LINKING ENVIRONMENTAL LCM AND KNOWLEDGE MANAGEMENT: THE CASE OF A MULTINATIONAL CORPORATION

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Abstract

Detailed empirical studies on environmental life cycle management (LCM) in practice are scarce. As such, a study of LCM in practice at a multinational corporation was conducted. The study demonstrated difficulties of integrating LCM into the organization. Three ways of going about this challenge in was identified in the studied company, by; (1) including sustainability aspects in existing tools and processes, (2) using networks and social interaction as a way of creating commitment, or (3) finding ways to connect top management intentions with operational level activities.

Managing life cycles implies that practitioners have to consider and manage a lot of knowledge, therefore implicit assumptions LCM practitioners have of knowledge management leads to differences of how LCM integration is handled. The empirical study demonstrated that solutions for LCM integration were sought in mainly an objectified knowledge perspective, focusing on explicit knowledge and tools. Yet, we identify a potential of utilizing insights also from a situated perspective on knowing.

Keywords

Environmental life cycle management (LCM), knowledge management (KM), objectified knowledge, situated knowing, networks, communities of practice (CoP).

1.   INTRODUCTION

Environmental life cycle management (LCM) implies management of environmental issues extending traditional company boundaries and including a life cycle perspective of products [1,2,3]. Multinational corporations increasingly highlight LCM as part of their core values (examples[1] being ABB, SKF and Volvo Group). Existing LCM research also point to the need for integration of LCM internally in organizations' processes and functions. But LCM literature lacks to adequately address the complexity of *management* on environmentally sustainable life cycle faced in everyday business management. Instead focus is mainly on vague generic success factors, such as the need for communication, knowledge sharing, and collaboration [1,2,3], and on available tools to use. But *how* to *organize* LCM in practice is unclear and largely unstudied.

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[1] Based on annual (or sustainability) reports from 2013.

Drawing on the knowledge management (KM) literature, in particular literature on practice-based studies [4], situated knowing [5], and communities of practice (CoP) [6], in this paper we empirically explore how LCM is organized in practice.

2.   THE RESEARCH PROCESS

A review of LCM literature and KM literature have been conducted, as well as of environmental and/or LCM literature that relate to KM. The reviews showed that an explicit discussion on the management of life cycles and its relation to different perspectives on knowledge has previously not been made.

An empirical study of LCM in practice was conducted at a large multinational corporation with business all over the world. The company is also recognized for its work with LCM. The study consisted of 1) thirteen semi-structured interviews, 2) observations that took place at the strategic sustainability department, and consisted of part-time observations about one day a week over a two year period, 3) document studies done to complement our understanding of LCM activities, and 4) three workshops providing respondent validation and further reflections and interpretations from practitioners. We continued by applying theoretical insights from the KM field, on the empirical material. It generated a clear picture of how different perspectives on knowledge influence LCM, and provided a potential way of further developing LCM in organizations. The present paper is based on a thesis on the topic [7].

3.   LIFE CYCLE MANAGEMENT IN LITERATURE AND IN ACTUAL PRACTICE

LCM literature proposes a number of vaguely described and generic 'success factors' that are considered essential for *all* organizations in order to work successfully with LCM. These proposed factors revolve to a large extent around the idea that LCM efforts need to be integrated internally in organizations that are part of product chains, to have; 1) top management support, 2) communication and interaction, 3) integration across functions, 4) part of everyday practice, 5) alignment to business strategy, 6) LCM knowledge, 7) holistic environmental approach, and 8) collaboration with product chain actors. The LCM literature also focuses heavily on tools and is often prescriptive in nature.

The empirical study of the *organizational aspects* of LCM in practice demonstrated that the studied company had several initiatives focusing in some way on sustainability, and that together covered most of a generic product chain (from raw material extraction, through the end-of-use management). These initiatives were developed by LCM practitioners at strategic levels, with the intention that they would later on 'run on their own' and not be continuously managed by specific sustainability departments.

The study also showed that LCM practitioners had a continuous focus on the importance of integration — there were often talk about the need for all employees to take responsibility for including sustainability aspects into their work. This integration emphasis implied that LCM practitioners were still in a phase where they had to make sure that initiatives were developed, implemented and utilized. The general idea was that it was not top management that needed convincing, but rather that attention needed to be directed towards the middle management levels. There was a perception among LCM practitioners that middle managers sometimes had difficulties to prioritize sustainability.

