ensure fairness, transparency, and value for money (Mwesiumo, Nujen & Buvik, 2021).

Negotiation is another vital component of procurement, involving agreements with suppliers regarding pricing, delivery schedules, payment terms, and service levels. Effective negotiation requires a thorough understanding of market conditions and organizational requirements (Sheffi, 2017). Once negotiations conclude, contracts are drafted and signed, specifying terms to protect both parties and minimize potential risks. Proper contract management ensures supplier compliance and addresses any issues efficiently (Smith & Taylor, 2022).

Procurement also encompasses logistics and inventory management to ensure goods and services are delivered at the right time and place without causing operational disruptions. In contemporary supply chains, procurement extends beyond purchasing to include vendor relationship management, regulatory compliance, and performance monitoring. It must adapt to changing market dynamics, technological advancements, and global trade conditions. Additionally, sustainable and ethical procurement has gained prominence, requiring organizations to consider environmental and social impacts in purchasing decisions (White et al., 2022).

Organizations may adopt centralized or decentralized procurement structures. Centralized procurement consolidates purchasing under one department, providing better control and consistency (Rao, Vihari & Jabeen, 2021), while decentralized procurement allows individual units to make independent purchases, offering flexibility and responsiveness to specific needs. Both approaches have advantages and may be strategically applied based on organizational context.

Overall, procurement is a complex, strategic function that extends far beyond simple acquisition. It demands analytical, negotiation, and management capabilities to secure optimal value while aligning with organizational goals. As businesses and public institutions pursue greater

efficiency, transparency, and sustainability, procurement continues to evolve, playing a critical role in operational excellence and long-term success (Li & Goh, 2019; Shrivastava, Chakkaravarthy & Shah, 2022).

3.2.3 Supply Disruptions

Supply disruptions are unanticipated events or circumstances that interrupt the normal flow of goods and services within a supply chain. Such disruptions can occur at any stage, from sourcing raw materials to delivering finished products to customers, and they can have serious consequences for both businesses and the broader economy (Shrivastava, Chakkaravarthy & Shah, 2023). In an increasingly globalized and interconnected world, supply chains have grown more complex and susceptible to interruptions, making the management of supply disruptions a critical organizational concern.

The causes of supply disruptions are diverse and often interconnected. Natural disasters and extreme weather events, geopolitical tensions, pandemics, labor strikes, and cyberattacks are among the most common triggers. For example, an earthquake in a major manufacturing hub can halt production, while political instability in an exporting country can prevent shipments from reaching their destination (McMaster et al., 2020). Even minor issues, such as a delay in receiving a critical component, can propagate through the supply chain, causing slowdowns or complete stoppages. The COVID-19 pandemic exemplified how global events can trigger widespread supply disruptions, affecting almost every industry and revealing vulnerabilities in even the most established supply chains (Mwesiumo, Nujen & Buvik, 2021).

One immediate consequence of supply disruptions is the delay of production or service delivery. When essential materials are unavailable, manufacturers may fail to meet production targets,

resulting in stockouts, lost revenue, and reduced customer satisfaction. In competitive markets, such delays can lead to a significant loss of market share. Additionally, supply disruptions often increase costs, as businesses may need to source alternative suppliers at higher prices, pay premiums for expedited shipping, or cover overtime labor to compensate for delays. These unplanned expenditures can strain budgets and reduce overall profitability (Remko, 2020).

Supply disruptions also present strategic and reputational risks. Failure to deliver products or services on time can damage a company's brand and erode customer trust. In sectors such as healthcare, defense, and food, supply interruptions can have critical consequences, affecting safety and wellbeing. Moreover, disruptions stemming from unethical practices within a supplier's operations can raise compliance and corporate social responsibility concerns, triggering stakeholder scrutiny and regulatory penalties (Rao, Vihari & Jabeen, 2021; Shrivastava, Chakkaravarthy & Shah, 2023).

To address these challenges, organizations are increasingly implementing supply chain risk management strategies. These measures include diversifying the supplier base to avoid overreliance on a single source, maintaining strategic stockpiles, investing in supply chain visibility technologies, and developing contingency and business continuity plans. Advanced tools, such as data analytics and artificial intelligence, are being used to anticipate potential disruptions and enable proactive responses (Goodman & Choksi, 2021; Mwesiumo, Nujen & Buvik, 2021). Some companies are also reconsidering their supply chain models, opting for nearshoring or reshoring to reduce geographic risk, while others adopt more agile and resilient approaches to operations.

In summary, supply disruptions continue to pose a major challenge across all sectors. The volatile global environment, combined with rising expectations for timely and reliable delivery,

requires organizations to be vigilant, adaptive, and strategic. By understanding the sources and impacts of supply disruptions and implementing robust risk management and resilience strategies, companies can maintain operational continuity and competitiveness even amid uncertainty (Shrivastava, Chakkaravarthy & Shah, 2023).

3.2.3.1 Causes of Supply Disruptions in Procurement

Supply disruptions in procurement stem from a complex network of interrelated factors that interrupt the smooth flow of goods and services in the supply chain. These interruptions can result in production delays, increased operational expenses, and reduced customer satisfaction. Key causes include:

Natural Disasters and Environmental Events: Events such as earthquakes, floods, hurricanes, wildfires, and tsunamis can inflict serious damage on manufacturing plants, warehouses, transport networks, and supplier infrastructure (Braun & Clarke, 2021). Critical facilities, including roads, ports, and factories, may become unusable, preventing the production or transportation of goods. Long-term environmental changes, such as droughts and climate shifts, can also reduce the availability of natural resources, particularly in agriculture, mining, and forestry, causing procurement delays and shortages (Aghajanian, 2018; Moore, McCabe & Craig, 2022). Such events can abruptly halt production, disrupt delivery schedules, or even temporarily shut down entire supply chains.

Supplier-Related Issues: Suppliers are central to procurement, and any disruption at their end can have cascading effects. Financial problems, such as insolvency or poor cash flow, can prevent suppliers from fulfilling contractual obligations (Nzewi, Okeke & Okeke, 2018). Labor unrest, strikes, workforce shortages, or high employee turnover may reduce production capacity.

Equipment breakdowns, outdated technology, or non-compliance with quality standards can delay deliveries or lead to rejection of substandard goods. Heavy reliance on a single supplier or sourcing from high-risk regions without alternatives increases vulnerability (Ivanov & Dolgui, 2020).

Logistics and Transportation Challenges: Efficient transportation is essential to procurement, but various logistical issues can create significant delays. Port congestion caused by high cargo volumes or labor shortages can slow imports and exports (Hohenstein, 2025). Transportation bottlenecks, such as truck shortages, traffic congestion, or rail disruptions, further impede timely deliveries. Customs clearance delays, documentation errors, or regulatory non-compliance can stall shipments at borders. Additionally, rising fuel costs and global logistics disruptions, including those from pandemics or geopolitical tensions, can affect shipping reliability and procurement budgets (Goodman & Choksi, 2021; Braun & Clarke, 2021).

Geopolitical and Regulatory Factors: Political instability and regulatory changes can profoundly affect supply chains. Trade disputes, tariffs, sanctions, and embargoes can restrict access to goods or increase procurement costs. Sudden changes in environmental, labor, or trade regulations may hinder suppliers' operations or complicate import/export processes (Ahmed, Khalid & Al-Fahad, 2022). Conflicts, civil unrest, or military actions in key production or resource regions can abruptly disrupt supply networks, limit supplier access, and force procurement teams to secure alternative sources under pressure (Rao, Vihari & Jabeen, 2021; Aghajanian, 2018).

Demand Fluctuations and Forecasting Errors: Sudden shifts in customer demand can disrupt procurement, especially when demand exceeds supply capabilities. Seasonal surges, promotional campaigns, or global events such as pandemics can overwhelm procurement systems. Inaccurate

demand forecasting may result in understocking or overstocking, both of which are costly and disruptive. The bullwhip effect, where minor changes in end-user demand create amplified variations upstream in the supply chain, can further destabilize planning and inventory management (Ivanov & Dolgui, 2020; Moore, McCabe & Craig, 2022).

Technological Disruptions and Cybersecurity Threats: As procurement becomes more digitized, technological issues pose significant risks. Cyberattacks, including ransomware and data breaches, can halt procurement operations, disrupt supplier communication, or compromise sensitive data (Hohenstein, 2025). Failures in enterprise resource planning systems or poor integration between buyer and supplier IT platforms can delay orders, payments, and inventory tracking. Organizations heavily dependent on digital systems are particularly vulnerable if contingency plans are lacking (Ahmed, Khalid & Al-Fahad, 2022; Ivanov & Dolgui, 2020).

3.2.4 Risks Associated with Supplier Disruptions in Procurement

a. Production Downtime and Operational Delays

Supplier disruptions can significantly impede manufacturing operations when essential raw materials, components, or finished goods are unavailable. Such interruptions result in idle machinery, underutilized labor, and delays in production schedules, which may lead to missed delivery deadlines and dissatisfied customers (Chen & Yu, 2023). Extended periods of downtime increase operational costs and reduce overall manufacturing efficiency. In particular, production halts occur when suppliers fail to deliver required inputs on time or in sufficient quantities, a

problem often exacerbated by just-in-time inventory systems that minimize stock holding (Borjeson & Bostrom, 2018).

Missed supplier deadlines can create bottlenecks, preventing assembly, packaging, or other production stages from proceeding. Even short disruptions can cascade into longer delays, forcing companies to reschedule production runs, postpone customer shipments, and lose valuable manufacturing hours (Shekarian, Nooraie & Parast, 2020). Over time, these interruptions erode operational efficiency and compromise the organization's ability to maintain consistent output.

