



Chapter 1

Risk Management and Cybersecurity in Transportation and Warehousing

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ABSTRACT

Transportation and warehousing are vital components of logistics corporations. Their continuous uninterrupted functioning is of paramount significance for the enterprises involved in the supply chain. As these enterprises are built and rely heavily on digital technologies for their rapid functioning, they are vulnerable to cybersecurity threats and attacks. Hence, to effectively address and promptly respond to these issues organizations need to have proper strategy and planning in place. This chapter endeavors to acquaint readers with these pressing issues. To secure warehousing operations and transportation systems, the methods and tools for assessing the risks and mitigating them are discussed comprehensively.

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INTRODUCTION

An Overview of Transportation and Warehousing in the Supply Chain

As shown in Figure 1, Transportation and warehousing are essential elements of the supply chain that ensures the seamless flow of goods and services from suppliers to consumers. Transportation here, connotes the moving of goods from one place to another using various modes of transportation such as road, train, air, water, and pipelines. Each mode has its own strengths and restrictions, and the selection of these modes depends on factors such as cost, speed, reliability, and the nature of the goods being carried. To optimize efficiency of transportation strategies such as direct shipment or hub-and-spoke models or intermodal transportation are employed (Gyamfi, Ansere, Kamal, Tariq, & Jurecut, 2023; P. M. Kumar et al., 2023; Tashtoush et al., 2022; Yazdinejad, Rabieinejad, Hasani, & Srivastava, 2023).

Warehousing, on the other hand, is concerned with the storage and administration of goods prior to their distribution to customers (Sawal, Ahmad, Muralitharan, Loganathan, & Jhanjhi, 2022). Warehouses are of different types, such as distribution centers, fulfillment centers, and cross-docking facilities, each of them serves specific purposes in the supply chain. Warehouses perform various functions in the supply chain such as receiving goods, storing them in an organized manner, managing inventory levels and fulfilling orders. They also provide value-added services like labeling, package customization, and product inspection. Efficient warehousing operations contribute to effective inventory management and timely order fulfillment (Alkhodair, Mohanty, & Kougianos, 2023; A. Karim, 2022; Ko, Satchidanandan, & Kumar, 2019; Papastergiou, Mouratidis, & Kalogeraki, 2021).

Figure 1. The changing landscape of transportation and warehousing industry (stormshield, 2023)



Within the supply chain, transportation and warehousing are inextricably linked. Transportation relies on warehousing for temporary storage, aggregation of goods, and efficient order picking, whereas

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