



# International Journal of Literacy and Education

E-ISSN: 2789-1615  
P-ISSN: 2789-1607  
[www.educationjournal.info](http://www.educationjournal.info)  
Impact Factor: RJIF 5.7  
IJLE 2024; 4(2): 223-227  
Received: 18-10-2024  
Accepted: 22-11-2024

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## A study of risk management practices in logistics operations

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**DOI:** <https://dx.doi.org/10.22271/27891607.2024.v4.i2c.232>

### Abstract

In the contemporary globalized business landscape, logistics systems are becoming more susceptible to various uncertainties and disruptions. Media reports often emphasize noteworthy transportation accidents and natural disasters worldwide, showcasing the vulnerabilities present in supply chains. Consequently, logistics professionals are required to implement effective and efficient risk management strategies. This paper offers a comprehensive examination of critical risk management domains within the field of logistics, encompassing topics such as disruption risk management, operational risk mitigation, disaster and emergency preparedness, and the evaluation of logistics service risks. It further provides a summary of the papers showcased in the special edition and recommends potential avenues for future research to enhance risk management methodologies within logistics systems.

Due to the intricacies of the current market and business environment, disruptions in logistics can lead to significant ramifications for businesses, posing a risk to their operational resilience. Hence, adopting resilient risk management strategies has become imperative in mitigating prospective financial losses in business. This chapter delves into logistics risk management from a process-oriented viewpoint, encompassing logistics operations, risk management strategies, risk management procedures, and assessing enterprises' performance. Diverse risk management theories and frameworks have been scrutinized in the literature to provide practical insights into essential logistics risk management concepts.

An essential subject matter in professional and public discourse concerns the correlation between service quality and risk management. This study centers on the identification of innovative approaches to improve service quality in compliance with global standards, alongside addressing the increasing needs of customers in the transportation industry. The key findings are derived from dynamic models, such as those put forth by experts Lynn Shostack and Leonard Berry, that differentiate between routine and exceptional operation.

**Keywords:** Logistics risk management, supply chain disruptions, operational resilience, disaster preparedness, risk management strategies

### 1. Introduction

Logistics refers to careful planning, delivery, and control of coordination concerning the transportation and warehousing of commodities, services, and data from producers to consumers in ways that enhance operational efficiency and effectiveness. The purpose is to perform the "seven rights": delivering the right product to the right place, at the right time, with the right quantity, quality, cost, and to the right customer. It further demands closer coordination and integration with the internal teams and their external partners within the operational context of a global business.

From transportation management and warehousing, the sphere of logistics has evolved further and is now much complex to be influenced by a whole lot of factors like globalization and technological developments that include the use of barcodes, RFID, and ERP systems. Increased complexity requires very effective risk management as such potential disruptions emanating from both internal and external sources have implications for logistics performance. Supply chain cooperation, collaboration, and information sharing have been major reliance points in the proper management of logistics. There are several other significant aspects towards long-run sustainability. Continuous risk management and resilience in adaptation are key.

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Journal of Logistics Management defines logistics as "the process of planning, implementing, and controlling the efficient flow and storage of goods, services, and related information from the point of origin to the point of consumption to meet customer requirements." In the aspect of offering logistics service, it is concerned with managing effectively the physical movement and storing the products for business use. Due to the competitive demand in the market, the businesses have to work towards achieving the "seven rights"; that is, the right product delivered to the right place at the right time in the right quantity with the right quality and at the right price to the right customer. Coordinating all seven rights is a Herculean task, involving internal departmental harmonization with outside partners to arrive at the synergistic outcome. When it comes to international commerce, the successful delivery of all these criteria is quite much in relation to partnering with the outside resources-which in this case may be up and downstream.