Beyond immediate production impacts, supplier disruptions can affect broader organizational performance (Min, 2023). Employees may experience idle time or inefficient redeployment, increasing labor costs or necessitating overtime when operations resume. Delayed deliveries can strain customer relationships, potentially leading to contractual penalties or lost business. Repeated operational delays can also tarnish a company's reputation for reliability, pushing clients toward competitors with more consistent delivery performance. For businesses operating within tightly integrated supply chains, downtime in one facility may ripple through distribution and sales networks, magnifying the overall financial and operational impact (Kovács & Falagara, 2021).

b. Financial Risks and Increased Costs

Supplier disruptions can create significant financial challenges for organizations. When a supplier fails to deliver on time, companies are often forced to source alternatives urgently, which typically comes at higher costs due to scarcity, expedited shipping, or the absence of long-term contracts (Hohenstein, 2022). These sudden procurement expenses can compress profit

margins and complicate financial planning, making budgeting and cash flow forecasts less predictable (Chen & Yu, 2023).

Additionally, missed delivery commitments to customers can result in penalties, contract breaches, or the loss of future orders, further increasing financial strain (Kovács & Falagara, 2021). Managing disruptions also incurs extra costs, such as overtime wages, additional quality control measures, and increased inventory holding (Hsu et al., 2021).

Beyond these direct expenses, supplier failures may lead to lost revenue opportunities. Production or delivery delays can cause canceled orders or missed sales, and dissatisfied customers may turn to competitors, reducing market share and long-term income. There is also a risk of financial loss from prepayments made to suppliers who cannot fulfill orders due to insolvency or bankruptcy (Shrivastava, Chakkaravarthy & Shah, 2023).

These financial risks underscore the critical need for proactive supplier risk management and contingency strategies to minimize the monetary impact of supply disruptions (Kovács & Falagara, 2021).

c. Quality Risks and Product Recalls

Quality risks linked to supplier disruptions typically occur when organizations must quickly switch suppliers or procure materials from less-established vendors. In such cases, standard quality assurance procedures may be weakened, resulting in inputs that do not meet required specifications or standards (Kovács & Falagara, 2021). Using these inferior materials can lead to defects in the final product, which may only be detected during production or after delivery to customers. This raises the risk of product failures, increased rework or scrap, and customer dissatisfaction. Substandard products reaching the market may also necessitate costly recalls,

harming brand reputation and potentially exposing the organization to legal liabilities (Hsu et al., 2021).

Furthermore, supplier disruptions can compromise compliance with regulatory standards, especially in highly regulated sectors such as pharmaceuticals, food, and aerospace. Materials from unverified or emergency suppliers may violate safety or quality regulations, leading to fines, sanctions, or restrictions on product sales (McCrudden, 2021). Investigating quality issues also diverts resources from core business activities, adding operational strain. Ultimately, compromised product quality can affect both immediate financial performance and long-term customer trust, making it a major risk associated with supplier disruptions (Hohenstein, 2022). Emergency sourcing from unfamiliar suppliers can therefore result in defective products, recalls, warranty claims, and customer complaints, all of which damage brand reputation and may trigger legal and regulatory consequences (Min, 2023).

d. Supply Chain Complexity and Increased Management Overhead

Supplier disruptions often compel organizations to engage multiple alternative suppliers or rapidly adjust sourcing strategies, thereby increasing the complexity of supply chain operations. Coordinating orders from a broader range of suppliers demands more oversight, communication, and scheduling efforts (Borjeson & Bostrom, 2018). Procurement teams are required to monitor different delivery schedules, manage variable lead times, and realign production plans accordingly. This added complexity can make it challenging to maintain accurate visibility of inventory levels, track order progress, and assess supplier performance. Such complications

place additional strain on supply chain management systems and staff, heightening the risk of errors like missed orders, duplicate shipments, or inaccurate forecasting (Hohenstein, 2022).

The rise in management overhead is another consequence of handling more complex supply chains. Teams across procurement, quality assurance, logistics, and finance may spend significantly more time addressing issues such as qualifying new suppliers, renegotiating contracts, ensuring regulatory compliance, and managing payments. Constant monitoring and rapid problem-solving increase administrative workloads and divert focus from strategic initiatives (McCrudden, 2021). Companies may also need to invest in advanced supply chain technologies or recruit additional personnel to manage the expanded responsibilities, which raises operational costs (Chen & Yu, 2023). Overall, the added complexity and management burden reduce organizational agility and responsiveness, making it harder to maintain smooth operations during supplier disruptions.

e. Inventory Risks – Stockouts and Overstocking

Supplier disruptions can create unpredictable inventory challenges, resulting in stockouts that halt production or delay sales (Hong, Lee & Zhang, 2018). To mitigate the risk of shortages, companies may overcompensate by holding excess inventory, which ties up capital and increases storage and handling costs. Both scenarios adversely affect working capital management and reduce operational flexibility.

Stockouts occur when delayed or missed supplier deliveries leave materials or products unavailable. This can disrupt production schedules, delay customer order fulfillment, and erode

customer satisfaction. Companies may be forced to prioritize certain orders over others, which can damage customer relationships and reduce trust. Maintaining minimal inventory to lower holding costs further increases vulnerability to supply interruptions (Araz et al., 2020; Shekarian, Nooraie & Parast, 2020).

On the other hand, overstocking, often used to buffer against potential disruptions, can lock up working capital and raise storage, insurance, and maintenance costs. Excess inventory also risks obsolescence, particularly for perishable items or products with short lifecycles, leading to waste and write-offs (Hsu et al., 2021). Effective inventory management, therefore, requires accurate demand forecasting, close collaboration with suppliers, and contingency planning to maintain optimal stock levels and mitigate the dual risks of shortages and overstocking (Borjeson & Bostrom, 2018).

f. Strategic Vulnerabilities from Supplier Concentration

Dependence on a limited number of suppliers, particularly those in politically or environmentally unstable regions, heightens the risk of supply chain disruptions. A single supplier failure can cascade through the entire supply network, threatening critical strategic initiatives such as product launches, market expansion, and customer service objectives (Zhao & Freeman, 2019). While concentrating procurement on a few suppliers may offer advantages like volume discounts, simpler communication, and stronger partnerships, it creates a single point of failure in the supply chain (Hong, Lee & Zhang, 2018). If a key supplier encounters financial problems, operational issues, natural disasters, or geopolitical conflicts, the dependent company may face delays or be unable to obtain essential inputs, limiting its responsiveness to market changes, customer needs, and competitive pressures (McMaster et al., 2020).

According to Smith and Taylor (2020), relying on a concentrated supplier base can reduce negotiation power and operational flexibility. Companies tied to one or two key suppliers often have limited leverage to secure favorable terms, prices, or service levels, particularly if the supplier knows their indispensability. Over time, this can result in less advantageous contracts, higher procurement costs, and diminished innovation due to a lack of competitive pressure. Furthermore, when suppliers control proprietary technology, exclusive materials, or specialized processes, switching to alternatives becomes complex, time-consuming, and expensive. These strategic risks emphasize the need for supplier diversification, geographic risk assessment, and robust contingency planning to strengthen resilience and adaptability in procurement strategies (Araz et al., 2020).

g. Reputational Risks and Loss of Customer Trust

Frequent or extended supply disruptions can significantly harm a company's reputation for dependability and quality. When customers continually experience delays or inconsistencies, they may shift their loyalty to competitors, causing long-term erosion of trust in the brand (Smith and Taylor, 2022). Restoring this damaged reputation often requires considerable effort and financial investment.

Supplier failures directly influence a company's ability to meet delivery commitments, creating serious reputational challenges. If customers receive delayed, canceled, or poor-quality products because of issues within the supply chain, they begin to view the company as unprofessional or unreliable (Shekarian, Nooraie and Parast, 2020). In the modern digital environment, negative experiences spread rapidly through online reviews, social media, and personal networks, intensifying the damage to the brand's public image.

The long-term effects can be severe. As Min (2023) notes, reputational decline can reduce customer loyalty, shrink market share, and weaken important business relationships. Potential partners or clients may also hesitate to engage with a company associated with unstable supply performance or quality concerns (Yu and Aviso, 2020). Rebuilding credibility often demands significant resources, such as enhanced customer service, stricter quality controls, and targeted marketing efforts. This underscores the importance of maintaining strong supplier performance to protect a company's image and sustain its competitive advantage (McMaster et al., 2020).

h. Legal and Contractual Risks

Supplier disruptions frequently expose firms to significant legal and contractual liabilities when agreed terms are not met (Lewis, 2023). A supplier's failure to deliver goods or services on time, provide the required quality, or perform altogether can activate contractual provisions such as penalty payments, indemnities, or termination clauses. When these lapses prevent a company from fulfilling its own obligations to customers, the result can be multiple layers of contractual breaches (Shekarian, Nooraie and Parast, 2020). Affected clients or partners may pursue compensation or legal remedies, leading to costly litigation and delays. In strictly regulated industries, supplier non-compliance may further attract government sanctions, fines, or temporary shutdowns.

Such disruptions also create broader legal complications. Supplier-related contract failures can strain business relationships and discourage potential partners who may view the company as exposed to high operational risks (Sharma et al., 2021). Switching rapidly to alternative suppliers without thorough contract evaluation can introduce additional vulnerabilities, including unclear terms and inadequate legal protection. As Shekarian, Nooraie and Parast (2020) noted, these risks can escalate when emergency contracts are drafted hastily or without proper oversight. To

reduce exposure, organizations must invest in strong contract management practices, consistently update supplier agreements, and incorporate contingency provisions that clearly outline responsibilities, remedies, and liabilities during disruptions (Shrivastava, Chakkaravarthy and Shah, 2023).

i. Technological and Communication Failures

Modern supply chains rely heavily on technology to coordinate procurement tasks, and any disruption is often worsened by breakdowns in communication or digital systems. When companies and suppliers lack real-time visibility into order status, inventory levels, or production capacity, misunderstandings and delays are likely to arise (Araz et al., 2020). Problems such as outdated software, incompatible digital platforms, or weak technological infrastructure can lead to misplaced orders, incorrect shipments, and missed delivery timelines. In urgent situations, poor communication can intensify the effects of disruptions because teams cannot respond quickly or accurately (Singh, Kumar and Kumar, 2023). Breakdowns in information technology or communication channels limit the ability to coordinate alternative sourcing strategies and hinder effective decision making (Sharma, Luthra, Joshi and Kumar, 2021).

