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## Preface

### *Recognizing management in LCM*

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## Preface: Recognizing management in LCM

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### Christina Scandeliu In Memoriam

We have lost a dear and respected colleague, Dr. Christina Scandeliu. Christina was the Deputy Director of the Brunel MBA program and Lecturer in Marketing and Sustainability, and she joined our editorial group for developing a special issue from the Life Cycle Management conference 2013. Christina did not let the sickness define her, so much so that the news of her passing away came unexpectedly to us. She passed away on May 6, 2016, in the midst of the writing up of our introductory article. Christina was the one that brought a solid expertise of the management sciences to our group and offered confidence to our claims. We are immensely grateful for her substantial and constructive contribution to the development of the special issue and to the writing of the introductory article itself. In life cycle management, where people with an engineering background outnumber the management scholars, Christina will be sorely missed.

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### 1 Documenting research progress from a conference

The Life Cycle Management conference 2013 took place in Göteborg, Sweden in August that year. During some very sunny days, nearly 450 presentations took place in front of more than 600 conference goers, leading to uncountable numbers of meetings, conversations, and reflections. Summarizing the outcome of such an event is a near to impossible task. Even so, a group of scholars was given the mission to identify the most interesting conference contributions and to produce a journal special issue as a way of documenting discussions about the state of LCM research. A group that brought together different facets of management and policy-making research in relation to LCM was created.

We got together, as special issue editors, half a year before the actual conference and came to discuss the lack of knowledge on LCM practice previously identified (e.g., Seuring 2004; Vermeulen and Seuring 2009). We then noted that we found the field still wanting. Instead of more examples of LCA applications, we wanted more systematized descriptions and analyses of life cycle-related practices in, not only industry but also in society at large. Preferably, the research should be grounded in the social and management sciences. In short, our intention with the special issue became to advance *LCM research*, with an emphasis on the “M” for management. However, this was easier said than done.

As we now write 2017, one may wonder if we could have done it in shorter time. To some extent, the duration is an indicator of the delays that come as an effect of having to slice in volunteered and unpaid editorial work between all the other tasks of an academic, some confusions arising from the distributed responsibility, as well as the general vagaries of human life with unexpected job shifts, illness, or other less concrete disruptions. However, the distance from a conference presentation to a full academic paper is also a significant

explanation to the duration. Whereas some conferences series request abstracts with full papers, others are satisfied with abstracts. As a middle way, the conference organizers of LCM 2013 had requested short papers (four pages) including a 150-word abstract, figures, and references. The short papers gave a good basis for our selection process, but in order to ground it well in the social and management sciences, we wanted to bring in feedback from scholars in those fields via the peer-review process. This led us to look for additional academic reviewers from outside of the LCM field, for example from within sustainability management, sustainable supply chain management, design studies, and policy studies. Our hope was that this would help develop high-quality papers enriching the LCM field with management perspectives and social insights, even if it would take a little longer time.

## 2 M for management

Our impression of the field was that life cycle management had become synonymous with life cycle application. A practitioner would probably agree with the description, but a scholar needs more systematization on what a management perspective represents. Delving into the “M for Management” can therefore help clarify what management brings to the life cycle perspective.

According to the *Concise Oxford Dictionary of English Etymology* (Hoad 1996), the origin to the term *management* goes back to the Latin word for hand, *manus*. The same root is still also found in *manege* and *manipulate*, but in the sixteenth century, *manage* referred mainly to the *handling* of a horse. The term got transferred to other domains, and *manage* came to mean *handle*, *wield*, *conduct (an affair)*, *control (a person)*, as well as *do successfully*. The meaning of *manage* came with time to range from *handling*, as in getting by, to *coercive control*. The dark side associated to the latter meaning has come to the fore thanks to a branch of research called critical management studies (Alvesson and Willmott 1996, 2003). The field builds on theoretically informed critiques of management, business and organization, and is characterized by skepticism when it comes to the morality and ecological sustainability of prevailing forms of organization. Despite its interest in ecological sustainability, critical management studies have yet to make its mark in LCM research, even if many in the field probably can relate to similar skepticism on a personal level.

