

Logistics and Circular Economy: challenges and pathways

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1 Introduction

The industrial sector faces significant economic and environmental challenges towards sustainable processes. Challenges such as lack of non-renewable resources have culminated in a prompting call for disseminating initiatives towards the development of sustainable business models for the industrial sector. Aiming to develop alternatives to balance efficiency gains and environmental protection in the industrial processes Rodrigues et al., (2020), Circular Economy (CE) has emerged as an alternative to support companies on overcoming environmental and economic challenges.

According to Ellen MacArthur Foundation (2013) which presents the first attempt to define CE, an industrial system can be seen as a restorative system, if it replaces the concept of end of life, and shifts towards a business model which consider waste elimination from the design to a disposal of a product or services, in all stages of production. In doing so, CE aimed at reducing the negative impacts of the linear economy through building long term resilience business and economic opportunity, in order to provide environmental and social benefits.

Since CE aims to provide organizations transition from the linear to the circular production model, enhancing flows of goods and services is a first step in applying this concept. As such, logistics is an enabler for companies to support this transition, due to logistics links resources, products and consumers. In this sense, logistics has appeared as one important tool to support organizations on both applying CE strategies and closing the loop of CE. However, in the current literature researches linking both logistics and CE are still scarce and to the best of the author's knowledge have not been explored by researchers and the industrial sector. This research attempt to contribute to bridging the gap between CE and logistics Seroka-Stolka & Ociepa-Kubicka (2019).

This research aims to analyze the contribution of logistics to initiatives in the field of the circular economy. The work included an analysis of the limited literature focusing on the integration of logistics as an

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important tool towards CE, including particular aspects related to environmental and economic dimensions and green logistics.

2 Methodology

In order to achieve the objective of this research, a review of the existing literature related to logistics, green logistics and CE was drawing upon. Then, with the purpose of understanding the contribution of logistics to support companies on adopting CE initiatives, the scarce literature related to this integration was also consulted, resorting to reports from companies and public organizations. Then, the obtained results were then used to derive possible interventions and draw conclusions.

3 Main findings

This research aimed to contribute to filling the gap in assessing the integration between logistics and CE, drawing up useful information's about the great potential to combine logistics practices in CE initiatives towards the development of sustainable business models for the industrial sector.

On regards, the increasing demand for limited natural resources results from the literature, showed that CE has emerged as an alternative to reduce waste of the industrial process and at the same time, to close the loop of the industrial activities. From the logistics' side, the added value to logistics on supporting companies in the field of the supply chain, namely in identifying raw materials from products and processes in companies, as well identifying possible patterns/companies to reintegrate waste in the chain. It would support companies threefold, firstly on developing a circular production-consumption chain, secondly in reducing costs in the industrial process, thirdly on reducing the environmental impact which contributes to sustainability.

4 Conclusions

The analysis from the current literature showed that logistics has great importance around the industrial process, namely the distribution of products and services which justifies the great potential to support companies on the transition to a linear economy.

The presented results allowed to suggest some implication to industrial sector towards an implementation of a sustainable circular strategy considering the values of CE based on logistics principles, which suggests a joint rethinking in the entire supply chain. It will imply the transition of the traditional production-consumption model as well the company's behavior in their policies and business practices. Such transition should require considering logistics in various subsystems such as design, production, energy consumption and financial aspects. Despite the named challenges, results showed that the logistics sector has not seen yet as an enabler for CE development.

This research is part of ongoing work, aiming to demonstrate the benefits of the integration between logistics and CE. Although being an initial research, this approach can be central for future scientific development on integrating logistics and CE towards sustainability, the authors are now proceeding to use a real case with a set of companies to understand their behavior and practices in the field of logistics and CE.



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5 References

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