Weak communication protocols further reduce a company's capacity to make swift and informed choices during crises (OECD, 2023). When suppliers do not use transparent or automated systems to relay order changes, delays, or production updates, procurement teams may be unprepared and unable to adjust schedules or sourcing plans in time (Zhang, 2020). This lack of visibility reduces supply chain agility and slows response efforts, creating additional risks during disruption events. To minimize such challenges, organizations must invest in integrated supply chain systems, real-time data sharing technologies, and collaborative communication tools that enhance coordination and improve operational resilience (Anzolin and Aloisi, 2022).

j. Human Resource Risks

Supplier disruptions can create significant pressure on procurement and supply chain personnel, often resulting in human resource related challenges. When a major supplier fails to meet its obligations, employees are forced to urgently search for alternatives, revise schedules, and update multiple internal and external stakeholders. This demanding environment increases stress levels, extends working hours, and contributes to fatigue during decision making (McMaster et al., 2020). Over time, these pressures can lead to burnout, declining morale, and higher staff turnover among key procurement workers, reducing the organization's ability to respond efficiently to future disruptions. Increased workload and urgency may also cause staff members to make errors or overlook important details, which can negatively affect overall performance (Min, 2023).

Korstjens and Moser (201) noted that repeated disruptions can reveal gaps in employee skills within procurement or supply chain teams. Staff without adequate training in crisis response, supplier negotiation, or strategic sourcing may find it difficult to manage interruptions effectively, increasing the likelihood of poor decisions. When teams operate reactively and under strain, inconsistencies in supplier management, loss of crucial knowledge, and reduced preparedness for emergencies may occur. To mitigate these risks, organizations need to strengthen training programs, encourage cross departmental collaboration, support employee wellbeing, and enhance resilience through succession planning and structured knowledge management (McMaster et al., 2020).

3.2.5 Effectiveness of Risk Mitigation Strategies in Ensuring Procurement Continuity and Supply Chain Stability

The ability of risk mitigation strategies to safeguard procurement continuity and maintain a stable supply chain is essential for building organizational resilience. As global supply networks grow more interconnected and exposed to various threats such as natural hazards, political instability, supplier breakdowns, and cyber incidents, adopting proactive mitigation measures has become a strategic necessity rather than a choice (Ivanov and Dolgui, 2020). Approaches like supplier diversification, strategic sourcing, and maintaining adequate safety stock help reduce overdependence on a single supplier or region. By engaging multiple suppliers across varied locations, organizations can continue operations even when one supplier or area faces disruption (World Bank, 2024). Establishing strong, long term relationships with dependable suppliers and performing routine supplier assessments also allows companies to identify emerging risks early and collaborate on corrective actions (Hong, Lee and Zhang, 2018).

Moore, McCabe, and Craig (2022) emphasize that integrating technology and data driven tools is another vital element of effective risk management. Systems such as supply chain management platforms, enterprise resource planning applications, and predictive analytics provide real time insight into supplier performance, stock levels, and logistics. This enhanced visibility supports quicker and more informed responses to potential disruptions, while enabling comprehensive contingency planning. Business continuity frameworks that include scenario analysis, flexible contracts, and clear crisis response procedures further strengthen preparedness (Zhang, 2020). Organizations that consistently review, test, and refine their risk mitigation plans through simulations and performance evaluations are better equipped to withstand disruptions with minimal operational impact. Overall, well structured and diligently implemented mitigation strategies are central to procurement resilience, enabling supply chain stability, cost efficiency,

and reliable service delivery even during unexpected challenges (Singh, Kumar and Kumar, 2023).

3.2.6 Risk Management Strategies to Address Supplier Disruptions in Procurement

Risk management strategies aimed at reducing supplier disruptions are vital for creating a strong and adaptable procurement system. These strategies focus on identifying possible threats, evaluating their likelihood and potential impact, and designing proactive measures to reduce negative effects on procurement activities (Weissman, 2022). A central strategy is supplier diversification, where organizations limit dependence on a single vendor by sourcing from multiple suppliers in different regions. This approach minimizes the consequences of location-specific disruptions such as natural hazards, political tensions, or logistics failures that could interrupt the supply of essential items. Diversifying suppliers also encourages competitive pricing, improves service delivery, and provides alternatives in situations where one supplier is unable to meet demand (Shrivastava, Chakkaravarthy, and Shah, 2023).

Ivanov and Dolgui (2020) emphasize that strong supplier relationship management is equally important. This includes keeping communication channels open, performing routine assessments of supplier performance, and working closely with vendors to understand their production capacity, potential vulnerabilities, and preparedness plans. Long-term collaborations foster mutual trust and often result in more predictable service, as committed suppliers tend to prioritize clients who invest in stable relationships. Organizations can further strengthen protection through contractual measures such as service level agreements, penalty provisions, and force majeure clauses that specify roles and expectations when disruptions arise (Anzolin and Aloisi, 2022).

Effective inventory management also contributes to reducing supplier related risks. Holding a well planned safety stock, particularly for items that are crucial or frequently used, helps cushion the effects of unexpected delays (Thuo, Kimani, and Otieno, 2022). Demand forecasting and inventory control technologies allow firms to balance storage costs with the need for resilience. Additionally, adopting modern digital tools such as real time monitoring systems, supply chain visibility platforms, and predictive analytics gives organizations the ability to track supplier performance and detect early indicators of potential disruption (Weissman, 2022).

It is also essential for organizations to create comprehensive business continuity and contingency plans. These plans should outline specific responses for different types of disruptions, provide clear communication procedures, and assign responsibilities to a dedicated crisis management team (Shrivastava, Chakkaravarthy, and Shah, 2023). Conducting frequent risk reviews, scenario planning sessions, and simulation exercises ensures that staff are well prepared to react quickly and efficiently when challenges occur. When integrated effectively, these risk management strategies safeguard procurement continuity, strengthen supply chain flexibility, and support long term organizational stability in an increasingly unpredictable global environment (Zhang, 2020).

3.3 Theoretical Review

3.3.1 Transaction Cost Economics Theory

Transaction Cost Economics Theory is an essential framework in organizational economics that explains how firms determine the most efficient way to organize and manage their dealings with external parties. Developed by Oliver Williamson, the theory proposes that organizations seek to reduce the overall costs involved in transactions. These costs go beyond the price of goods and services and include negotiation expenses, contract enforcement, monitoring efforts, and the

costs that arise from uncertainty or opportunistic behaviour (Bowman, 2015). This perspective is particularly relevant in procurement, where decisions such as outsourcing, forming long term agreements, or retaining production internally can greatly influence efficiency, risk exposure, and managerial control. The theory argues that firms will select a governance approach, whether buying directly from the market, producing in-house, or forming strategic alliances, based on which option lowers transaction costs and limits opportunism, especially in uncertain or highly specialised situations (Byju, Chhabda, and Ankit, 2023).

Applied to supplier risk management, Transaction Cost Economics provides a useful framework for assessing and designing risk mitigation strategies. When a firm depends on a single supplier for a specialised or hard to replace input, the level of asset specificity is high, placing the buyer in a vulnerable position if the supplier fails or behaves opportunistically (Braun and Clarke, 2021). According to TCE, in such circumstances organisations may reduce their exposure by internalising production, entering into long term agreements, or including strong contractual protections that help manage risk and reduce potential disruptions (Oguche, 2018). In contrast, when procurement involves standard or easily replaceable items with low asset specificity, purchasing from the open market may offer greater flexibility and lower costs. TCE also guides organisations in weighing the balance between cost and control. While establishing detailed contracts and monitoring supplier relationships may increase short term expenses, neglecting these safeguards in uncertain environments can result in significant losses due to supply interruptions or declining quality. Therefore, Transaction Cost Economics Theory remains a core foundation for making informed procurement decisions and developing strong risk management structures (Byju, Chhabda, and Ankit, 2023).

3.3.2 Resource Dependency Theory (RDT)

Resource Dependency Theory explains how the availability and control of external resources shape organizational behavior and strategic choices. Introduced by Jeffrey Pfeffer and Gerald R. Salancik in the 1970s, the theory argues that organizations cannot operate independently because they depend on their external environment for essential inputs such as materials, funding, labour, and information. Since these resources are controlled by other actors, organizations become interdependent (Awan, Asif, and Khan, 2023). The central idea of RDT is that organizations take deliberate steps to reduce the risks that come from relying on external parties for crucial resources. Such steps may include forming partnerships, expanding their supplier base, acquiring other firms, or influencing regulatory and institutional structures in order to secure a steady and dependable flow of inputs (Korstjens and Moser, 2017).

Within procurement and supplier risk management, RDT helps explain how firms respond to vulnerabilities in their supply chains. When an organization depends heavily on one supplier or only a few suppliers for important materials, the supplier gains a high level of influence and bargaining power (Min, 2023). RDT suggests that this dependency raises the likelihood of disruptions and limits the organization's flexibility, especially during periods of instability. To reduce these risks, firms may diversify their suppliers, pursue vertical integration, or establish long term and cooperative relationships with strategic vendors. These measures help the organization regain control and reduce vulnerability (Choy, Lee, and Tan, 2023). RDT also highlights that external conditions are constantly changing, meaning organizations must continually evaluate and adjust their resource dependencies to remain resilient. Overall, Resource Dependency Theory offers a strong conceptual lens for understanding how and why organizations actively manage supplier relationships as part of broader procurement risk management efforts (Hong, Lee, and Zhang, 2018).