The efficiency of the logistics operations is highly dependent on the proper integration of activities, cooperation, collaboration, and information interchange along the whole supply chain including suppliers and customers. Continuous innovations in information technology such as scanning barcodes, RFID, point-of-sale systems, EDI, VPNs, and ERP systems are targeted to increase the efficiency of logistics operations by optimizing data interchange and communication across the process flow. These technologies allow physical operations while reducing uncertainties through enhanced information interchange among chain collaborators.

Apart from the process management, logistics has been vulnerable to various forms of internal and external interruptions. For example, the air schedules were affected by volcanic eruption in Iceland while increased shipping costs may influence production and cost of logistics. This form of intervention is bound to increase overhead cost and further complicate logistics supply chain management.

## 2. Review of Literature

Y Yang and W Jin (2008) <sup>[17]</sup> examined the revenue management concepts will help in improving booking, pricing, and inventory strategies in the car rental industry. Car rental organizations have to optimize the use of their vehicle fleets and maintain the best levels of customer satisfaction; therefore, logistics managers are likely to follow three crucial decision-making processes: pool segmentation, strategic fleet planning, and tactical fleet planning. The core objectives of logistics management in these companies include the improvement of resource distribution and the reduction of logistics costs. This research explores the existing literature regarding logistical challenges in the automobile rental industry, identifies gaps in current research, and provides recommendations for future improvement in the field.

A Marasco (2008) <sup>[18]</sup> observed there is an increasing interest in third-party logistics (TPL) in tandem with a growing volume of research on this subject. He noted that no comprehensive reviews have integrated the existing research landscape on TPL. Marasco's research provides a literature review framework, which reviewed 152 articles published in some of the world's most respected international journals from 1989 to 2006. The articles were categorized according to their content and research

methodologies, and the research provided recommendations for possible future directions for inquiry.

I Vanany, S Zailani, and N Pujawan (2009) <sup>[19]</sup> investigated the increasing importance of SCRM in contemporary settings. They conducted an extensive review of articles published between 2000 and 2007, which they classified into conceptual, descriptive, empirical, exploratory cross-sectional, and exploratory longitudinal studies. The review targeted various categories of risks, units of analysis, industry sectors, and management processes or strategies that were addressed in the literature, which provided a starting point for identifying future research opportunities in this area.

F Kache and S Seuring (2014) <sup>[20]</sup> performed an in-depth literature review on supply chain management covering 1989-2012 that spanned ten key logistics and operations management journals. This paper done by the authors addressed issues of collaboration, integration, risk, and performance in the domain of Supply Chain Management. The present research focuses on assessing relationships between various constructs of Supply Chain Management and postulates that collaboration is as fundamental to Supply Chain Management as risk and performance administration.

P Rajagopal and VP Kalyani Sundaram (2015) <sup>[21]</sup> emphasized Logistics management carries much complexity in its characteristics and in-built uncertainty. With the rapid change of technology, increased competition among the organizations, and transformation in the needs of customers, this is forcing businesses to revisit their operational setup and strategy. New concepts of global supply chains, third-party logistics, green logistics, e-logistics, and reverse logistics are vital for businesses function on the globe. In particular, reverse logistics has attracted organizations' attention, and an article is presented to set it against forward logistics to provide a better understanding and discover its potential to offer competitive advantage.

K Aljohani and RG Thompson (2016) <sup>[22]</sup> directed They discuss that their work explores the implications of site selection for the operation of urban freight as well as for the overall urban. A subject widely talked about over the recent past years logistics sprawl refers to logistics functions have been pulled from metropolitan cores and consolidated in out suburbs. The author who obtained information on potential impacts among them changed the freight, higher truck, and resultant higher emissions with the freight movement, a shift or changes in traveling habits by logistics. TM Choi CH Chiu and HK Chan (2016) <sup>[23]</sup> highlighted susceptibility of logistic systems to uncertainties and the disruptions in the business current globalized environment. Mass media reports cases related to transportation accidents and natural catastrophes that affect the performance of logistics operations around the globe on a daily basis. This article explores the importance of managing risks in logistics that concern issues such as risk management of disruption, the operational risks, disaster and emergency handling, and the analytical investigation of risks associated with service logistics.

