

Chapter 14


Integration of Circular Economy Principles Within Information Logistics: Case Study of Australia

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ABSTRACT

This study investigates integrating circular economy principles with information logistics to enhance sustainability and supply chain performance. The study aims to explore how optimizing information flows can support pro-environmental practices, reduce waste, and improve resource efficiency. By leveraging digital technologies and advanced analytics, businesses can implement closed-loop systems, track material flows, and enhance decision-making. This research addresses the gap in understanding the combined benefits of circular economy and information logistics, providing insights for businesses and policymakers. The findings will contribute to advancing sustainable business practices and competitive advantage, offering practical pathways for organizations navigating the complexities of a globalized economy while fostering environmental stewardship.

DOI: 10.4018/979-8-3693-8562-3.ch014

1. INTRODUCTION

1.1 Background

In today's rapidly evolving business landscape, the imperative to adopt sustainable practices has become increasingly urgent. Central to this movement is the concept of the circular economy, which promotes resource efficiency, waste reduction, and the establishment of closed-loop systems to minimize environmental impact (Camilleri, 2018; Kara et al., 2022). Concurrently, information logistics—comprising the efficient management and flow of information across supply chains—plays a pivotal role in enhancing organizational efficiency and competitiveness in a globalized market (Klein & Rai, 2009). The integration of circular economy principles within the framework of information logistics presents a promising avenue for achieving sustainable development goals while bolstering organizational empowerment and optimizing supply chain management (Kouhizadeh et al., 2020). Information logistics not only facilitates the seamless transmission of data and knowledge within and between organizations but also catalyses implementing and monitoring sustainability initiatives across supply chains (Gardner et al., 2019; Sarkis et al., 2021). By strategically leveraging information logistics, businesses can enhance their resilience to market fluctuations, improve operational efficiencies, and reduce their ecological footprint.

1.2 Problem Statement

In the context of a rapidly evolving business environment, the integration of circular economy (CE) principles and information logistics (IL) strategies is increasingly recognized as vital for achieving sustainable development goals and enhancing supply chain efficiency. While CE emphasizes resource efficiency, waste reduction, and the establishment of closed-loop systems to minimize environmental impact (Camilleri, 2018; Kara et al., 2022), IL focuses on the efficient management and flow of information across supply chains, which is crucial for organizational competitiveness in a globalized market (Klein & Rai, 2009). The strategic alignment of CE and IL holds the potential to optimize supply chain management, improve operational efficiencies, and bolster organizational resilience (Kouhizadeh et al., 2020). However, despite the acknowledged benefits of both domains, there remains a significant gap in the literature regarding how these two concepts can be synergistically integrated to maximize their collective impact on sustainable business practices.

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