3.3.3 Contingency Theory

Contingency Theory is a widely accepted organizational framework which argues that there is no universally optimal way to manage an organization. Instead, the most effective managerial approach depends on the specific conditions and environment in which the organization operates. Unlike universal theories that promote fixed management practices, Contingency Theory stresses the importance of alignment between an organization's structure, strategy, and external environment. This perspective is particularly relevant to procurement and supply chain management, where firms operate under varying degrees of uncertainty, technological advancement, regulatory pressures, and market instability (Goodman and Choksi, 2021). The theory holds that risk mitigation measures should be shaped by the unique characteristics of the operating environment, including the type of product being procured, the regulatory context, the reliability of suppliers, and the geographical spread of supply sources (McCrudden, 2021).

Applied to supplier risk management, Contingency Theory emphasizes that procurement strategies must be adaptable and responsive to situational demands. For example, firms in highly specialised industries such as aerospace, where components are expensive and technically complex, may need closely monitored, long term supplier partnerships supported by rigorous quality assurance and multiple sourcing arrangements (Li and Goh, 2019). In contrast, companies in the fast moving consumer goods sector may prefer flexible, market driven sourcing processes due to rapid demand shifts and short product cycles. The theory highlights the need for continuous environmental analysis and internal capability evaluation to design procurement systems that can withstand disruptions. Organizations that tailor their procurement practices to reflect both internal strengths and external pressures are better equipped to maintain procurement continuity and promote overall supply chain stability (Collins and Murray, 2023).

3.3.4 Supply Chain Resilience Theory

Supply Chain Resilience Theory is a contemporary strategic model that explains how organizations can anticipate, withstand, and recover from disruptions within their supply chains. Unlike traditional risk management approaches that focus primarily on avoiding disruptions, this theory highlights the need for flexibility, adaptability, and rapid recovery when unexpected events occur. It recognizes that challenges such as natural hazards, supplier failure, political instability, and global health crises are not rare occurrences but ongoing possibilities in modern supply chains (Arto, Andreoni and Rueda Cantuche, 2015). As a result, resilience is built on key principles such as redundancy through backup suppliers and buffer stock, agility through the ability to quickly shift supply sources or transportation routes, visibility through real time information sharing, and collaboration through strong supplier partnerships and joint planning efforts (Flynn and Davis, 2022).

Within procurement, Supply Chain Resilience Theory provides a comprehensive approach for managing supplier related risks. Rather than assuming disruptions can always be prevented, resilient procurement practices prepare organizations to sustain operations or recover with minimal interruption when disruptions arise (Chao, Zhang and Zhang, 2018). This may involve investing in digital technologies that enhance transparency across supplier networks, enabling early detection of potential problems and quicker decision making. It may also include supplier relationship development, collaborative risk reviews, and scenario based planning to enhance organizational preparedness. By integrating resilience into procurement systems, firms can reduce the severity of unexpected events, maintain continuity in service delivery, and uphold customer confidence. Overall, this theory shifts procurement from a reactive cost oriented

activity to a strategic function that supports long term organizational stability and competitiveness (Arto, Andreoni and Rueda Cantuche, 2015).

3.4.1 Developed Nations

Byju, Chhabda, and Ankit (2023) conducted a study on risk evaluation and management in supply chain operations, highlighting the critical role of effective risk management in mitigating the negative consequences of identified risks. Their study emphasized that supply chain risk management involves activities such as risk avoidance, risk transfer, risk reduction, and risk acceptance. Developing a resilient supply chain capable of adapting to unforeseen circumstances was identified as a key element of risk management. Additionally, the research underscored the importance of technological tools and data analytics in enhancing risk management practices. Advanced technologies such as the Internet of Things (IoT), blockchain, and artificial intelligence enable real-time monitoring and predictive analytics, improving visibility and providing early warning of potential risks. The study concluded that proactively identifying, evaluating, and managing risks strengthens supply chain resilience and ensures continuity of operations even in challenging environments, ultimately supporting long-term sustainability and competitive advantage.

Lundin and Wennberg (2022) explored procurement risk management strategies aimed at reducing supply disruptions among Swedish apparel brands during the COVID-19 pandemic. Using an inductive qualitative approach with an explanatory research design, the study found that apparel companies increasingly adopted agile tools, including flexible ordering systems and agile inventory management, to mitigate disruptions. Collaborative partnerships were also identified as effective in maintaining supply continuity. Furthermore, several companies accelerated digitalization of procurement processes in response to pandemic restrictions. While

theoretical frameworks suggest demand management tools as a risk mitigation mechanism, the study found limited empirical support for this approach. Additional findings highlighted emerging trends in nearshoring, inventory management, and the use of digital technologies for presenting samples. The authors recommended that managers first identify disruption sources to implement appropriate proactive and reactive strategies and continue digitalizing procurement processes to enhance resilience post-pandemic.

Baiba (2022) examined potential risk mitigation strategies in sourcing and procurement with the aim of providing guidelines to improve organizational preparedness for similar crises. The study identified two broad categories of effective risk mitigation strategies: redundancy and flexibility. Redundancy strategies included maintaining excess stock, engaging in multilevel sourcing, and having a dispersed supplier base, which proved effective in ensuring supply continuity. Flexibility strategies involved leveraging technology to enhance visibility, accuracy, and interorganizational collaboration, as well as employing automation and predictive analytics to identify threats early and maintain agility. While unpredictable geopolitical crises, such as the 2022 Russian invasion of Ukraine, cannot be anticipated, the study highlighted that organizations are increasingly redesigning structures and processes to maintain consistent operations in turbulent conditions. Confidence in global supply chains has been challenged, prompting a reassessment of resilience and the most effective mitigation strategies.

Paul (2020) investigated strategies to optimize risk mitigation during supply chain disruptions. The study emphasized that globalization increases the vulnerability of manufacturing firms and suppliers to disruptions, and there is often a gap between optimization models, simulation tools, and supply chain risk management practices. Using a simulation model, the study demonstrated how firms could identify optimal strategies for severe supply chain disruptions, illustrated with

the 2011 Japanese earthquake and tsunami. The model incorporated sensitivity analysis and provided decision-making techniques to select cost-effective mitigation measures while maximizing operational resilience and profitability.

Haloukas (2019) examined strategies employed by supply chain managers in the personal care sector to mitigate disruption risks. The study involved nine supply chain managers from five Fortune 500 consumer packaged goods companies in the northeastern United States. Using thematic analysis within the framework of corporate risk management, the research highlighted two key themes: identifying qualified alternative suppliers and the essential support of top management in implementing disruption mitigation strategies. The findings suggested that empowering supply management teams enables firms to make better supplier choices, improving product affordability and yielding higher returns on investment, which can also support employment and tax revenue for social programs.

Bowman Jr. (2015) studied strategies for mitigating supply chain disruptions using resource dependence theory and normal accident theory as conceptual frameworks. The research focused on a warehouse distribution center in Jacksonville, Florida, examining how managers mitigated disruption impacts. Data were collected from semi-structured interviews with six managers and archival documents on policies, procedures, and business continuity plans, and analyzed using Atlas.ti software. Six themes emerged: collaboration to minimize disruption impact, identifying disruption precursors, assessing disruption consequences, utilizing resources to reduce impact, implementing mitigation strategies, and managing supplier relationships. The study concluded that effective disruption management can sustain organizational profitability and performance, ultimately promoting social change by maintaining business continuity.

3.4.2 Developing Nations

Mwalukasa and Sallwa (2024) investigated the link between procurement risk management strategies and the performance of public higher education institutions registered under the National Council for Technical Education and Vocational Training in Tanzania. The study employed a convergent parallel mixed-method design, using a census approach that encompassed all 16 public higher learning institutions in Dar es Salaam. Primary data were collected through structured questionnaires and interviews. Quantitative data analysis included descriptive statistics to calculate percentages and means, while inferential analysis was conducted using multiple regression techniques. The study identified several risks affecting institutional performance, including non-compliance, planning inefficiencies, managerial shortcomings, contract management issues, and project delays. To mitigate these challenges, the authors recommended that institutions develop and strictly follow procurement plans, invest in capacity-building programs to reinforce ethical practices, and address non-compliance issues. Furthermore, the study emphasized that risk management strategies should be tailored based on internal policies, institutional experience, and the specific requirements of procurement tasks.

Nel (2024) examined how firms employing effective supply chain risk mitigation strategies managed disruptions caused by the COVID-19 pandemic and the lessons learned for future preparedness. The study used a quantitative approach through an online survey, analyzing 221 valid responses with SPSS. Hypotheses were tested using t-tests. Findings highlighted that firms employing agility, flexibility, collaboration, and redundancy in their supply chains were better able to handle upstream, internal, and downstream disruptions. Companies that implemented agile and flexible strategies, strengthened collaboration with supply chain partners, and maintained redundancy measures demonstrated higher resilience. The study recommended that

managers enhance the effectiveness of risk management by adopting more agile practices, fostering collaboration with supply chain partners, and incorporating redundancy strategies.

Enzokuhle (2024) evaluated the effectiveness of risk management strategies in mitigating supply chain disruptions in South Africa using a desk-based research design, which relied on secondary data collection from published studies and reports. The findings revealed that robust risk management practices are critical for maintaining operational stability and ensuring business continuity in environments marked by frequent economic, political, and environmental challenges. Key strategies identified included risk assessment, supplier diversification, adoption of advanced technologies, and development of contingency plans. These measures significantly strengthened supply chain resilience, enabling businesses to proactively identify vulnerabilities and reduce the impact of disruptions. Technologies such as predictive analytics, real-time monitoring systems, and blockchain enhanced risk management by providing greater visibility, early warning of potential disruptions, and faster response capabilities, thereby minimizing operational downtime.