A. Edirisuriya and S. Weerabahu (2018) <sup>[24]</sup> examined with all the growing concern for industrial sustainability, which has, of course, been in direct response to environmental concerns and waste. It suddenly became apparent that the field of logistics is a gigantic contributor to the problem being identified since it generates huge wastage. The article

advocates, therefore, that a merging together of lean management principles as well as green concepts reduces waste and costs. The authors have identified a gap in research in the application of these principles within the environment of Industry 4.0. They conducted a literature review to fill this gap and investigate the prospects of utilizing lean and green practices to improve the operational efficiency of logistics functions.

**2.1 Need for the study**

Logistics, albeit demanding, provides a gratifying work setting that cultivates teamwork and a communal spirit. With an increasing emphasis on job training and career development by logistics companies, the objective is to provide employees with the necessary skills to effectively navigate the complexities of the industry. An essential component of this process is risk management, encompassing the identification of potential risks within the business and the formulation of customized strategies to mitigate them. The objective is to guarantee a secure and productive work environment, notwithstanding unexpected obstacles.

**2.2 Scope and Significance of study**

This helps business players rise customer satisfaction levels and curb cost in the long-run processes. It helps businesses plan its internal activities and operates harmoniously with its network, partners, upstream and downstream for common objectives within their network capacity limits. Despite the fact that globalization presses this between

customer satisfaction and coping up with logistics network complications. For example, information technology itself has been continuously developed and is now much more powerful in dealing with the complexity in question.

**2.3. Objectives of the study**

**2.3.1 Primary Objective**

To explore the topic of risk management in the field of logistics.

**2.3.2 Secondary Objectives**

- To reduce operational expenses.
- To guarantee transparency in operational endeavors.
- To uphold a dependable and consistent delivery performance.
- To enhance the efficiency of freight costs.
- To reduce harm.
- To ensure swift response times.