Also, contemporary and mainstream explanations reflect a broad range of meanings to *management*. In the *Dictionary of Business and Management* (Rosenberg 1993), *management* is explained as follows:

- the individual or group of individuals responsible for studying, analyzing, formulating decisions, and initiating appropriate actions for the benefit of an organization;

- the functions of planning, coordinating, and directing the activities of an organization.

By taking the mainstream definition of management apart, we can start relating what management is to life cycles and identify what is characteristic to life cycle management. This will also make clear what is particular to the life cycle perspective and show what LCM brings to the management perspective.

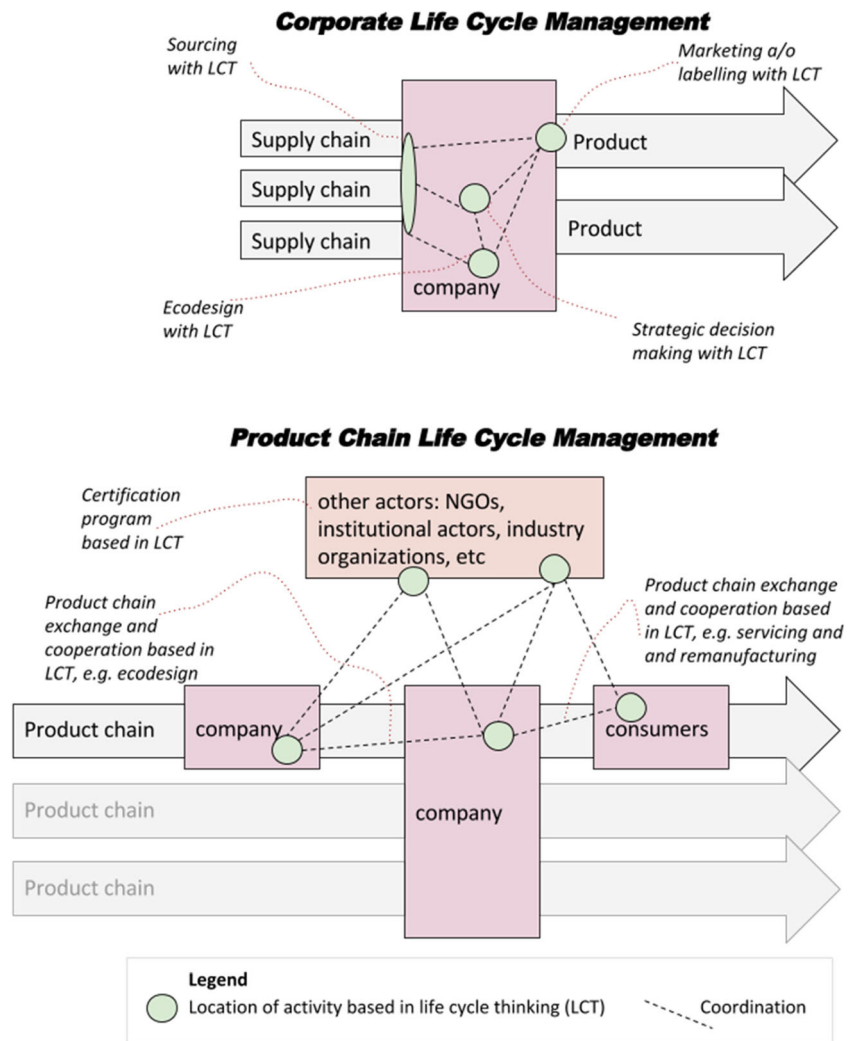
## 3 Conceptualizations of LCM

The general definition of management (Rosenberg 1993) combines three core elements: (1) actions for the (2) benefit of (3) the organization.

