



International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.699

Volume 14, Issue 8, August 2025

A Comprehensive Study of the Role of Risk & Resilience in Supply Chain Management

Dr. Sammar kushwaha, Dr. Rahul Jain

Associate Professor (TIT) – Technocrats Institute of Technology – MBA, Bhopal, India

Associate Professor, Department of MBA, Technocrats Institute of Technology – MBA, Bhopal, India

ABSTRACT: Supply chain risk management (SCRM) involves identifying, assessing, and mitigating risks, and monitoring supply chain resilience. A resilient supply chain can withstand and recover from disruptions, such as natural disasters, economic fluctuations, geopolitical changes, supplier issues, or the COVID-19 pandemic. A resilient supply chain is characterized by its ability to: Anticipate risks, respond quickly to operational disruptions, reduce risk when changing supply chains, and drive sustainable growth. risk-resilient supply chains integrate design, planning, manufacturing, logistics, maintenance, and service. This helps to minimize data disconnects and process silos, allowing for faster innovation and manufacturing runs.

KEYWORDS: Supply Chain Management, Resilience, Business Environment, Customer Satisfaction, cybersecurity threats & Risk Management

I. INTRODUCTION

Supply chain management is playing a very crucial role in today's dynamic business environment that, Traverses global networks, connecting suppliers, manufacturers, distributors, and customers. Supply chain management provides Effective & efficient solutions for all connected channels. It exposes organizations to various risks, ranging from natural disasters to geopolitical tensions and cyber threats. This study explores the fundamentals of supply chain risk and resilience, examining key concepts, challenges, and strategies for enhancing supply chain resilience. Based on the Academic literature review, industry reports, and case studies, it provides insights into the importance of proactive risk management and the development of resilient supply chains capable of withstanding disruptions and maintaining operational continuity. By understanding and addressing supply chain vulnerabilities, organizations can mitigate risks, enhance resilience, and create sustainable competitive advantages in today's dynamic business environment.

Scope of the study -

The study will identify and analyses various types of supply chain risks, including external, internal, and emerging risks. It will examine how these risks manifest in different industries and geographical regions.

II. METHODOLOGY AND PROCESS USED

To complete this study, we used primary and secondary data sources. Primary data may include interviews with supply chain professionals, surveys, and observations of supply chain operations. Secondary data sources may include industry reports, company websites, financial statements, and government publications. We used qualitative and quantitative research analysis methods to examine supply chain risk and resilience. Qualitative analysis techniques such as thematic analysis and content analysis can help identify recurring themes, patterns, and challenges in the data. Quantitative analysis methods such as statistical analysis and regression modelling can help quantify the impact of risk factors on supply chain performance. By following a systematic methodology and process, researchers can effectively study supply chain risk and resilience, generate valuable insights, and contribute to the advancement of knowledge in this critical area of supply chain management.

III. KEY FINDINGS

Value addition and Process Improvement achieved - Based on the study on supply chain risk and resilience, several findings regarding value addition and process improvement can be identified:

1.Improvement of Risk Management Practices: Organizations that actively engage in studying and understanding supply chain risk and resilience are likely to enhance their risk management practices. By identifying potential risks and weaknesses within their supply chains, they can implement targeted strategies to mitigate these risks and improve overall resilience.

2.Improved Operational Efficiencies & Effectiveness: Through the adoption of best practices and strategies identified in the study, organizations can improve operational efficiency within their supply chains. This includes streamlining processes, reducing bottlenecks, and optimizing resource allocation to better respond to disruptions and maintain continuity of operations.

3.Help in Cost Minimization: Effective risk management and resilience-building efforts can help organizations reduce costs associated with supply chain disruptions. By proactively identifying and addressing risks, organizations can minimize the financial impact of disruptions, such as production delays, inventory shortages, and transportation bottlenecks.

4.Increase of Customer Satisfaction level: A resilient supply chain ensures continuity of product availability and delivery, thereby enhancing customer satisfaction. By improving supply chain processes and minimizing disruptions, organizations can meet customer demands more effectively, leading to increased loyalty and repeat business.

5.Sustainability of Competitive Advantage: Organizations that prioritize supply chain risk management and resilience gain a competitive advantage in the marketplace. By demonstrating the ability to withstand disruptions and maintain operational continuity, they build trust with customers, suppliers, and other stakeholders, positioning themselves as reliable partners in the supply chain.

6.Innovation and Adaptability: Through the study of supply chain risk and resilience, organizations foster a culture of innovation and adaptability. By continuously monitoring and evaluating supply chain dynamics, they can identify opportunities for improvement and innovation, driving continuous process improvement and adaptation to changing market conditions.

7.Supplier Relationships: Collaborative risk management efforts strengthen relationships with suppliers and other supply chain partners. By sharing information, resources, and best practices, organizations can build trust and transparency within their supply chains, enabling faster response times and more effective collaboration during times of crisis.

