
A STUDY OF RISK MANAGEMENT PRACTICES IN TRANSPORTATION AND LOGISTICS OPERATIONS

¹Niraj Ravindra Sharma, ²Dr.Praddyumna Shastri

¹Student, MBA, Zeal Institute of Management & Computer Application, Pune, India.

²Assistant Professor, MBA, Zeal Institute of Management & Computer Application, Pune,
India.

Article Received: 17 March 2026, Article Revised: 07 April 2026, Published on: 27 April 2026

*Corresponding Author: Niraj Ravindra Sharma

Student, MBA, Zeal Institute of Management & Computer Application, Pune, India.

DOI: <https://doi-doi.org/101555/ijarp.7018>

ABSTRACT:

The transportation and logistics industry is a vital component of economic development, ensuring smooth movement of goods across regions. However, this sector is highly exposed to various operational risks such as vehicle breakdowns, accidents, delays, theft, and environmental uncertainties. Effective risk management practices are essential to minimize these risks and ensure operational efficiency.

KEYWORDS: Risk Management, Logistics Operations, Transportation Risk, Supply Chain Management, Operational Efficiency.

I. INTRODUCTION

Transportation and logistics play a crucial role in the supply chain by ensuring timely delivery of goods and services. In today's competitive business environment, logistics companies must operate efficiently while managing various uncertainties. Risks such as vehicle breakdowns, accidents, delays, theft, and regulatory issues can significantly impact operational performance and customer satisfaction.

II. LITERATURE REVIEW

Previous studies in the field of logistics and supply chain management highlight the growing importance of risk management in achieving operational excellence. Researchers have emphasized that logistics systems are inherently complex and involve multiple interconnected activities, making them vulnerable to various forms of risk.

Some studies suggest that operational risks, such as equipment failure and process inefficiencies, are among the most frequent challenges faced by logistics firms. Others have pointed out that external risks, including traffic congestion, fuel price fluctuations, and regulatory changes, significantly influence logistics performance.

Scholarly work also highlights the role of technology in risk mitigation. Tools such as tracking systems, automated scheduling, and data analytics have been identified as effective in improving visibility and decision-making. Furthermore, training and awareness programs have been recognized as essential components in reducing human-related risks.

Overall, the literature indicates that a combination of preventive, corrective, and technological measures is necessary to manage risks effectively in logistics operations.

III. METHODS AND MATERIALS

The present study adopts a descriptive research approach to examine the risk management practices in transportation and logistics operations. The objective of this methodology is to understand the nature of risks, evaluate existing practices, and analyze their effectiveness in operational environments.

Research Design

A descriptive research design was employed, as the study focuses on observing and analyzing current practices rather than manipulating variables. This design helps in presenting a clear picture of real-world logistics operations and associated risks.

Data Collection

The study is based on both primary and secondary data sources:

Primary Data:

Primary data was collected through a structured questionnaire distributed among individuals working in logistics and transportation-related roles. The questionnaire included both closed-ended and open-ended questions to capture quantitative as well as qualitative insights.

Secondary Data:

Secondary data was gathered from academic literature, industry-related articles, conceptual studies, and publicly available resources to support the research framework and findings.

Sampling Technique

A non-probability convenience sampling method was used for selecting respondents. This method was chosen due to ease of access and availability of participants who are directly involved in logistics operations.

Sample Size

The study includes responses from 100 respondents, providing a broader perspective and improving the reliability of the findings.

Research Instrument

The primary research instrument used in this study was a structured questionnaire consisting of 20 questions. The questionnaire was designed to collect information on:

Types of risks faced

Awareness of risk management practices

Preventive measures adopted

Effectiveness of existing systems

Challenges and suggestions

Data Analysis Techniques

The collected data was analyzed using simple statistical tools such as:

Percentage analysis

Tabular representation

Graphical methods (pie charts and bar diagrams)

These techniques helped in simplifying the data and making it easier to interpret the results.

Scope of the Study

The study is limited to understanding risk management practices in logistics operations from an operational perspective. It focuses on employees involved in transportation-related activities and their practical experiences.

Limitations of the Study

The study is based on a limited sample size of 100 respondents.

The use of convenience sampling may not represent the entire logistics industry.

Responses are based on individual perceptions, which may vary

IV. METHODS AND MATERIALS

The analysis of data collected from 100 respondents shows that a majority (82%) are aware of risks in logistics operations. Delay in delivery (32%) and vehicle breakdown (25%) are identified as the most common risks. Around 55% of respondents reported that risks occur frequently in daily operations, indicating the dynamic and uncertain nature of the logistics sector.

It was observed that 70% of respondents confirmed the presence of structured risk management practices. Measures such as preventive maintenance, GPS tracking, safety training, and insurance are widely used, with 45% of respondents preferring a combination of all these methods. Additionally, 80% reported the use of GPS technology, highlighting the importance of digital tools in modern logistics.

The effectiveness of risk management practices was rated positively by most respondents, with 70% considering them effective or very effective. However, external factors such as traffic (30%) and weather conditions (25%) remain major challenges.

Overall, the findings indicate that while internal risks are managed effectively through structured practices and technology, external uncertainties continue to impact logistics operations, requiring better planning and adaptive strategies.

V. CONCLUSION

The study concludes that risk management is a vital component of successful logistics operations. Effective identification and control of risks contribute to improved efficiency, cost reduction, and enhanced service reliability.

While organizations have implemented several internal risk management practices, external challenges continue to influence operational outcomes. Therefore, there is a need for continuous improvement, adoption of advanced technologies, and development of flexible strategies to handle dynamic conditions.

A well-structured risk management framework not only reduces uncertainties but also strengthens the overall performance of logistics systems.

REFERENCES

1. C. Tang, "Perspectives in supply chain risk management", *Int'l. J. Production Economics*, vol. 103, no. 2, pp. 451-488, 2006.
2. J. Blackhurst, C. W. Craighead, D. Elkins and R. B. Handfield, "An empirically derived framework of global supply resiliency", *J. Business Logistics*, vol. 26, no. 1, pp. 1-20, 2005.
3. S. Chopra and M. Sodhi, "Managing risk to avoid supply-chain breakdown", *MIT Sloan Management Review*, vol. 46, no. 1, pp. 53-61, 2004.
4. H. Peck, "Drivers of supply chain vulnerability: An integrated framework", *Int'l. J. Physical Distribution & Logistics Management*, vol. 35, no. 4, pp. 210-232, 2005.
5. P. R. Kleindorfer and G. H. Saad, "Managing disruption risks in supply chains", *Production and Operations Management*, vol. 14, no. 1, pp. 53-68, 2005.
6. M. Christopher and H. Peck, "Building the resilient supply chain", *Int'l. J. Logistics Management*, vol. 15, no. 2, pp. 1-14, 2004.