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Mosgaard, Mette; Remmen, Arne; Pedersen, Claus Stig

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Sharing best practice in partnerships – Creating new markets for green products

Mette Mosgaard^{1,*}, Arne Remmen² and Claus Stig Pedersen³

¹Aalborg University, Department of Development and Planning, Assistant Professor, Aalborg, Denmark

²Aalborg University, Department of Development and Planning, Professor, Aalborg, Denmark

³Novozymes A/S, Senior Director, Head of Sustainability Development, Bagsværd, Denmark

*mette@plan.aau.dk

Abstract In this paper, the promotion of sustainable products through the sharing of best practices in product chains is examined. The general understanding is that the interactions in the supply chain are changing from a traditional focus on the supply of goods “just in time” towards a focus on value creation for the different stakeholders and closer collaboration and communication between manufacturers, suppliers, consumers, and retailers. Supply Chain Management can be divided into two main categories with rather different focus areas: “risk minimization” related to environmental and social impacts upstream in the supply chain, and “business development” of sustainable products and product service systems. Sharing best practice in partnerships is an example of the latter, but Supply Chain Management goes beyond product chains and into partnerships where the focus is not on one main company but on the partnership between several stakeholders in the same or in interlinked value chains. The laundry chain is chosen as an example in which the partnerships may include several product chains; i.e., the supply chain of detergents and washing machines, and may involve, e.g., retailers to facilitate a development of and demand for sustainable products – in other words the creation of new markets.

1 Introduction: What is LCM?

To prepare the groundwork for the following conceptual discussion on how the concept of Life Cycle Management can be extended, the key terms are defined. Life Cycle Management (LCM) is a concept rather than a method or a system (opposite to Life Cycle Assessment and Environmental Management Systems). In the following, LCM is perceived as a concept of how to include environmental

considerations in all kinds of business decisions, and therefore, two elements are crucial, namely the business and the life cycle perspective. Previous discussions on LCM have mostly had a company perspective; LCM is managed by and driven by a single stakeholder in the product chain, and this focal stakeholder involves other important stakeholders in the chain [1].

Life Cycle Management (LCM) and Sustainable Supply Chain Management (SSCM) are developing simultaneously as business concepts; and there are similarities and differences between them.

“The supply chain encompasses all activities associated with the flow and transformation of goods from raw materials stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships to achieve a sustainable competitive advantage”[2].

This is a broad perspective on SCM. However; when it comes to SSCM, the literature has had a focus on the upstream collaboration from production companies to the primary and, to some extent, secondary suppliers [1].

In SSCM, a distinction is made between SSCM with the purpose of "risk minimization" related to environmental and social impacts upstream in the supply chain and SSCM as "business development"[1,3]. Sharing best practice regarding sustainable products in the product chains is an example of the latter, but SSCM includes both the entire value chain in both directions (suppliers and consumers) and related value chains. An example is the laundry chain where there is a cross-link between the supply chain of detergents and the supply chain of washing machines; two different products with an interlink between them.

To specify the product-related requirements, the LCA methods are often applied [4,5]. The use of LCA and the focus on product-related requirements have led to the establishment of LCM as a line of research and practice parallel to Sustainable Supply Chain Management [1].

LCM, on the other hand, has its origin in a focus on environmental management and the environmental impacts of products, especially LCA and Life Cycle Thinking. LCM has developed from a concept focusing on environmental impacts to an approach including socioeconomic burdens associated with the products:

"Life Cycle Management (LCM) is a product management system aiming to minimize environmental and socioeconomic burdens associated with an organization's product or product portfolio during its entire life cycle and value chain. LCM is making life cycle thinking and product sustainability operational for businesses through the continuous improvements of product systems, and LCM supports the business assimilation of policies such as integrated product policies"[6].

This means that both LCM and SSCM have a focal company perspective. In the following, a first attempt is made to upscale the LCM concept by introducing the "sharing of best practice in partnerships" as a way of moving the focus from one main company to several actors, and even collaboration in partnerships.

Previous work illustrates a necessity of making LCM strategic; it is not just a matter of business activities and operations. In order to make a difference both from an environmental and an economic point of view, the LCM should form part of the business strategy as well [6-8].

The second point of introducing "the sharing of best practice in partnerships" is to develop the traditional product assessment focus (LCA) into a more inductive life cycle thinking that is not based on the assessment of existing products.

The product focus in LCM is typically introduced by applying product assessments towards the end of the development of new products, for hot spot identifications [9,10]. Specific product data is needed in order to conduct life cycle assessment. Thereby, the results of the assessments become more specific, but the data is not available at the end of the development process, when significant environmental decisions have already been made[9]. Thereby, life cycle assessments do not facilitate radical innovations as they are essentially reactive, assessing specific inputs and outputs [11].