In the management definition, organizational *action* and *activity* are associated with a broad spectrum of actions: studying, analyzing, formulating decisions, planning, coordinating, and directing activities. In an LCM context, we recognize numerous actions related to application of life cycle thinking, tool development, and tasks for achieving sustainable product chains. Several speakers during plenary sessions at LCM2013 pointed to a tendency for tool development in the field at the expense of other types of activity. Or, as Rob Jenkinson, CSO of SKF, aptly phrased it: “LCM should be more of a contact sport and less about tools.” The need to look more broadly at management can even be shown with LCA, as does Ziegler et al. (2017) who show that management, not just technology, impacts environmental performance.

While *organization* in the management definition typically denotes a company, this organizational scope can be too limited from a life cycle perspective. However, the management definition does not limit “organization” to signify a company organization—in fact, contemporary management research deals extensively with networks, partnerships, and other wider organizational scopes in business and throughout society (cf. Czarniawska and Hernes 2005; Holt and den Hond 2013). In an LCM context, “organization” could therefore refer to the whole product chain as an organization, as well as to a company organization (see Fig. 1). While LCM research predominantly has had a corporate focus, a widened organizational scope is also possible. The product chain organization can be seen as an “organization of organizations,” where companies, institutes, governmental bodies, NGOs, consumers, etc. interact to shape a product life cycle and its sustainability. Examples of both corporate LCM (Nilsson-Lindén et al. 2017) and LCM reaching out along the product chain (Chkanikova and Kogg 2017, Young 2017) are found in this special issue. Also, the paper by Glisovic et al. (2017) explores a wider network than that of the corporation to find appropriate channels for disseminating life cycle thinking.

**Fig. 1** Variants of life cycle management. *Upper:* corporate life cycle management. *Lower:* life cycle management along the product chain



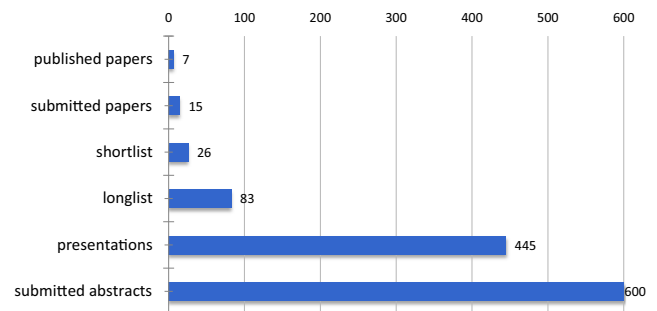
Finally, the management definition states that actions are “for the benefit of the organization.” The interpretation of “benefit” is not straightforward in an LCM context, since sustainability interests do not necessarily align with corporate interests. This is where critical management studies may have something to offer LCM research. The need of a critical voice is well argued by Freidberg (2017) in this special issue. The understanding of *benefit* is further complicated when considering the many actors of a product chain. They are likely to have differing views of what constitutes a sustainable development for the product flow. The paper by Lazarevic in this special issue provides a case in point.

**4 Towards the special issue: aim and process**

Our reviewing work took over from where the reviewing made by the session chairs had ended. Out of a total 600 submitted contributions to the conference, session chairs had

screened and made a selection among these, bringing it down to 445 accepted contributions (see Fig. 2).

As the editorial group combined knowledge on different facets of management and policy-making, we met prior to the conference via Skype in order to identify a shared focus from our diverse interests. This led us to focus on the “M” of LCM, the *M* for *management*, which became a guiding star



**Fig. 2** Number of contributions from submitted abstracts to LCM 2013 to published papers in conference special issue journal

when sifting through the 445 abstracts and identifying those of interest.

