Building relationships between garment manufacturers and suppliers

in a closed-loop supply chain in the Lodz region

THE SUMMARY OF PHD DISSERTATION
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ENGLISH VERSION

Lodz 2023

Depleting natural resources, environmental pollution or excessive waste production are environmental problems that the global economy has been facing for many years. Environmental challenges have influenced the development of pro-environmental approaches, both at company and supply chain level. There has been a development of concepts, methods and tools aimed at reducing negative environmental impacts. Initiatives have been taken to increase environmental performance and reduce the consumption of natural resources.

The environmental impact of organisations concerns not only individual entities but entire supply chains. Various concepts have responded to environmental challenges in the supply chain, indicating the need to reduce waste and use resources more efficiently. One of these is the concept of the closed loop supply chain, which this dissertation is devoted to.

The clothing industry, and in particular the trend known as fast fashion, is responsible for increasing environmental risks. It is currently the second most environmentally damaging industry after the fuel industry. The impact of this industry is most evident in a number of dimensions including the environment. Fast fashion is a response to the globalisation of markets, access to cheap labour and a lack of strategic thinking about diminishing natural resources. It is also the result of companies themselves, which have accustomed consumers to the high variability of trends and developed in them the need to frequently acquire new clothing at an affordable price.

As a result, the useful life of clothes is shortening and causing a growing problem with textile waste.

The fast fashion model is a response to the fast pace of consumer life and the increase in their expectations in the speed of response of clothing manufacturers to new trends and at a very affordable price for consumers. It is also a business model that has contributed to the success of many clothing brands. Fast fashion requires manufacturers to reduce costs in order to keep clothing prices low, while at the same time increasing the number of collections introduced per year. The acceleration of the production and consumption process encourages increased returns in the supply chain and the creation of textile waste that is difficult to recover efficiently. For this purpose, companies need to consider not only the flow of materials towards the final customer, but also the flow in the opposite direction.

The issue of waste management in the garment industry's supply chain is one of the key topics in the discussion about the future directions of the industry. For this reason, the author has chosen to address a topic related to closing the loop in the apparel industry. The main focus was on returns management with consideration in the relationship between manufacturers and suppliers.

To this end, the concept of the closed loop of the supply chain was used as a basis for theoretical considerations as well as in the preparation of research methods and tools. The closed loop allows garments to be used for as long as possible.

Consideration of reverse flow provides the opportunity to recover value from waste or returns - using recovery and recycling processes - at each stage of the supply chain. The use of recycled materials or raw materials in production achieves a closed loop in the supply chain.

The main objective of the concept is to maximise resource utilisation by closing the loop of the supply chain, with the environment as the determinant for setting costs and services.

Various approaches to the closed loop supply chain can be found in the literature, ranging from theoretical to practical solutions. These publications indicate the wide range of interest in the area of closed-loop supply chain concepts in the research community. A detailed review of methodologies and concepts has been made by, among others: K. Govindan, H. Soleimania and D. Kannan.

Successful implementation of the closed-loop supply chain concept is made possible, among other things, by building relationships in the supply chain.

Building relationships with the supplier is an important element in supply chain management. Developing partnerships in the supplier-customer relationship is a strategic objective for companies. Partnership relationships, mutual trust and commitment positively influence the creation of innovative supply chain solutions. An attitude of openness and commitment to new business projects perpetuates relationships and ensures that all partners - with equal commitment - work towards shared success.

In addition to economic values, building partnerships also fosters the achievement of environmental goals. Creating mutually beneficial relationships can help create the potential for effective closed-loop supply chain operations. Involving suppliers in the product realisation process, mutual sharing of knowledge and experience (in addition to formal requirements related to the possession of specific certificates and meeting high environmental standards), create the right conditions for building a competitive advantage.

The reflections on closed-loop supply chain management undertaken in this study were based primarily on English literature. The analysis of the literature on the subject allowed to systematise and order the concepts that are used in the concept of the closed loop supply chain, as well as the concept of the closed loop supply chain itself.

Few publications devoted to the closed loop supply chain can be found in the Polish literature. Therefore, there is a need to fill the indicated theoretical and empirical gap.

The analysis of the literature on the subject indicated a theoretical and empirical gap in terms of determining the influence of the relationship with the supplier on the effectiveness of the implementation of the closed loop supply chain concept in the clothing industry. The author of the study identified the determinants of building relationships with the supplier in the clothing industry in Poland, and the rationale was the application gap in the use of forms of cooperation and tools supporting cooperation. As part of the application gap, she proposed recommendations for the implementation of the closed-loop supply chain concept for the apparel industry.