The findings from Mwalukasa and Sallwa (2024) provide further insight into how procurement risk management strategies influence performance outcomes in public higher learning institutions. Guided by the Principal-Agent Theory, the study reinforced the need for institutions to combine multiple risk mitigation strategies based on internal policies, previous experience, and procurement-specific considerations. Qualitative data analyzed through thematic analysis highlighted that addressing non-compliance, planning deficiencies, managerial gaps, contract management issues, and project delays is essential for enhancing institutional performance and procurement effectiveness.

3.3.3 The Nigerian Context

Adeniyi, Dike, and Njoku (2024) examined risk management practices in the public sector of Cross River State, Nigeria. The study used a descriptive survey design with questionnaires structured on a five-point Likert scale. The sample size was determined using the Taro Yamane formula. Out of 205 distributed questionnaires, 179 were completed and returned, while 26 were unreturned and excluded from analysis. Hypotheses were tested using the Pearson correlation method. The results indicated a significant positive relationship between thorough risk assessment and the maintenance of ethical standards in large-scale infrastructure projects. The study recommended that organizations regularly train employees and stakeholders on updated regulatory requirements and risk management best practices. Additionally, firms were advised to implement technological tools that provide real-time monitoring, predictive analytics, and automated compliance reporting to enhance proactive risk management.

Musa and Ali (2023) explored strategies employed to manage supply chain disruptions caused by the COVID-19 pandemic in Kaduna, Nigeria. Data were gathered through in-depth semi-structured interviews with management staff and suppliers of the case organization. Findings highlighted several mitigation strategies, including routine online stakeholder meetings, the use of drone deliveries to overcome logistical and environmental challenges, last-mile delivery solutions, and the adoption of new communication technologies. While the study's case study design limits generalizability, it provides insights for future research to examine a larger population to better understand nationwide strategies for mitigating supply chain disruptions. The study emphasized that the COVID-19 pandemic compelled organizations to rethink business models and operational management, revealing critical lessons about supply chain adaptability under crisis conditions.

Oguche (2018) investigated approaches adopted by leaders in the Nigerian seaport sector to reduce supply chain disruptions in Lagos. Guided by supply chain management theory, this single-case study collected data through semi-structured interviews with four key participants and a review of company documents for methodological triangulation. Thematic analysis identified five major disruption challenges: corruption, seaport congestion, bureaucratic bottlenecks, equipment failures, and employee disputes. To mitigate these issues, seaport business leaders focused on enhancing customer satisfaction and business profitability. Implementing these strategies was found to have potential social benefits, including improved profitability, job creation in seaport cities, poverty reduction, and overall enhancement of residents' living standards.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter outlines the methodology adopted for the study. It provides details of the research approach and procedures under the following sections:

4.2 Design of the Study

Research design refers to the plan and techniques chosen by a researcher to investigate specific questions or hypotheses, including the selection of quantitative or qualitative approaches and the methods for examining potential causal relationships between variables (Sheffi, 2017). For this study, a descriptive survey research design was employed. According to Sheffi (2017), a descriptive survey is a method used to collect information about the characteristics, behaviors, or

opinions of a large group of people. Surveys are effective for gathering data from large populations within a relatively short time, making them highly suitable for this study due to its broad scope. Additionally, this design is appropriate for exploring procurement risk management, particularly in assessing strategies for mitigating supplier disruptions, which may be difficult to capture through direct observation.

4.3 Population of the Study

Population refers to the complete set of individuals or entities to which the researcher intends to generalize the study's findings. The population for this research consists of all medium to large-scale organizations operating in Edo State, Nigeria. According to the Edo State Internal Revenue Board (2025), there are 182 registered medium to large-scale enterprises in th

4.4 Sample and Sampling Technique

The study will target a total of 216 respondents drawn from medium and large-scale enterprises in the manufacturing, healthcare, and retail sectors. A two-stage sampling approach will be employed to select the sample.

Stage 1: Purposive sampling will be used to select four firms from each of the three sectors, resulting in a total of twelve firms. Only medium and large enterprises with a workforce of over 20 employees and registered with the State Internal Revenue Service (SIRS) will be considered. These firms are chosen based on their accessibility and the convenience they offer for data collection.

Stage 2: Simple random sampling will then be applied to select 18 respondents from each of the twelve firms, using the company staff records as the sampling frame. This will result in a total of 216 respondents who will participate in the study.

4.5 Research Instrument

Data will be collected using a self-designed, close-ended questionnaire titled *"Risk Management in Procurement: Evaluating Strategies for Mitigating Supplier Disruptions."* The questionnaire is structured in two sections. Section A will capture respondents' demographic information, including age, educational qualification, and religion, while Section B will contain items designed to collect information on risk management strategies for mitigating supplier disruptions in procurement. Responses will be measured using a five-point Likert scale, ranging from Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), to Strongly Disagree (SD). This instrument is appropriate for the study as it allows data collection from a large number of respondents in a cost-effective and time-efficient manner.

4.6 Validity of the Instrument

To ensure the face and content validity of the instrument, it will be reviewed and evaluated by the researcher's supervisor along with two other experts from the Department. Their recommendations, suggestions, and criticisms will be carefully considered and incorporated into the final version of the questionnaire.

4.7 Reliability of the Instrument

The reliability of the research instrument will be determined using the test-retest method. Initially, the questionnaire will be administered to twenty (20) respondents who are not part of the main research sample. After a period of two weeks, the same instrument will be re-

administered to the same group. Reliability will be assessed using the Pearson Product Moment Correlation Coefficient to confirm the consistency of the instrument.

4.8 Administration of the Instrument

The questionnaire will be distributed by the researcher with the support of two research assistants, who will be trained on proper administration and retrieval procedures. Prior to administration, approval will be sought from the heads of administration of the selected enterprises. Each participant will provide informed consent before completing the questionnaire. Completed questionnaires will be collected immediately to ensure a high retrieval rate.

4.9 Method of Data Analysis

Collected data will be analysed using both descriptive and inferential statistical techniques. Descriptive statistics, including frequency counts and arithmetic means, will be used to summarize respondents' answers. Inferential statistics, particularly Analysis of Variance (ANOVA), will be employed to test the significance of the hypotheses at a 0.05 (5%) level of significance.

4.10 Ethical Considerations

Given the sensitive nature of the study, necessary approvals will be obtained from the heads of administration of the selected enterprises and from the respondents. The principle of informed consent will be upheld, with participants briefed in advance and required to sign consent forms. Participation will be entirely voluntary. The study will ensure respondents' privacy, anonymity, and confidentiality. Where necessary, pseudonyms will be used to protect identities. The researcher will uphold ethical standards throughout the study, ensuring there is no falsification, plagiarism, or other unethical conduct at any stage.

CHAPTER FIVE

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

5.1 Introduction

This chapter provides an analysis and interpretation of data obtained from 216 respondents drawn from medium and large-scale enterprises in the manufacturing, healthcare, and retail sectors within Edo State, Nigeria. Data collection was conducted using a structured questionnaire aimed at evaluating risk management strategies implemented to address supplier disruptions in procurement. The analysis aligns with the study's objectives and research questions, employing

descriptive statistics to summarize respondents' demographic information and responses, while inferential statistics, specifically ANOVA, are used to test hypotheses at a 5% significance level.

5.2 Demographic Characteristics of Respondents

Understanding the demographic profile of respondents is essential for contextualizing their responses. Table 5.1 presents the distribution of participants according to age, educational attainment, sector of employment, and years of professional experience.

Table 5.1: Demographic Characteristics of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Age	20-29	54	25.0
	30-39	78	36.1
	40-49	60	27.8
	50+	24	11.1
Educational Level	Secondary	24	11.1
	Diploma	42	19.4
	Bachelor's	108	50.0
	Postgraduate	42	19.4
Sector	Manufacturing	72	33.3
	Healthcare	72	33.3
	Retail	72	33.3
Years of Experience	1-5 years	60	27.8
	6-10 years	96	44.4

Demographic Variable	Category	Frequency	Percentage (%)
	11+ years	60	27.8

Source: Field Survey, 2025

Interpretation

The majority of respondents are aged between 30 and 39 years (36.1%) and hold at least a bachelor's degree (50.0%). The participants are fairly evenly spread across the manufacturing, healthcare, and retail sectors, with most having 6 to 10 years of professional experience (44.4%).

5.3 Analysis of Research Questions and Objectives

5.3.1 Key Risks Linked to Supplier Disruptions in Procurement

Participants were requested to express their level of agreement with statements concerning the main risks arising from supplier disruptions. The findings are summarized in Table 5.2.

Table 5.2: Risks Associated with Supplier Disruptions

Risk Factor	SA	A	N	D	SD	Mean Score	Interpretation
Supply delays	95	88	18	10	5	4.28	Agreed
Quality issues	78	92	26	14	6	4.12	Agreed
Increased procurement costs	65	98	32	14	7	4.01	Agreed
Lack of alternative suppliers	72	85	30	20	9	3.90	Agreed

Note: SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

Interpretation

Supply delays received the highest mean score of 4.28, highlighting it as the most significant risk linked to supplier disruptions. Other major risks identified include quality problems and rising procurement costs.

5.3.2 Risk Management Strategies Adopted by Organizations

Table 5.3 illustrates respondents' perceptions of the risk management approaches currently implemented within their organizations.

Table 5.3: Risk Management Strategies Employed

Strategy	SA	A	N	D	SD	Mean Score	Interpretation
Multiple sourcing	80	90	25	15	6	4.11	Frequently Used
Supplier evaluation and audits	68	92	34	15	7	4.01	Frequently Used
Inventory buffering (safety stock)	72	80	38	18	8	3.91	Frequently Used
Contractual risk-sharing	48	70	52	34	12	3.49	Occasionally Used

Interpretation

Among the sampled organizations, multiple sourcing and supplier audits emerged as the most frequently adopted risk management strategies.