Each of us started with sifting through the many accepted abstracts, identifying those of interest. The zooming in on *management* meant that we looked for contributions with clear references to the management or social sciences. Upon a meeting on the eve of the conference, we compared and discussed our individual lists to produce a shared longlist. Next, the longlist provided the basis for how we coordinated our attendance to the various sessions in order to cover the respective presentations. Presentations were evaluated with regard for presentation of research with results and with clear delivery. At our meeting at the end of the conference, we could whittle down the longlist and arrived at a shortlist of 26 conference contributions, which were all were subsequently invited to submit to the conference special issue. This led to 15 papers being submitted for peer-review and ended with the 7 published here (see Fig. 2 and Table 1).

## 5 Adding new perspectives to LCM

LCM research may still have a narrower scope than research in management and organization, but the articles in this special issue represent slices of insights away from the “toolbox approach” to LCM and closer towards an understanding of what it takes to organize sustainable product chains. The brief references given above to the included papers are expanded on in this section.

### 5.1 Recognizing needs and paths for LCM

Conventional LCA can inform us about the environmental dimension to daily management. From this follows recognition of the need for more environmental coordination and life

cycle innovation in industry. The paper by Ziegler et al. centers on this in the context of fisheries management. By exploring the reasons for temporal variations in environmental performance of fisheries at company level, Ziegler et al. found that the great variability in fuel use between different fishing trips was related to various onboard decisions, such as steaming to port or to another fishing location. Also, the choice of target species mattered for fuel use. In order for fishing companies to better understand the environmental effect of their daily and long-term strategies, the authors suggest that the companies enter their operational data on resource use and production on a detailed level in their management system.

A different path towards LCM is suggested by Glisovic et al. By exploring the level of awareness and acceptance of life cycle thinking among actors in the Serbian economy, the authors identify suitable channels for disseminating LCM. Their findings show that companies that are members of a business association (e.g., Chamber of Commerce) and engaged in trade with OECD countries are more prone to perceive the usefulness of LCM for business development. Such umbrella organizations have earlier played an important educational role and their networks could thus be utilized for LCM dissemination. For regional SMEs, regional hubs for exchanging experiences of life cycle-based activities and envisaged. To conclude, the authors discuss the need for a national umbrella organization for LCM dissemination.

### 5.2 Recognizing social dimensions to LCA application

Any LCA project involves several actors in different roles and from different settings. And, any LCA project leader can testify on the difficulties of managing the many opinions while ensuring a successful project outcome. Unfortunately, most LCA guides center on the calculations, leaving the handling of the role of the LCA tool and its significance for the social

**Table 1** List of papers contributing to advancing LCM in conference special issue from LCM2013

Order of paper	Author(s) and title
1	Ziegler, Friederike, Evelyne A. Groen, Sara Homborg, Eddie A. M. Bokkers, Kine M. Karlsen, and Imke J. M. de Boer. <i>Assessing broad life cycle impacts of daily onboard decision-making, annual strategic planning, and fisheries management in a northeast Atlantic trawl fishery</i>
2	Glisovic, Srdjan, Evica Stojiljkovic, and Predrag Stojiljkovic. <i>The state of play in disseminating LCM practices in the Western Balkan region: the attitude of Serbian SMEs</i>
3	Freidberg, Susanne. <i>From behind the curtain: talking about values in LCA</i>
4	Lazarevic, David. <i>The legitimacy of life cycle assessment in the waste management sector</i>
5	Nilsson-Lindén, Hanna, Henrikke Baumann, Magnus Rosén, and Andreas Diedrich. <i>Organizing life cycle management in practice: challenges of a multinational manufacturing corporation</i>
6	Chkanikova, Olga, and Beatrice Kogg. <i>Sustainability governance service providers: the role of third-party product certification in facilitating corporate life cycle management</i>
7	Young, Steven B. <i>Responsible sourcing of metals: certification approaches for conflict minerals and conflict-free metals</i>

dynamics at the discretion of project leaders and practitioners. Studies that recognize and study the social dimension of life cycle work can offer important insight for developing governance, leadership, management, and practices related to LCA and LCM. Here, both the paper by Freidberg (2017) and by Lazarevic (2017) signal some problems arising from the notion of LCA being an “objective” and “scientific” approach and draw on the social sciences for finding ways for improving legitimacy and credibility of LCA and LCA practitioners.