This leads to three main points that motivate a development of the LCM concept:

- 1) Change focus from focal companies to the entire value chain and interlinked value chains – from single manufacturers to partnerships.
- 2) Develop business potentials via proactive life cycle considerations instead of applying assessment tools – from assessment of existing products to market creation for new cleaner products.
- 3) Make LCM strategic; include LCM in the business strategies and marketing, not just the business operations and activities.

The research question that motivates the analyses in the following is:

How can the LCM concept be expanded to include partnerships in interlinked value chains that facilitate market creation?

2 Method and future research

The main focus is adding to the progression of concept and theory development regarding life cycle management. In order to initiate a development of a concept for LCM that goes beyond the focal company perspective, the laundry chain is applied as an example of the difference between the potentials in "traditional LCM" versus "Sharing best practice in partnerships". This case is chosen because the benefits of partnerships in terms of greening the laundry chain are easily comprehensible, but it is not applied as an actual case study.

The rather explorative nature of the work calls for examples of how this can be done in practice; and therefore, it is interesting to analyse some of the most proactive value chains and partnerships regarding LCM in order to develop a more comprehensive understanding of how "the sharing of best practice in partnerships" is applied in practice.

The work presented here can be seen as the beginning of the process of developing the conceptual understanding of a more strategic LCM approach that goes beyond a focal company perspective.

3 Sharing best practice in partnerships - when LCM is a tool for market creation?

"Sharing best practice" includes the involvement of important stakeholders of the supply chain in a collaboration that facilitates not only the development of cleaner products, but also the creation of value, by sharing best practice across product chains. As an example from the laundry value chain, both the raw materials, the detergents, the washing machine, the retailers, and the consumers need to be involved in the innovation of their products and social practices in order to be able to introduce, e.g., low temperature laundry and spend less water in the future (see fig. 1).

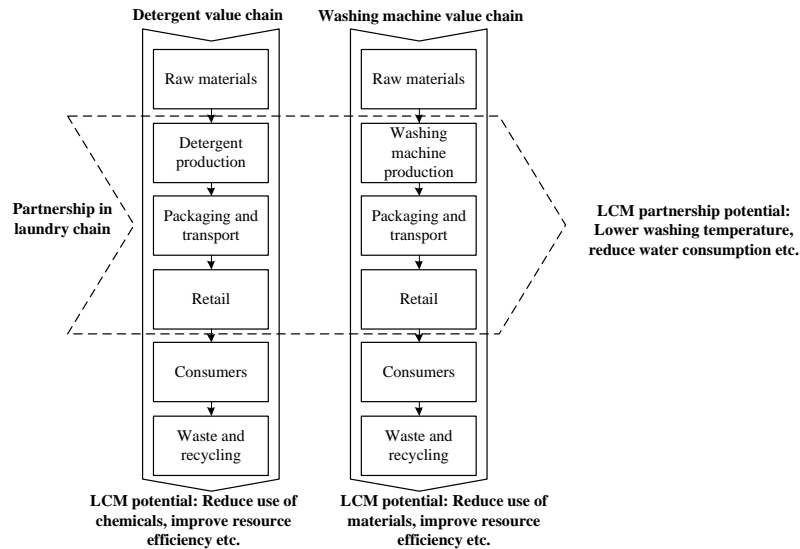


Fig.1: Difference in potentials in value chains and LCM partnerships across interlinked value chains.

Thereby, "sharing best practice in the supply chains" becomes a concept that introduces LCM as a strategic collaboration between several industries and retailers, and not something that is managed by a single focal company. The sharing of best practice in the product chain might have a greater potential for developing more sustainable products than single company initiatives; the degrees of freedom in product development are potentially larger when the other parts of the product chain are involved in the development process. To continue the laundry example; in order to reduce the water consumption related to laundry, the collaboration between the producers of enzymes, detergents and washing machines is necessary, and in the end, the retailers need to be involved as well in order to sell the products. No single actor in the laundry value chain will be able to implement radical changes alone, as the products of one partner are dependent on the technological development of the others.

If the focus changes from optimising existing products to actually introducing radically new products, it becomes even more important to involve the downstream value chain, namely the retailers and consumers. If the consumer does not buy the appropriate washing machine and detergents, the efforts of the value chain will not lead to real reductions in the water consumption. If, on the other hand, the retailers and consumers are involved and the consumption pattern changes, there is an opportunity for market creation for the involved partners.

In the following, five dimensions are introduced in the development from focal company LCM to partnerships.