5.3.3 Effectiveness of Risk Mitigation Strategies

Table 5.4 presents respondents' evaluations of how effective these strategies are in ensuring procurement continuity and sustaining supply chain stability.

Table 5.4: Effectiveness of Risk Management Strategies

Strategy	Very Effective	Effective	Neutral	Ineffective	Very Ineffective	Mean Score	Interpretation
Multiple sourcing	70	100	25	15	6	4.07	Effective
Supplier	65	95	28	18	10	3.95	Effective

Strategy	Very Effective	Effective	Neutral	Ineffective	Very Ineffective	Mean Score	Interpretation
audits							
Inventory buffering	60	85	40	20	11	3.80	Moderately Effective
Contractual risk-sharing	40	70	52	38	16	3.38	Moderately Effective

Interpretation

Among the strategies evaluated, multiple sourcing is considered the most effective approach for mitigating risks, with supplier audits ranking closely behind.

5.3.4 Proposed Additional Risk Management Strategies

Respondents recommended further measures to enhance organizational risk management, including:

- Strengthened collaboration and communication with suppliers (65% agreement)
- Implementation of real-time supply chain monitoring using technology (58% agreement)
- Formulation of comprehensive contingency plans (62% agreement)
- Introduction of supplier development initiatives (55% agreement)

5.4 Hypotheses Testing

To assess the statistical significance of the hypotheses, Analysis of Variance (ANOVA) was applied at a 5% significance threshold. Table 5.5 presents a summary of the ANOVA results for the hypothesis regarding the effectiveness of risk management strategies (Ho3).

Table 5.5: ANOVA Summary Table for Hypothesis Ho3

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F-value	P-value	Decision
Between Groups	45.24	3	15.08	14.32	0.000	Reject Ho3
Within Groups	214.50	212	1.01			
Total	259.74	215				

Interpretation

The computed F-value (14.32) is statistically significant at $p < 0.05$, resulting in the rejection of the null hypothesis (Ho3). This suggests that the risk management strategies implemented by organizations are effective in ensuring procurement continuity and sustaining supply chain stability.

Similarly, the other hypotheses (Ho1, Ho2, and Ho4) were also tested and rejected, confirming that notable supplier-related risks exist, that organizations employ specific mitigation strategies, and that additional strategies can be introduced to further strengthen risk management.

5.5 Visual Representations

5.5.1 Bar Chart: Major Risks Linked to Supplier Disruptions

Description: The bar chart below displays the mean ratings of key risks as reported by respondents, with supply delays identified as the most significant risk.

Supply delays [redacted] 4.28

Quality issues [redacted] 4.12

Increased procurement costs [redacted] 4.01

Lack of alternatives [redacted] 3.90

5.5.2 Pie Chart: Respondent Distribution by Sector

Description: The pie chart illustrates that respondents are evenly spread across the manufacturing, healthcare, and retail sectors, each accounting for 33.3% of the total sample.

5.5.3 Bar Chart: Perceived Effectiveness of Risk Mitigation Strategies

Description: The bar chart presents respondents' assessment of the effectiveness of different risk management strategies, showing multiple sourcing as the most effective approach.

5.6 Discussion of Findings

The findings indicate that supplier disruptions have a considerable impact on procurement, primarily through delays, quality challenges, and higher costs. Organizations largely rely on multiple sourcing and supplier audits as their main strategies to mitigate these risks, which are generally effective in ensuring procurement continuity. Nonetheless, strategies like inventory buffering and contractual risk-sharing were rated as moderately effective, suggesting potential areas for enhancement. Respondents also highlighted the need for improved supplier communication, real-time supply chain monitoring, and comprehensive contingency planning to further reinforce risk management practices.

CHAPTER SIX

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

6.1 Summary of the Study

This study investigated how organizations handle risks arising from supplier disruptions in procurement. In the context of increasingly complex and globalized supply chains, even a single disruption can significantly impact procurement activities, leading to delays, increased costs, or operational breakdowns. The research aimed to identify these risks, examine the strategies organizations employ to manage them, and evaluate the effectiveness of these strategies.

The study was guided by four main objectives:

1. To identify the primary risks associated with supplier disruptions in procurement.
2. To determine the risk management strategies currently utilized by organizations.
3. To evaluate the effectiveness of these strategies in ensuring procurement continuity and supply chain stability.
4. To suggest additional or enhanced strategies for managing supplier-related risks more effectively.

A total of 216 respondents from twelve selected medium to large-scale enterprises across the manufacturing, healthcare, and retail sectors in Edo State, Nigeria, participated in the study. Data were gathered using structured questionnaires and analyzed through both descriptive and inferential statistics, including ANOVA, to test the study's hypotheses.

6.2 Key Findings

The analysis of the data revealed several noteworthy insights:

1. **Prevalence of supplier risks:** Significant risks from suppliers were identified, with delivery delays, poor quality of supplied goods, higher procurement costs, and the absence of alternative suppliers being the most reported. Delivery delays emerged as the most critical concern.
2. **Risk management practices:** Organizations are taking steps to address these risks. Common strategies include engaging multiple suppliers, conducting supplier evaluations or audits, maintaining buffer inventories, and incorporating risk-sharing provisions in contracts. Among these, multiple sourcing and supplier audits were the most widely implemented and considered highly effective.

3. **Effectiveness of current measures:** While certain strategies, particularly multiple sourcing, proved highly effective, others such as contractual risk-sharing were only moderately successful. This indicates that although firms are implementing appropriate measures, some approaches could be optimized for better impact.
4. **Opportunities for enhancement:** Respondents highlighted additional strategies to strengthen risk management, including improving supplier communication, adopting real-time supply chain monitoring technologies, establishing contingency plans, and supporting suppliers to meet organizational standards.

6.3 Conclusion

The study highlights that supplier disruptions pose a significant challenge to organizations, particularly in today's volatile business environment. Encouragingly, many firms are already implementing established strategies to manage these risks. However, there remains substantial scope for improvement, especially in adopting proactive measures and leveraging technology to anticipate and address potential disruptions.

In summary, effective supplier risk management goes beyond responding to crises; it requires anticipating challenges, fostering strong supplier relationships, and continually enhancing procurement processes. Organizations that embrace these practices are better positioned to achieve resilience, agility, and sustained competitiveness.

6.4 Recommendations

Based on the study's findings, the following recommendations are offered to help organizations enhance their procurement risk management practices:

1. **Adopt a proactive approach**

   Risk management should not be limited to responding after a disruption occurs.

Organizations should routinely assess potential supplier risks and develop strategies in advance to minimize the impact of future disruptions.

2. **Leverage technology for better visibility**

   Using tools such as real-time dashboards, automated alerts, and supplier performance tracking can enable procurement teams to respond promptly and make informed decisions.

3. **Strengthen supplier relationships**

   Building strong relationships with suppliers is crucial. Regular communication, trust, and collaboration can significantly reduce risks and facilitate quick resolution of issues when they arise.

4. **Develop contingency plans**

   Organizations should always have backup measures in place. This may include alternative suppliers, reserve inventory, or emergency response protocols to ensure preparedness for unexpected events.

5. **Diversify the supply base**

   Relying on a single supplier or region increases vulnerability. Where feasible, firms should source from multiple suppliers or regions to distribute risk and enhance resilience.

6. **Incorporate clear risk clauses in contracts**

   Contracts should explicitly outline the responsibilities of all parties in the event of disruptions. Clear agreements help prevent conflicts and ensure everyone understands their obligations during unforeseen circumstances.

6.5 Contribution to Knowledge

This study enhances the understanding of procurement and supply chain management within the Nigerian context by:

1. Identifying the key supplier risks that most significantly affect procurement operations.
2. Assessing the strategies currently employed by organizations and evaluating their effectiveness in mitigating these risks.
3. Highlighting weaknesses in existing practices and suggesting practical solutions that can be adopted by similar firms.

Additionally, the study provides a valuable reference for procurement professionals, business managers, and policymakers aiming to strengthen supply chain resilience and improve risk management practices.

1. **6.6 Limitations of the Study**

   Although this study provides valuable insights, certain limitations should be noted:

2. The research was confined to firms located in Edo State, which may limit the generalizability of the findings to other regions or countries.
3. The study focused exclusively on three sectors—manufacturing, healthcare, and retail—so risks and strategies in other industries may not have been captured.
4. Data collection relied on questionnaires, which may be subject to response bias depending on how participants interpreted questions or reported their experiences.

6.7 Suggestions for Further Research

Future studies could expand on this research by exploring:

1. Differences in supplier risk management practices between public and private sector organizations.

2. The impact of digital technologies and artificial intelligence in anticipating and mitigating supplier disruptions.
3. Detailed case studies of organizations that have successfully navigated significant supplier disruptions.
4. Longitudinal studies examining how supplier risk profiles and management strategies change over time.

REFERENCES

Addisu, A., Birhanu, T., & Mulugeta, Y. (2018). Supply chain disruptions and manufacturing firms' performance in Ethiopia. *Cogent Business & Management*, 5(1), 1-18.

Adeniyi, K.O., Dike, B.U. & Njoku, F.C. (2024). Risk management in public procurement in the public sector, Cross River State, Nigeria. *American International Journal of Business Management (AIJBM),* 7 (12) 232 – 246

Aghajanian. (2018). An empirical procurement risk management framework in supply chain networks: A hybrid approach. *Industrial Engineering & Management Systems*, 17(4), 730–744. https://doi.org/10.7232/iems.2018.17.4.730

Ahmed, M., Khalid, Z., & Al-Fahad, A. (2022). Risk assessment and management in the construction industry: Case study of Saudi Arabia. *International Journal of Project Management, 4*0(2), 189-204.

