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## **ORGANIZING SUSTAINABLE PRODUCT CHAINS OF A MULTINATIONAL CORPORATION: LIFE CYCLE MANAGEMENT IN PRACTICE**

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### **ABSTRACT**

LCM literature is mainly of a normative character and LCM is typically defined by holistic environmental focus, internal integration, collaboration with external actors and carried out with an abundant LCM-based toolbox. To contrast, a study of LCM in practice shows here how LCM is enacted by linking environmental initiatives attached to different steps of a generic product chain. It also shows how practitioners struggle with processes of internal integration and external collaboration.

### **INTRODUCTION**

The life cycle management (LCM) literature provides a wide range of definitions and an abundant toolbox. It consists mainly of normative prescriptions of what LCM is, of tools, and of key issues such as the importance of internal company integration of LCM and external integration of LCM in the product chain. But empirical studies of LCM are still relatively uncommon (Seuring, 2004) and not much literature is found about these actual practical difficulties of LCM, nor on how practitioners work with these issues. The aim of this paper is therefore to describe how LCM is enacted in actual practice in one large multinational corporation with explicit LCM intentions.

#### *Life cycle management*

Hunkeler et al. (2003) describe LCM as “an integrated framework of concepts and techniques to address environmental, economic, technological and social aspects of products, services and organizations” (p. 69) and Baumann and Tillman (2004) defines it as “the managerial practices and organizational arrangements that apply life cycle thinking. This means that environmental concerns and work are coordinated in the whole life cycle instead of being independent concerns in each company” (p. 62). This variety of definitions is something Poikkimäkki (2006) highlighted when she pointed out that theoretical LCM descriptions “can cover any environmental considerations in a company or among several companies along a



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product life cycle, from an entirely new management paradigm to a certain perspective and to the use of specific tools” (p. 49). In this broad spectrum the common denominator is environmental consideration that stretches the traditional focus on individual actors to a holistic product chain perspective. Interaction and collaboration between actors is also considered important factors (see for example Remmen et al., 2007; Power (Ed.), 2009).

### **MATERIAL AND METHODS**

The studied organization, here referred to as the Company, is considered a frontrunner with regards to sustainability related goals and activities. It is a multinational company that provides products in several product categories and has production at about 150 sites around the world. The Company has stated ambitions to integrate LCM into internal core business processes as well as stated ambitions to decrease environmental impact within its own company boundaries as well as upstream and downstream its product chains. Due to these preconditions the Company is a well suited corporation for a study of how LCM is enacted in practice.

I have conducted what Czarniawska (1997) would call a window study, which is when “a researcher open an arbitrary time window and describes all that can be seen through it” (p. 65). As such it is also what Mol (2003) would call a praxiology – a study of practice. A qualitative study has been undertaken over a period of one year. Thirteen semi structured interviews of about one and a half hours each were conducted with a selection of practitioners in the organization. The main part of the informants had a strategic position within the company whilst some worked part time with sustainability related issues. The snowballing technique was applied as a way of generating relevant interviewees. Continuous observations have taken place at the Company’s Strategic Sustainability department, as well as document studies.

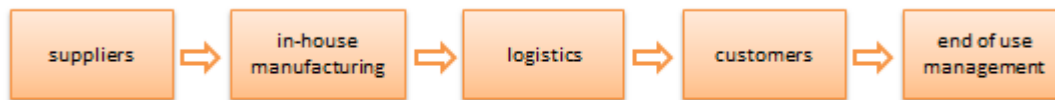
### **RESULTS**

The study shows that the Company has several on-going environmental initiatives with different focus, such as: *environment health and safety* (EHS) (internal management systems, policies, regulations), *design for environment* (DfE) (internal green design parameters and product development), *life cycle thinking* (LCT) (internal integration of environmental concern into business processes), an *emission strategy* (main focus on in-house activities and upstream actors, emission reduction), *accountable chain management* (supplier focus, codes of conduct, environmental/energy management systems), an *sustainability portfolio* (customer oriented, portfolio of ‘greener’ products and services), and *end-of-use management* (remanufacturing, reuse, refurbishment).

Having these environmental initiatives does not automatically mean that there is an underlying life cycle perspective involved. To really understand the Company’s LCM activity one has to dig deeper into the content of the initiatives to understand their relevance for LCM.

By doing so reveals that the environmental initiatives focus on different aspects and that the Company has linked them so that they cover a generic Company value chain (figure 1).<sup>1</sup>

Figure 1 A generic value chain for environmental initiatives according to the Company (Annual report, 2012)



This shows that the Company has linked its environmental initiatives to a generic product chain with the aim of creating sustainable product chains and working with LCM.

Studying these initiatives also mean studying the practitioners. They come from different functions, departments and divisions within the organization and many are involved in more than one environmental initiative and several parallel networks that concerns environment or sustainability exist within the organization. Integration in the line organization is considered a key issue at the Company mentioned by almost all interviewees related to these initiatives. But even if considered key it is also frequently mentioned as a difficulty. Even though environmental concern is considered to have top management support the everyday activities are still considered to lack a self-going concern for environmental issues in the day-to-day business activity. Neither is environmental concern the only top priority of the organization but instead one of several important aspects.

Another difficulty mentioned is that of gaining external attention for products in the sustainability portfolio. This is exemplified by the fact that the Company now work intensely to promote their greener products but the success of the products depend on the customers' recognition and purchase of the products.

## CONCLUSIONS

This study shows how LCM at the Company constitutes of a number of environmental initiatives that are related to each other and that are linked to a generic product chain. This relation between the initiatives and the linkage to a generic product chain is what qualifies it as LCM and not only individual corporate environmental initiatives. As such it shows how the Company has enacted its LCM intentions into LCM activity.

What also needs to be considered here is the fact that this is a generic chain. Since the Company has numerous suppliers and production sites this means a large number of product chains that needs to be managed. In actual practice there are also often even more physical

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<sup>1</sup>The term 'value chain' is used in the annual report (2012) but in this paper the term 'product chain' (Boons, 2002) is used since I believe that it better represents the physical phases involved in generating and managing a product during its lifetime.



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phases involved then can be derived from a generic product chain. Therefore the next step in the development of LCM and sustainable product chains would therefore be to study a selection of these products and product chains to see if and how they actually are connected to the Company's overall life cycle management.

LCM literature often point out the importance of external integration of LCM and collaboration with external actors in the chain. The Company has with time gained a more and more holistic view of environmental aspects, even though the Company to date has mainly focused its efforts on collaboration internally. Some external parties have though recently been included as a way of adding to sustainability and the Company's LCM work. The Company is therefore still in the starting blocks of this next step of LCM of collaboration with external actors in the product chain. A difficult step – as the example with sales of green products show, LCM is not in the hands of one company but rather the interaction of actors in the product chain. Such interaction requires further studies.

LCM literature also identifies internal integration as key but lacks descriptions of practitioners. Studying them shows a dynamic organization with several networks. It also shows that integration indeed is a key issue but something that practitioners struggle to manage, especially with regards to everyday business activities. Generally this study shows how LCM activity in practice is much more than can be depicted from the mainly normative literature on LCM and that it is a continually evolving process as people in the organization gain knowledge and capabilities to manage LCM organization.

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