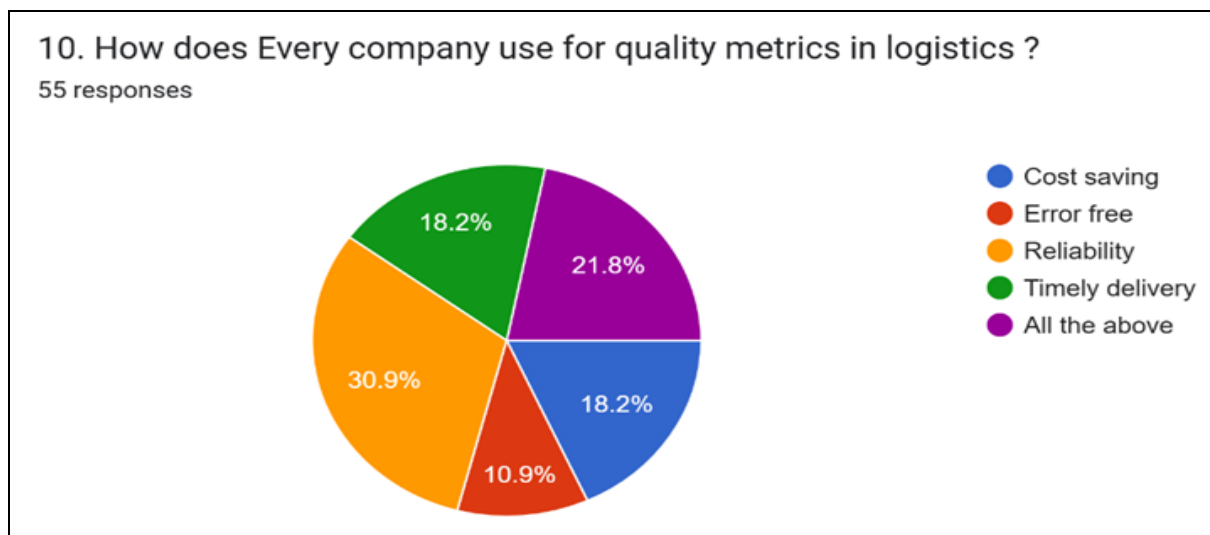
**Data Analysis and Interpretation**

The primary and secondary qualitative data were collected and analyzed to draw conclusions and offer recommendations. Primary data was obtained through a survey on logistics risk management using a questionnaire administered to a randomly selected sample. Secondary data was sourced from various online platforms, including websites, e-magazines, research articles, e-books, and newspapers.

**Table 1:** Utilization of quality metrics in logistics by companies

S.No	Quality Metric	Responses	Percentage
1	Cost Savings	18.2	18.2%
2	Error-Free Processes	10.9	10.9%
3	Reliability	30.9	30.9%
4	Timely Delivery	18.2	18.2%
5	All of the Above	21.8	21.8%
Total		100	100%

Source: Primary Data



**Chart 1:** Company utilization of quality metrics in logistics as reported by respondents

**Interpretation**

The data presented in Table 1.6.1 reflects the extent to which companies utilize various quality metrics in their

logistics operations. Among the respondents, 32% identified reliability as the most important quality metric, indicating that consistent and dependable service is a top priority for

many companies. This was followed by 24% of respondents selecting all the above metrics (cost savings, error-free processes, reliability, and timely delivery), suggesting a holistic approach to quality management in logistics. Cost savings accounted for 19%, while timely delivery and error-free processes were prioritized by 14% and 11% of respondents, respectively.

**Inference**

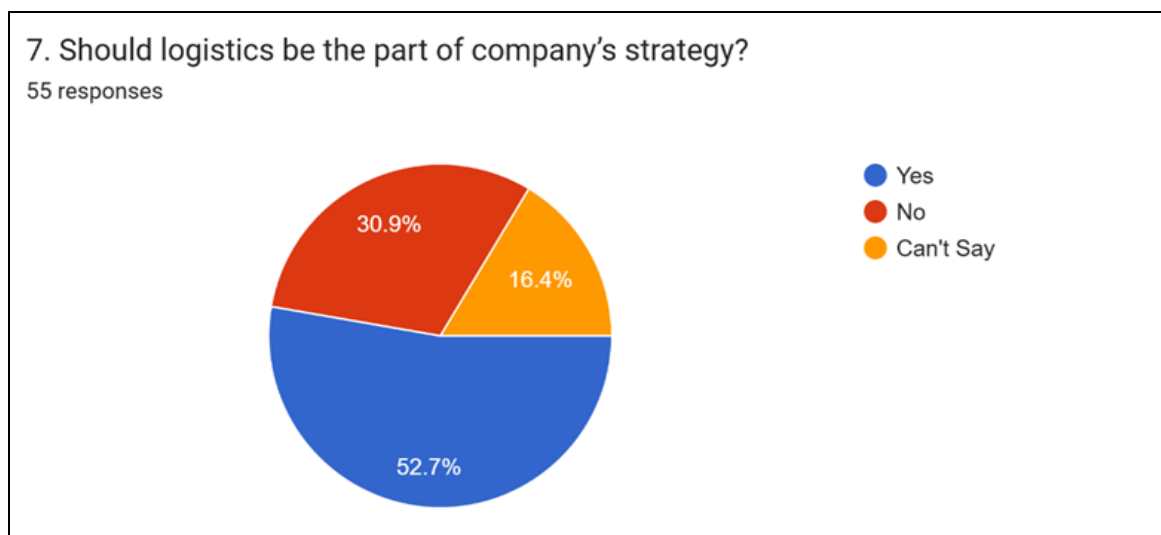
Reliability is perceived as the most critical factor in logistics

operations, suggesting that companies prioritize maintaining dependable supply chains to ensure customer satisfaction and operational efficiency. However, the significant percentage of respondents who chose "all of the above" indicates that many companies recognize the interdependence of multiple quality metrics. This highlights the importance of a balanced approach to quality management, where cost, accuracy, reliability, and timeliness are collectively optimized to enhance overall logistics performance.