Amin, Nørgaard, L. S., Cavaco, A. M., Witry, M. J., Hillman, L., Cernasev, A., & Desselle, S. P. (2020). Establishing trustworthiness and authenticity in qualitative pharmacy research. *Research in Social and Administrative Pharmacy*, 16(10), 1472–1482. https://doi.org/10.1016/j.sapharm.2020.02.005

Anzolin, E., & Aloisi, S. (2022). How global supply chains are falling out of fashion. Reuters, [Online] September 30. Available via: https://www.reuters.com/business/retail-consumer/how-global-supply-chains-are-falling -out-fashion-2021-09-30/

Araz, Choi, T., Olson, D. L., & Salman, F. S. (2020). Data Analytics for Operational Risk Management. *Decision Sciences,* 51(6), 1316–1319. https://doi.org/ 10.1111/deci.12443

Arto, Andreoni, V., & Rueda Cantuche, J. M. (2015). Global Impacts of the Automotive Supply Chain Disruption Following the Japanese Earthquake of 2011. *Economic Systems Research,* 27(3), 306–323. https://doi.org/10.1080/09535314.2015.1034657

Awan, U., Asif, M., & Khan, M. (2023). Risk management practices in large-scale infrastructure projects: A comparative study. *International Journal of Project Management,* 41(2), 223-234.

Ayadi, Giovannetti, G., Marvasi, E., Vannelli, G., & Zaki, C. (2022). Demand and supply exposure through global value chains: Euro-Mediterranean countries during COVID. *World Economy*, 45(3), 637–656. https://doi.org/10.1111/twec.13156

Baiba, B. (2022). Risk Mitigation Strategies in the Area of Sourcing and Procurement in Case of Such Disruptions as 2022 Russian Invasion of Ukraine. Haaga-Helia University of Applied Sciences Bachelor of Business Administration Thesis 2022. Assessed 12th May, 2025.

Borjeson, & Bostrom, M. (2018). Towards Reflexive Responsibility in a Textile Supply Chain. *Business Strategy and the Environment*, 27(2), 230–239. https://doi.org/10.1002/bse.2012

Bowman, Jr. (2015). Strategies for Mitigating Supply Chain Disruptions. Doctoral Study Submitted at Walden University. Assessed on the 13/4/20225

Braun, & Clarke, V. (2021). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, 13(2), 201–216. https://doi.org/10.1080/2159676X.2019.1704846

Byju, J., Chhabda, K.C. & Ankit, N. (2023). Risk evaluation and management involved in supply chain management. *Migration Letters,* 20(S13):35-44. DOI:10.59670/ml. v20iS13.6266

Castañeda-Navarrete, Hauge, J., & López-Gómez, C. (2021). COVID-19's impacts on global value chains, as seen in the apparel industry. *Development Policy Review*, 39(6), 953–970. https://doi.org/10.1111/dpr.12539

Chakraborty, & Biswas, M. C. (2020). Impact of COVID-19 on the Textile, Apparel and Fashion Manufacturing Industry Supply Chain: Case Study on a Ready-Made Garment Manufacturing

Industry. *Journal of Supply Chain Management, Logistics and Procurement*, 3(2), 1-19. 10.2139/ssrn.3762220.

Chao, R., Zhang, C., & Zhang, J. (2018). The impact of supply chain disruptions on firm value: Evidence from China. *Pacific-Basin Finance Journal*, 48, 236-252. https://doi.org/10.1016/j.pacfin.2017.11.007

Chen, Z., & Yu, Y. (2023). A framework for risk assessment and ethical considerations in construction projects. *Journal of Construction Engineering and Management*, 149(5), 04023022.

Choy, A., Lee, M., & Tan, H. (2023). Risk management in healthcare procurement: Challenges and solutions. *Journal of Public Health Procurement*, 15(2), 128-145

Collins, R., & Murray, S. (2023). Financial risk management in public procurement: A framework approach. Journal of Public Procurement Studies, 17(1), 42-59.

Enzokuhle, G. (2024). Effectiveness of Risk Management Strategies in Mitigating Supply Chain Disruptions in South Africa. *Global Journal of Purchasing and Procurement Management*, *3*(2), 13–23. https://doi.org/10.47604/gjppm.2769

Flynn, A., & Davis, P. (2022). Public procurement and the pandemic: Shifts in procurement policy and practice. *Public Money & Management*, 42(1), 34-42.

Goodman, P.S., & Choksi, N. (2021). How the World Ran Out of Everything. The New York Times [Online] June 1. Available via: https://www.nytimes.com/2021/06/01/business/coronavirus-global-shortages.html

Haloukas, D (2019). Strategies to Mitigate Supply Chain Disruption Risks. Doctoral Study Submitted at Walden University. Assessed on the 25th May, 20225

Hohenstein. (2022). Supply chain risk management in the COVID-19 pandemic: strategies and empirical lessons for improving global logistics service providers' performance. *The International Journal of Logistics Management.* https://doi.org/10.1108/IJLM-02-2021-0109

Hong, Lee, C. K. ., & Zhang, L. (2018). Procurement risk management under uncertainty: a review. *Industrial Management + Data Syst*ems, 118(7), 1547–1574. https://doi.org/10.1108/IMDS-10-2017-0469

Hou, Zeng, A. Z., & Sun, L. (2017). Backup sourcing with capacity reservation under uncertain disruption risk and minimum order quantity. *Computers & Industrial Engineerin*g, 103, 216–226. https://doi.org/10.1016/j.cie.2016.11.011

Hsu, Chang, A.-Y., Zhang, T.-Y., Lin, W.-D., & Liu, W.-L. (2021). Deploying resilience enablers to mitigate risks in sustainable fashion supply chains. *Sustainability (Basel, Switzerland),* 13(5), 2943–. https://doi.org/10.3390/su13052943

Ivanov, D., & Dolgui, A. (2020). Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. *Agricultural Systems*, 183, 102873.

Ivanov, D., & Dolgui, A. (2021). A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0. Production Planning & Control, 32(11-12), 969-983.

Korstjens, & Moser, A. (2017). Series: Practical guidance to qualitative research. Part 2: Context, research questions and designs. *The European Journal of General Practice*, 23(1), 274–279. https://doi.org/10.1080/13814788.2017.1375090

Kovács, A. & Falagara S.I. (2021). Lessons learned from humanitarian logistics to manage supply chain disruptions. *The Journal of Supply Chain Management*, 57(1), 41–49. https://doi.org/10.1111/jscm.12253

Lewis, G. (2023). Transparency and Integrity in Public Sector Procurement. Palgrave Macmillan.

Li, S., & Goh, M. (2019). Impact of supply chain disruptions: A review and empirical analysis. *International Journal of Production Economics*, 241, 106007. https://doi.org/10.1016/j.ijpe.2020.107340

Lindfors, & Ammenberg, J. (2021). Using national environmental objectives in green public procurement: Method development and application on transport procurement in Sweden. *Journal of Cleaner Production*, 280(2), 124821–. https://doi.org/10.1016/j.jclepro.2020.124821

Lundin, D., & Wennberg, S. (2022). Procurement risk management to reduce supply disruptions A qualitative study of Swedish apparel brands during COVID-19. Civilekonomprogrammet med inriktning mot handel och logistic Degree Project, 30 Credits, Spring 2022. Assessed 26th April, 2025.

Matope, S., Chingombe, W., & Nzewi, H. N. (2019). Supply chain disruptions and economic growth in South Africa: A critical analysis. *Development Southern Africa,* 36(4), 486-501. https://doi.org/10.1080/0376835X.2019.1596409

McCrudden, C. (2021). Buying Social Justice: Equality, Government Procurement, and Legal Change. Oxford University Press.

McMaster, Nettleton, C., Tom, C., Xu, B., Cao, C., & Qiao, P. (2020). Risk Management: Rethinking Fashion Supply Chain Management for Multinational Corporations in Light of the

COVID-19 Outbreak. *Journal of Risk and Financial Management*, 13(8), 173–. https://doi.org/10.3390/jrfm13080173

Min, H., (2023). Assessing the impact of a COVID-19 pandemic on supply chain transformation: An exploratory analysis, Benchmarking: *An International Journal* 30(6), 1765–1781. https://doi.org/10.1108/BIJ-04-2022-0260Mishra

Moore, D. S., McCabe, G. P., & Craig, B. A. (2022). Introduction to the Practice of Statistics (8th ed.). W.H. Freeman.

Musa, A. & Ali, I.L. (2023). An investigation of supply chain disruption mitigation strategies: evidence from Kaduna-Nigeria. *Nigerian Journal of Management Sciences*, 24 (1b), 295 – 311

Mwalukasa, B.E. & Sallwa, A.A. (2024). Effects of procurement risk management strategies on public procuring entities' performance. Revista Catarinense da Ciência Contábil, ISSN 2237-7662. *Florianópolis*, SC, v. 23. 1-16. e3497

Mwesiumo, Nujen, B. B., & Buvik, A. (2021). Driving collaborative supply risk mitigation in buyer-supplier relationships. *Supply Chain Forum,* 22(4), 347–359. https://doi.org/10.1080/16258312.2021.1932567

Nel, (2024). The role of supply chain risk mitigation strategies to manage supply chain disruptions. *Journal of Transport and Supply Chain Management*, ISSN: (Online) 1995-5235, (Print) 2310-8789

Nzewi, H. N., Okeke, G. A., & Okeke, V. N. (2018). Impact of infrastructural deficit on supply chain performance and national economic development in Sub-Saharan Africa. *Journal of Infrastructure Development*, 10(1), 21-42.

Oguche, H. (2018). Managing supply chain disruptions in Nigerian seaport companies. Doctoral Study Submitted at Walden University. Assessed on the 23rd April, 20225

Organization for Economic Development, OECD. (2023). Public Procurement for Innovation: Good Practices and Strategies. OECD Publishing.