Tab.1: LCM; from a focal company perspective to business development in partnerships

Step Dimension	Focal Company LCM	Partnership LCM
Production	Minimise negative impacts and optimise resource efficiency	Valorise and utilize by-products
Management	Integrate into day-to-day business processes	Integrate into external stakeholder relations
Products	Life cycle assessments (LCA)	Develop product systems with less environmental impact
Networks	Engage employees and involve external stakeholders	Innovate in partnerships
Communication	Create internal awareness and provide general transparency	Position and brand

The product focus in LCM means that the target areas are focused on minimizing the known environmental impacts caused by the products and optimizing the resource efficiency [12]. By "sharing best practice" in product chains, this focus can be expanded into, e.g., a valuation and utilization of by-products in industrial symbiosis. This type of initiatives goes across product chains and focuses on the use of by-products.

The focal company approach to LCM involves the different departments in the organisation including, e.g., purchasing and sales departments, where procedures and materials are developed according to the LCM initiatives in the organisation, and in collaboration with, e.g., suppliers [3,6,8]. In the partnership approach, LCM considerations are included in the management of "indirect stakeholders" as well; those that are not directly involved in the supply chains, but form part of the network; e.g., opinion leaders and authorities (regulation). An example is lobbying for stricter environmental standards in areas that influence one's business or promoting new technological solutions among opinion leaders.

The products form the most central part of the LCM initiatives; they are the foundation for the manufacturers and the product chains as such and the one element that drives the value chain. LCA is one of the most commonly applied tools in LCM [13]. The product improvements that are implemented in LCM

relate to the entire life cycle of the product (e.g., reducing the energy consumption in the use phase or adding enzymes that can reduce the amounts of chemicals needed in detergents.). In a partnership approach, a totally different set of competences are needed as the marketing of the products is essential, and likewise are partnerships with actors who can influence consumer behaviour and opinions regarding the products, e.g., retailers and NGOs. In order to achieve this, it is, however, essential to have a product with the same or a better performance than the alternatives [14]. In order to sell the products, networkers, sales personnel and management need to involve LCM in the way in which they fulfil their tasks.

The next dimension is the networks; networks and partnerships are the arena where innovations in and across value chains can be initiated. Sharing best practice in partnerships is the foundation for this. As an example, a manufacturer of enzymes shares the company's knowledge of sustainable products with the retailers and other partners in the supply chain and thereby facilitates a market pull towards low temperature detergents as such. Another example of an arena in the same case is the communication with end consumers in a campaign "I do 30", also an initiative that promotes the use of low-energy detergents in general. An obstacle to and potential for innovation in partnerships are the power relations; often a few partners in the value chain have the power of the chain, e.g., retailers. Their incentives for forming partnerships with individual value chains might not be present; on the other hand, the potential gained by involving them is great. Figure 1 illustrates the potential for forming partnerships across value chains by introducing LCM in the laundry chain.

The final dimension to be discussed is communication. In LCM, the transparency of the LCM initiatives is important, both regarding internal and external stakeholders. Internal transparency motivates understanding and support and external transparency is a way of satisfying stakeholders' expectations and building trust and goodwill [6].

In a partnership perspective, communication is also a way of harvesting the benefits of the LCM work both regarding the market (brand) and society (positioning).

4 Findings and perspectives

The aim of this work is to discuss how the LCM concept can be expanded to include partnerships in interlinked value chains that facilitate market creation.

Three main points are addressed in this process namely:

- 4) Change focus from focal companies to the entire value chain and interlinked value chains – from single manufacturers to partnerships.
- 5) Develop business potentials via proactive life cycle considerations instead of applying assessment tools – from assessment of existing products to market creation for new cleaner products.
- 6) Make LCM strategic; include LCM in the business strategies and marketing, not just the business operations and activities.

In order to illustrate the meaning of the development of the concepts, the laundry chain is included as an example of the differences to which the changes lead. Changing from a focal company perspective to partnerships has implications for the potential for facilitating innovations across product chains. Changing focus from the assessment of products to the innovation of new products in partnerships across value chains creates a possibility of more radical innovations, as the limitations from linked value chains can be challenged in the partnerships. Finally, there is a necessity of making LCM strategic; when the partnerships involve the main customers, suppliers and collaboration partners of the company; they call for strategic decision-making.

The discussion of the development of an extended LCM concept is addressed through five dimensions: production, management, products, networks, and communication. A discussion of these five dimensions shows that the needed competences expand, both regarding the internal and external stakeholders. Most of all, the discussion illustrates that if LCM is to be a market-oriented approach that facilitates a creation of a brand and position in the market for green products, strategic initiatives and partnerships across value chains are needed.

In recent years, the focus on the environmental impacts of the production and consumption of shelf products has increased. This creates a possibility for production companies of benefiting from their LCM activities due to a market demand. Retailers have a lot of power in the supply chains as they are in direct contact with the end consumers. Especially, the retailers in the UK have had high ambitions in terms of using CSR and carbon footprint as means of communicating with the customers, while they are in the warehouse. Previously, numerous

investigations on retailers and, especially, organic food have been made, but less on non-food products. Therefore, it will be interesting for future research to address the non-food products in LCM and partnership analyses.

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