**Table 2:** Inclusion of logistics in company strategy

S.No	Response	Frequency	Percentage
1	Yes	52.7	52.7%
2	No	30.9	30.9%
3	Can't Say	16.4	16.4%
Total		100	100%

Source: Primary Data



**Chart 2:** Respondents' perspectives on integrating logistics into company strategy

**Interpretation**

The data in Table 1.6.2 illustrates respondents' views on whether logistics should be integrated into a company's strategic framework. A majority (52%) of respondents believe that logistics should be a part of a company's strategy, highlighting its perceived importance in achieving organizational goals. Meanwhile, 30% of respondents do not consider logistics as a strategic element, and 18% are uncertain.

**Inference**

The majority view suggests a growing recognition of logistics as a critical component of overall business strategy. This indicates that companies increasingly see effective logistics management as essential for enhancing competitiveness, improving efficiency, and maintaining customer satisfaction. However, the 30% who responded negatively and the 18% who were uncertain imply that some organizations may still perceive logistics as an operational function rather than a strategic asset. This could point to a need for further awareness and education on the strategic value of logistics in driving business success and resilience.

**3. Suggestions**

To efficiently mitigate threats, it is imperative to accurately

pinpoint potential risk areas within one's business. Through a comprehensive analysis of different aspects of your operations, you can identify areas with a high level of risk exposure. This awareness enables one to identify various risks within the supply chain and modify operational processes accordingly. Implementing a strategic growth plan facilitates the assessment of the financial implications, occurrence rates, and measures for mitigating supply chain risks. It is imperative to retain key talent to uphold organizational quality, mitigate risks, and consequently foster overall company growth. Hence, it is crucial to involve all team members in the planning for supply chain risk. The collaborative approach employed ensures alignment and facilitates the effective management of potential risks.

**4. Conclusions**

Since transport operations play a critical role in the smooth running of logistic management operations, logistics and transportation are inherently inter-linked. An efficient logistics system, therefore can also be said to improve upon the transport infrastructure and, at the same time enhance the environment. As noted before, transportation remains the main cost factor in logistics management operations, and efficiency in transporting therefore stands to potentially

greatly uplift the overall performance of logistics as an entity. Transport happens to be a very prominent role player in the logistic process. In its absence, the possibility of the realization of even the best logistics strategy will get delayed. For remaining at the top of the list, the adaptation of the latest technological advancement and innovative methodologies becomes an affair of necessity. The key principle behind efficient logistic management is operations with guaranteed customer satisfaction and enhancements in productivity.