We identified several paths for LCM integration at the studied company. One commonly applied approach was to include sustainability parameters into, for example, key performance indicators and existing processes, in order to integrate sustainability vertically and horizontally in the organization. Another path was used when implementing the 'Sustainability product and solutions portfolio' — where efforts were made to legitimately circumvent middle management, thereby directly linking top management with operational

levels. A third path identified was related to the challenge of involving staff in order for them to include life cycle aspects in their interactions internally and with external actors. Several formal networks were in place in the organization, and were thus one way of creating commitment.

4.   KNOWLEDGE MANAGEMENT PERSPECTIVES

Managing life cycles implies that practitioners have to consider and manage a lot of knowledge, for example, regarding a variety of multifaceted environmental issues, on how to learn and how to communicate this knowledge, and how to collaborate on these issues. Which implicit assumptions LCM practitioners have of knowledge leads to differences of how LCM integration is managed. There are two leading perspectives within KM — here referred to as the *objectified knowledge* and the *situated knowing* perspectives.

Having an objectified knowledge perspective implies that one views knowledge as something that can be separated from people by codification [8]. For proponents of this view, a central KM activity is to turn *tacit* knowledge[2] into *explicit* knowledge, and to share it with others [8, 9], often with the use of tools. The idea is to transfer explicit knowledge from 'the transmitter' to 'the receiver' without any important information being lost in the process (see [11] for strengths and weaknesses of the *conduit model of knowledge sharing*).

Critics of the objectified knowledge perspective argue instead that what is 'best' in one context might be out of place in another [12]. Knowledge is instead viewed as a process[3], constructed in ongoing relationships, and therefore inseparable from practice [5, 4, 12]. Orlikowski [5] stated that knowledge and learning need to be considered in its specific context and be adapted to local circumstances. Brown and Duguid emphasized the distinction between *canonical practices* — work practices described, for example, in manuals — and *noncanonical practices* — the actual practices performed by employees, and pointed out that concentrating *only* on canonical practices "can blind an organization's core to the actual, and usually valuable practices of its members" [13, p. 41].

5.   DISCUSSION AND CONCLUSIONS

Studying LCM in practice from a KM viewpoint indicated that the primary perspective on knowledge within the studied company was an objectified one, focusing foremost on measurable tools and processes — *canonical practices*. The company has also made use of networks, but networks are also considered part of canonical activities, due to its top-down management approach [13]. As LCM practitioners within the company experienced challenges of integrating LCM into the organizations everyday business activities, we suggest that another management approach for knowledge sharing and integration, than via networks, would be to put more effort and support into possibilities for LCM practitioners to engage in communities of practice (CoP). Brown and Duguid [13] explained that the difference between networks and CoP are that networks are created by managers for specific projects, where members are chosen due to their ability to contribute to the team's goals. CoP is instead characterized by an emergent approach, and Wenger and Snyder [6] described them as informal groups that organize themselves, set their own agendas and establish their own leadership and membership. CoP are thus of a *noncanonical* nature due to its bottom-up approach [13]. A CoP could, for example, consist of practitioners that otherwise collaborate in teams, and thus feel a need to also collaborate and share experiences and knowledge on LCM issues with colleagues in similar working roles. Wenger

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[2] Knowledge that is considered difficult to articulate in an explicit form [10].
[3] Hence the divide between situated *knowing,* and objectified *knowledge* [see 5].

and Snyder [6] suggested that CoP could complement the more common team and networks approach. Departments, teams etc. can sometimes turn into separate knowledge islands, and CoP is one way of bridging such islands [14].

To conclude, the study of LCM in practice demonstrated that different knowledge perspectives influence LCM practice. With an objectified knowledge perspective focus turns to tools and practices that *ought to* be applied in the organization. Whilst with a situated knowing perspective, focus instead turns to *actual* practice and interactions. We conclude that complementing existing networks within the organization, with the use of CoP for LCM issues and practitioners, is a potentially successful approach to utilize within LCM organization and management at large multinational corporations.

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