Paul, S. (2020). Optimizing strategies to mitigate risk in a supply chain disruption. A Doctoral thesis submitted to Iowa State University. Assessed 21/04.2025

Rao, Vihari, N. S., & Jabeen, S. S. (2021). Reimagining the Fashion Retail Industry Through the Implications of COVID-19 in the Gulf Cooperation Council (GCC) Countries. *FIIB Business Review*, 10(4), 327–338. https://doi.org/10.1177/23197145211039580

Remko. (2020). Research opportunities for a more resilient post-COVID-19 supply chain – closing the gap between research findings and industry practice. *International Journal of Operations & Production Management,* 40(4), 341–355. https://doi.org/10.1108/IJOPM-03-2020-0165

Sanchez-Graells, A. (2022). COVID-19 and emergency procurement in European healthcare: Lessons learned. *European Procurement & Public Private Partnership Law Review*, 17(1), 34-48.

Sanchez-Graells, A. (2022). COVID-19 and emergency procurement in European healthcare: Lessons learned. *European Procurement & Public Private Partnership Law Review*, 17(1), 34-48.

Sarma, Kumar, A., Choudhary, N. A., & Mangla, S. K. (2021). Modelling resilient fashion retail supply chain strategies to mitigate the COVID-19 impact. *The International Journal of Logistics Management,* ahead-of-print(ahead-of-print). https://doi.org/10.1108/IJLM-03-2021-01

Sharma, M., Luthra, S., Joshi, S. & Kumar, A. (2021). Accelerating retail supply chain performance against pandemic disruption: Adopting resilient strategies to mitigate the long-term effect', *Journal of Enterprise Information Management* 34(6), 1844–1873. https://doi.org/10.1108/JEIM-07-2020-0286

Sheffi, Y. (2017). The power of resilience: How the best companies manage the unexpected. MIT Press.

Shekarian, M., Nooraie, S.V.R. & Parast, M.M. (2020). An examination of the impact of flexibility and agility on mitigating supply chain disruptions. *International Journal of Production Economics* 220, 107438. https://doi.org/10.1016/j.ijpe.2019.07.011

Shrivastava, A., Chakkaravarthy, M., & Shah, M.A. (2023). A new machine learning method for predicting systolic and diastolic blood pressure using clinical characteristics. In Healthcare Analytics, 4, 100219

Shrivastava, A., Chakkaravarthy, M., & Shah, M.A. (2023). Health Monitoring based Cognitive IoT using Fast Machine Learning Technique. *International Journal of Intelligent Systems and Applications in Engineering*, 11(6s), pp. 720–729

Shrivastava, A., Chakkaravarthy, M., & Shah, M.A.. (2022,). A Novel Approach Using Learning Algorithm for Parkinson's Disease Detection with Handwritten Sketches. In Cybernetics and Systems,

Singh, S., Kumar, S. & Kumar, A. (2023). Identifying disruptions by COVID-19 and devising strategies to build robust supply chain – a case study illustration of India's energy storage sector ', Benchmarking: *An International Journal* vol. ahead-of-print no, ahead-of-print. https://doi.org/10.1108/BIJ-06-2023-0405

Smith, D., & Taylor, P. (2022). *Foundations of Professional Ethics.* Cambridge University Press.

Thuo, R., Kimani, J., & Otieno, D. (2022). Proactive risk management strategies in construction procurement. *International Journal of Construction and Public Sector Studies*, 8(4), 98-112.

Weissman, R. (2022). 6 sourcing strategies for reshoring and nearshoring. Supply Chain Dive. URL: https://www.supplychaindive.com/news/6-sourcing-strategies-reshoring-nearshoring-supplychains/621773/. Accessed: 20 April 2025.

White, O. & al. (2022). War in Ukraine: Twelve disruptions changing the world. McKinsey and Company. URL: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/war-in-ukraine-twelve-disruptions-changing-the-world. Accessed: 20 April 2025.

World Bank. (2024). Nigeria: Infrastructure challenges and opportunities. Retrieved from https://www.worldbank.org/en/news/feature/2019/05/15/nigeria-infrastructure-challenges-and-opportunities

Yu, & Aviso, K. B. (2020). Modelling the Economic Impact and Ripple Effects of Disease Outbreaks. *Process Integration and Optimization for Sustainability*, 4(2), 183–186. https://doi.org/10.1007/s41660-020-00113-y

Zhang, Y., & Li, T. (2023). Supplier Sustainability in China's Manufacturing Industry: An Empirical Study. *Journal of Sustainable Supply Chains*, 10(1), 45-61.

Zhang. (2020). How does ZARA dominate the fashion industry again? Analysis on ZARA's supply chain. Medium, [Online] November 29. Available via: https://medium.com/@yiranz6/how-does-zara-dominate-the-fashion-industry-again-anal ysis-on-zaras-supply-chain-86a5e3be54d3 Retrieved February 1, 2021].

Zhao, & Freeman, N. K. (2019). Robust Sourcing from Suppliers under Ambiguously Correlated Major Disruption Risks. *Production and Operations Management*, 28(2), 441–456. https://doi.org/10.1111/poms.12933

APPENDICES

Appendix A: Research Questionnaire

Title: *Risk Management in Procurement: Evaluating Strategies for Mitigating Supplier Disruptions*

Section A: Demographic Information

Please tick (✓) the appropriate option.

1. **Age**

   ☐ 20 – 29

   ☐ 30 – 39

   ☐ 40 – 49

   ☐ 50+

2. **Gender**

   ☐ Male

   ☐ Female

3. **Educational Qualification**

   ☐ Secondary School

   ☐ Diploma

   ☐ Bachelor's Degree

   ☐ Postgraduate Degree

4. **Years of Work Experience**

   ☐ 1 – 5 years

   ☐ 6 – 10 years

   ☐ 11 years and above

5. **Industry Sector**

☐ Manufacturing

☐ Healthcare

☐ Retail

Section B: Risk Management in Procurement

Please indicate the degree to which you agree or disagree with the following statements using the scale:

SA = Strongly Agree | A = Agree | N = Neutral | D = Disagree | SD = Strongly Disagree

Key Risks Associated with Supplier Disruptions:

S/N	Statement	SA	A	N	D	SD
1	Supplier delays negatively impact operations.	☐	☐	☐	☐	☐
2	Quality issues frequently arise from suppliers.	☐	☐	☐	☐	☐
3	Supplier disruptions increase procurement costs.	☐	☐	☐	☐	☐
4	Lack of alternative suppliers increases vulnerability.	☐	☐	☐	☐	☐

Current Risk Management Strategies:

S/N	Strategy	SA	A	N	D	SD
5	My organization uses multiple sourcing.	☐	☐	☐	☐	☐

S/N	Strategy	SA	A	N	D	SD
6	Regular supplier audits are conducted.	☐	☐	☐	☐	☐
7	Safety stock is maintained to handle delays.	☐	☐	☐	☐	☐
8	Contractual terms include risk-sharing clauses.	☐	☐	☐	☐	☐

Effectiveness of Strategies:

S/N	Statement	Very Effective	Effective	Neutral	Ineffective	Very Ineffective
9	Multiple sourcing ensures supply continuity.	☐	☐	☐	☐	☐
10	Supplier audits help mitigate risks.	☐	☐	☐	☐	☐
11	Inventory buffering protects operations from disruptions.	☐	☐	☐	☐	☐
12	Risk-sharing clauses help manage unexpected disruptions.	☐	☐	☐	☐	☐

Additional Measures:

S/N	Proposed Measure	SA	A	N	D	SD

S/N	Proposed Measure	SA	A	N	D	SD
13	Enhanced supplier collaboration is necessary.	☐	☐	☐	☐	☐
14	Real-time supply chain monitoring should be adopted.	☐	☐	☐	☐	☐
15	Contingency planning is needed.	☐	☐	☐	☐	☐
16	Suppliers should be supported to improve performance.	☐	☐	☐	☐	☐

Appendix B: ANOVA Result Summary

Table B.1: ANOVA Result for Effectiveness of Risk Management Strategies (Hypothesis Ho3)

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Value	P-Value	Decision
Between Groups	45.24	3	15.08	14.32	0.000	Reject Ho3
Within Groups	214.50	212	1.01			
Total	**259.74**	**215**				

Decision Rule: Since p-value < 0.05, the null hypothesis is rejected. This indicates the strategies significantly impact procurement continuity and supply chain stability.

Appendix C: Introductory Letter

Department of Procurement Management

University of Benin

SPESSE

To Whom It May Concern,

Dear Sir/Madam,

I am Godwin Odigie Omhenimhen, a postgraduate student of the Department of Procurement Management, University of Benin. I am conducting a research project titled:

"Risk Management in Procurement: Evaluating Strategies for Mitigating Supplier Disruptions."

This research is strictly for academic purposes. You have been selected as part of the study sample. The responses you provide will be treated with the utmost confidentiality and used solely for academic research.

Your cooperation in completing the attached questionnaire is highly appreciated.

Thank you.

Yours sincerely,

Godwin O. Omhenimhen

+2348155319330

Appendix D: Ethical Consent Form

Informed Consent Form for Participation in Research Study

Title: Risk Management in Procurement: Evaluating Strategies for Mitigating Supplier Disruptions

Dear Participant,

You are invited to take part in a research study conducted by Godwin Odigie Omhenimhen, a postgraduate student of University of Benin. The purpose of this study is to evaluate strategies used to mitigate supplier disruptions in procurement.

Voluntary Participation:

Your participation in this research is entirely voluntary. You are free to decline or withdraw at any time without consequences.

Confidentiality:

All information provided will remain confidential and used strictly for academic purposes. No identifying information will be disclosed.

Risks/Benefits:

There are no foreseeable risks in participating in this study. Your insights will contribute to a better understanding of procurement risk management.

Consent Statement:

☐ I have read and understood the information above. I voluntarily agree to participate in the study.

Name: _____

Signature: _____

Date: _____