Chapter 14
Reverse Logistics in the Digital Supply Chain Era

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ABSTRACT

The chapter is focused on understanding the concepts of reverse logistics (RL) in the digital supply chain management era. In today's world, returned products and their recovery management has become very important for companies, thus, through this chapter the author summarizes the entire returns process from a buyer and seller point of view. What are the different factors involved in the decision making of returned products and how does it affect the entire supply chain? The chapter also aims to understand costs related to reverse logistics, optimization of the process, and lastly the significance of various reverse logistics strategies that can benefit organizations.

INTRODUCTION

As the world is growing into digitalization and e-business models, reverse logistics is getting more and more crucial to companies. Today with online businesses, we just think of a product and get it ordered knowing that if we don't like it, we can return it without any explanation and get a full refund with a single click.

It seems really tempting as a customer, but is it as simple as it looks for the companies? Being a supply chain professional, what are the things that come to mind? Is reversing the flow of product that easy? In the current era of highly volatile geo-political situations and other uncontrollable external factors like pandemics and natural disasters, when even the forward supply chain is greatly disrupted, how are companies dealing with reverse supply chain? Why should one learn the reverse logistics principles and research optimization techniques? To get the answers to these questions, it is important to understand the concepts around logistics and reverse flow. The chapter discusses about supply chain, digitalization, reverse logistics and related concepts.

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LITERATURE REVIEW

Reverse logistics is the process of planning, implementing, and controlling the efficient and cost-effective flow of raw materials, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal. In the digital era, with the increasing use of technology and e-commerce, reverse logistics has become more complex and critical for businesses. This literature review explores the latest trends, challenges, and opportunities in reverse logistics in the digital era.

1. Trends:

The emergence of e-commerce has significantly impacted reverse logistics, resulting in a surge of returned products. As per the national retail federation and digital commerce surveys, return rates in e-commerce industry are 16.5 compared to 9.7% in physical stores (Conley, 2023 and Inman n.d., 2022). Returns rate in e-commerce industry is 40% more than physical stores. In addition, customers' expectations have changed, with more emphasis on easy returns, faster processing, and transparent tracking of the return status. The integration of technology, such as artificial intelligence, blockchain, and the internet of things, has enabled the automation of many reverse logistics processes, resulting in reduced costs and improved efficiency (Eljelly, 2019).

2. Challenges:

Despite the benefits of technology, there are still challenges that businesses face in managing reverse logistics in the digital era. One significant challenge is the complexity of reverse logistics operations, which require coordination between different departments, partners, and systems. The lack of standardized processes and metrics further complicates the management of reverse logistics (Kiesmüller et al., 2017). In addition, the increasing volume of returned products puts pressure on companies to find sustainable and cost-effective ways to dispose of or recycle them, which is becoming more difficult due to stricter regulations and limited recycling options (Singh & Gupta, 2021).

3. Opportunities:

Reverse logistics in the digital era presents several opportunities for businesses to improve their sustainability, customer satisfaction, and profitability. One opportunity is the use of data analytics to gain insights into the reasons for returns and to identify patterns and trends that can help prevent future returns (Barnett & Clark, 2019). Another opportunity is the collaboration with third-party logistics providers and recyclers, which can help companies to optimize their reverse logistics processes and reduce costs (Ganesan et al., 2019). Finally, the adoption of circular economy principles, such as designing products for reuse and recycling, can create new revenue streams and reduce waste (Linton et al., 2016).

4. Conclusion:

Reverse logistics is a critical component of supply chain management, and in the digital era, it has become even more complex and important. The integration of technology, such as AI and blockchain, has