## 5. Reference

1. Logistics World. What is logistics. Logistics World.com. Accessed June 1, 2010. Available at: <http://www.logisticsworld.com/logistics.htm>.
2. Lourenço HR. Logistics Management: An Opportunity for Metaheuristics. In: Alidaee C, editor. *Metaheuristics Optimization via Memory and Evolution*. Kluwer Academic Publishers, 2002, p. 329-356.
3. Truman P, McCormack K. Supply chain risk in volatile environments: A conceptual model for managing risks within the supply chain network. *Int J Prod Econ*. 2009;(2):247-258.
4. Nilsson F, Waidringer J. Toward adaptive logistics management. In: *Proceedings of the 38<sup>th</sup> Hawaii International Conference on Systems*. IEEE, 2005. Available from: <http://www.computer.org/portal/web/csdl/doi/10.1109/HICSS.2005.629>.
5. Hofer AR, Knemeyer AM. Addressing logistics complexity: development and validation of a scale. *Int J Logist Manag*. 2009;20(1):187-200.
6. Jeyalakshmi R, Selvi G. Effect of TQM practices in large and small medium electronic companies in Tamil Nadu. *Int J Mech Eng Technol*. 2018;9(13):802-808.
7. Rajasekar D, Suresh R, Venkateswara Prasad B. Rolling resistance in passenger vehicle tyres. *Int J Mech Eng Technol*. 2018;9(13):510-515.
8. Suresh V, Maran Chitra, Maran K. A study on factors determining social media on cosmetic products. *J Pharm Sci Res*. 2016;8(1):1.
9. Maran K, Chandra Shekar V. A study on student's perception of employability skills with respect to engineering institution. *Int J Res Eng Soc Sci*. 2015;5(3):21-34.
10. Maran K, Sujatha L, Kumar TP. Impact of foreign direct investment on automobile sector: an empirical study with reference to India. *Int J Econ Res*. 2017;14(11):187-196.
11. Illakya T, Keerthana B, Murugan K, Venkatesh P, Manikandan M, Maran K. The role of the internet of things in the telecom sector. In: *2022 Int Conf Commun Comput Internet Things (IC3IoT)*, 2022, p. 21-5. <https://doi.org/10.1109/ic3iot60841.2024.10550390>.
12. Manikandan M, Venkatesh P, Illakya T, Krishnamoorthi M, Senthilnathan C, Maran K. The significance of big data analytics in the global healthcare market. In: *2022 Int Conf Commun Comput Internet Things (IC3IoT)*, 2022. <https://doi.org/10.1109/ic3iot60841.2024.10550417>.
13. Ilakkiya T, Manikandan M, Ch RK, Maran K, Ramu M, Venkatesh P. Neuro computing-based models of digital marketing as a business strategy for Bangalore's startup founders. *IEEE*, 2024. <https://doi.org/10.1109/incos59338.2024.10527779>.
14. Venkatesh P, Selvakumar V, Ramu M, Manikandan M, Senthilnathan CR. Measure of well-being of freelancers in the IT sector. *IEEE*, 2023. <https://doi.org/10.1109/iccebs58601.2023.10448738>.
15. Kumar RG, Murali R, Anand S. Effect of internal supply chain drivers on green supply chain management attributes. *Int J Bus Perform Supply Chain Model*. 2019;10(4):323-338.
16. Suresh R, Mohideen KS. A study on the effect of e-business on supply chain management with reference to small and medium enterprises in Chennai. *Splint Int J Prof*. 2016;3(11):17-21.
17. Yang Y, Jin W. Revenue management concepts in car rental industry: improving booking, pricing, and inventory strategies. *J Logist Manag*. 2008;20(3):245-258.
18. Marasco A. Third-party logistics (TPL): a literature review and future research directions. *Int J Phys Distrib Logist Manag*. 2008;38(4):292-313.
19. Vanany I, Zailani S, Pujawan N. Supply chain risk management: a review and future directions. *J Supply Chain Manag*. 2009;39(6):229-244.
20. Kache F, Seuring S. Supply chain management: collaboration, integration, risk, and performance issues. *Int J Oper Prod Manag*. 2014;34(12):1589-1605.
21. Rajagopal P, Sundaram VPK. The complexity of logistics management: impacts of technology and global supply chains. *Int J Bus Manag*. 2015;10(8):123-130.
22. Aljohani K, Thompson RG. Urban freight logistics sprawl: impacts on freight movement, emissions, and travel habits. *J Urban Transp Manag*. 2016;27(1):56-70.
23. Choi TM, Chiu CH, Chan HK. Risk management in logistics: disruptions in global supply chains and strategies. *J Transp Manag*. 2016;15(3):47-60.
24. Edirisuriya A, Weerabahu S. Lean and green logistics in the context of Industry 4.0: a review of practices and opportunities. *Int J Prod Econ*. 2018;211:53-65.