The main objective of the dissertation was to identify the role of relationship management between the apparel manufacturer and the supplier in a closed loop supply chain. In relation to the main objective, specific objectives were formulated:

Objective 1.   To identify the forms of collaboration between supplier and garment manufacturer in a closed supply chain.

Objective 2.   To identify factors affecting the possibility of successful implementation of the closed loop supply chain concept in the apparel industry.

Objective 3.   Identify good practices for implementing the closed loop supply chain concept in the apparel industry.

Objective 4.   To develop a proposal for recommendations for the apparel industry for the implementation of the closed loop supply chain concept.

The main thesis of the research was: *Clothing manufacturer's relationship with suppliers, which is one of the key determinants of the closed loop supply chain.*

With reference to the main objective of the thesis, the author defined the main and auxiliary hypotheses. The auxiliary hypotheses are presented in chapter four on the research findings. The main research hypotheses are described below:

Main hypothesis 1: The motivators influencing the implementation of the closed-loop supply chain concept by apparel manufacturers are positively correlated with the pro-environmental measures taken influencing the closing of the supply chain loop.

Main hypothesis 2: Pro-environmental actions taken by apparel manufacturers influencing the closing of the supply chain loop are positively correlated with building relationships with suppliers.

Main hypothesis 3: Barriers associated with the implementation of the closed loop

supply chain concept by apparel manufacturers are negatively

correlated with pro-environmental actions taken affecting the

closing of the supply chain loop.

Main hypothesis 4: Building relationships with suppliers is positively correlated

with the pro-environmental actions taken by apparel

manufacturers influencing the closing of the supply chain loop.

In order to achieve the set objectives of the dissertation, an appropriately designed research procedure was used, which is described in detail in chapter four.

Based on a review of national and international literature on supplier relationship management and closed loop supply chain, a survey questionnaire was developed. The questionnaire was validated during the preliminary research conducted in 2020. This research was used to develop the survey questionnaire for the research proper.

An empirical study was conducted in 2021-2022. The author used quantitative and qualitative methods in this research. The proper research was conducted using the CAWI technique assisted by telephone (*Computer-Assisted Web Interview*)

Based on the results obtained, conclusions were developed in response to the following research questions:

1. What are the determinants of closing the supply chain loop by apparel manufacturers?

2. What are the motivations of apparel manufacturers to implement the closed loop supply chain concept?

3. What are the barriers to the implementation of the closed loop supply chain concept by apparel manufacturers?

4. What are the forms of collaboration between the supplier and the apparel manufacturer?

5. What are the tools to support collaboration between supplier and apparel manufacturer in a closed loop supply chain?

The quantitative study was complemented by qualitative research. The sample selection was purposive and made by the author. The research was conducted using the TDI technique on 7 indicated companies (*Telephone In-Depth Interview*).

The data obtained through the research made it possible to achieve the assumed research objectives and hypotheses. They were also the starting point for the formulation of conclusions. They formed the basis for filling the theoretical, empirical and application gaps. As a result,

recommendations were formulated for the implementation of the closed-loop supply chain concept in the clothing industry.

The structure of the study consists of the introduction, three theoretical chapters, the empirical chapter and the conclusion. The first chapter - contains the essence, genesis and development of the closed loop supply chain concept. The author's definition of a closed loop supply chain was presented. The aim of this chapter was to characterise the closed-loop supply chain concept and other related approaches. In addition, the evolution of the linear model to the closed loop supply chain was discussed. The differences between the traditional supply chain and the closed loop supply chain are also indicated.

Chapter two addresses the determinants of closed loop supply chain management. The role, types, stages and models of building supplier-customer relationships are indicated here. The author described the factors influencing the closed loop of the supply chain. It characterises the types and key areas of supplier relationship management. Reference was made to the environmental dimension within the relationship maintained. A model for the implementation of a closed supply chain was identified in this chapter.

The final theoretical chapter was devoted to the characteristics of the supply chain in the garment industry. It described key strategies and business models related to the apparel industry. The author also pointed out selected environmental practices that can support closing the supply chain loop. The principles of designing this type of chain are outlined.

The fourth chapter is empirical in nature. It presents the results of quantitative and qualitative research. Good environmental practices were defined and recommendations for the apparel industry to implement the closed-loop supply chain concept were formulated.