8.Help in Decision-Making: The insights found from the study enable organizations to make more informed and strategic decisions regarding their supply chain operations. By understanding the impact of various risk factors and resilience strategies, decision-makers can allocate resources more effectively and prioritize investments in areas that offer the greatest value in terms of risk mitigation and process improvement.

Overall, the findings of the study demonstrate the importance of supply chain risk management and resilience-building efforts in achieving value addition and process improvement within organizations. By leveraging these insights and implementing targeted strategies, organizations can enhance their competitiveness, reduce costs, and better meet the needs of their customers and stakeholders in today's dynamic business environment.

Tools used.

These several tools were used for the completion of a study on supply chain risk and resilience. These tools help researchers collect data, analysed information, and draw meaningful conclusions. there are the following tools:

1. **Data Analytics Software:** Data analytics tools like Microsoft Excel, Power BI, Tableau and specialized supply chain management software enable researchers to analysed large datasets, identify patterns, and extract actionable insights related to supply chain risk and resilience.
2. **Communication Tools:** Communication platforms like Microsoft Teams, Communicator, WhatsApp, and email Outlook communication among researchers, stakeholders, and supply chain partners. These platforms enable real-time sharing of information, project updates, and collaborative decision-making.
3. **Survey and Interview Tools:** Survey tools such as Survey and Google Forms, along with interview scheduling platforms like form filling, Questionnaire help researchers collect primary data from supply chain professionals, executives, and other stakeholders.
4. **Risk Identification Techniques:** Techniques such as Failure Mode and Effects Analysis (FMEA), SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, and scenario planning workshops assist in identifying and prioritizing supply chain risks.
5. **Visualization Tools:** Visualization tools like Tableau, Power BI & Charts help researchers visualize and present complex supply chain data in an easy-to-understand format. These tools enable the creation of charts, graphs, and interactive dashboards to communicate findings effectively.

By used these tools effectively, researchers can streamline the completion of their study on supply chain risk and resilience, enhance collaboration among team members, and generate valuable insights to inform decision-making within organizations.

IV. RECOMMENDATIONS

Develop Action Plan:

1. Develop a comprehensive action plan outlining specific initiatives, tasks, and timelines for improving supply chain resilience and risk management practices.
2. Assign responsibilities to key stakeholders and establish accountability for implementation.
3. Provide training and development programs for employees to enhance their awareness and understanding of supply chain risks and resilience strategies.
4. Equip employees with the necessary skills and knowledge to effectively respond to and manage supply chain disruptions.
5. Implement regular monitoring and review processes to assess the effectiveness of risk management initiatives and resilience strategies.
6. Continuously evaluate the evolving risk landscape and make necessary adjustments to the action plan and mitigation strategies.

Current status

1. Review Existing Processes and Practices, conduct an in-depth review of the current supply chain management processes and practices within the organization.
2. Evaluate existing risk management frameworks, resilience strategies, and continuity plans.
3. Identify Key Risks and Weakness, identify and prioritize key risks and Weakness within the supply chain. This may include risks related to natural disasters, geopolitical issues, cybersecurity threats, supplier dependencies, and logistics disruptions.
4. Assess the potential impact of these risks on supply chain operations, financial performance, and customer satisfaction.
5. Assess Resilience Capabilities, evaluate the organization's current resilience capabilities and readiness to respond to supply chain disruptions.

By following these steps and implementing an action plan focused on enhancing supply chain risk management and resilience, organizations can better prepare for and mitigate the impact of disruptions, thereby improving overall supply chain performance and ensuring business continuity.

V. CONCLUSION

This study provided important suggestions on the role of risks & resilience in supply chain industries through a Review of Existing Processes and Practices and conducts an in-depth review of the current supply chain management processes and practices within the organization. As well as evaluating existing risk management frameworks, resilience strategies, and continuity plans and identifying Key Risks and Weaknesses, identify and prioritize key risks and Weaknesses within the supply chain. This may include risks related to natural disasters, geopolitical issues, cybersecurity threats, supplier dependencies, and logistics disruptions. By the following above points a organizations can better prepare for and mitigate the impact of disruptions, thereby improving overall supply chain performance and ensuring business continuity.

REFERENCES

1. Aqlan, F., and S. S. Lam. 2015. "Supply Chain Risk Modelling and Mitigation." International Journal of Production Research 53 (18): 5640–5656.
2. Mansoor Shekarian & Mahour Mellat Parast (2020) "An Integrative approach to supply chain disruption risk and resilience management: a literature review" International Journal of Logistics Research and Applications, DOI: 10.1080/13675567.2020.1763935
<https://co-versatile.eu/topics/resilient-supply-chain/supply-chain-lessons-learned-covid-19-need-transform-traditional>.
3. Acero, B., & Revilla, E. (2021). Supply chain lessons learned from covid-19: The need to transform the traditional supply chain



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details