After extensive study of the field and its practitioners, Freidberg (2017) found that LCA standards and professional norms advise practitioners to keep their sustainability values out of their work as much as possible, so as not to compromise apparent objectivity. The need for LCA practitioners to keep their values “behind the curtain” is contended by many social scientists, especially since the values are informed by the knowledge acquired through their LCA work. Freidberg (2017) asserts that speaking about the value-based judgments based in situated knowledge can actually enhance rigor, accountability, and credibility of scientific assessments. This means that LCA practitioners could speak up about their evaluative judgments of contemporary life cycle-based sustainability initiatives and that such critical voices could advance the goals of LCM as well as boost the credibility of LCA more generally. Lazarevic offers similar insights from two case studies of LCA application in the waste management sector in France and England. He analyzes the presence and ordering of different types of values (using the economies of worth framework) in a multi-actor project. It becomes clear that actors apply LCA with the aspiration of replicating the scientific method and its application is associated with values pertaining to industrial and environmental efficiency. This leads to friction and criticism when confronted with civic issues related to waste management, which in turn hurts the civic legitimacy of LCA. Instead of the outcome-oriented approach that centers on solutions, Lazarevic (2017) proposes a use of LCA that supports the decision process during its various stages which would also allow for greater public involvement.

### 5.3 Different forms of LCM

Whereas the study by Nilsson-Lindén et al. (2017) sheds light on corporate LCM in a multinational corporation renowned for its LCM, the papers by Chkanikova and Kogg (2017) and by Young (2017) look at a form of LCM stretching out along the product chain. In both studies, third-party product certification plays an important role. While the study by Chkanikova and Kogg (2017), certification is used as a way of outsourcing some of the LCM purchasing activities, industry-led collaboration for designing certification programs come to the fore in the study by Young (2017).

The study of Nilsson-Lindén et al. (2017) starts with the observation that the literature on LCM is either vague or fragmented as it is conducted in different research fields, such as LCM and sustainable supply chain management. As contrast, a detailed empirical study of how LCM is enacted within a multinational corporation recognized for LCM was conducted. Findings show that LCM integration was a constant task in the company and that solutions often were sought by devising life cycle-based tools and implementing life cycle thinking in various parts of the business process, e.g., product development and purchasing. Middle management support proved important but challenging. The authors identify three simultaneous integration paths: (1) inclusion of life cycle thinking aspects in tools and processes, (2) finding ways of working around certain organizational levels, and (3) the use of networks and social interaction for sharing experiences and creating commitment. Although LCM is a holistic and comprehensive approach, LCM in practice revealed to be more limited and disjointed in the studied organization.

The paper by Chkanikova and Kogg (2017) explores corporate sourcing practices in the food retail and textile sectors with a focus on the use of third-party sustainability certification schemes for products. The aim is to see the extent to which such certification schemes reduce the work needed to engage with suppliers, which in turn also reduce the efforts associated with LCM. Ideally, LCM could be exercised in companies by simply choosing to procure products with an appropriate certification scheme. Findings show that firms do rely on certification schemes in their sourcing and that these schemes transfer significant amounts of life cycle information along the supply chain. Moreover, the schemes allow for the outsourcing of the work associated with communication, motivation, enablement and control of sustainability-related information and supplier performance. However, a range of factors influence their fit with corporate LCM, such as whether or not the scheme is based in LCA, or whether or not corporate ambitions are aligned with the scope and architecture of the certification scheme. The authors consequently identify a knowledge gap about the design of certification schemes and its effect for LCM, supply chain management and value chain governance.

In the paper by Young (2017), it is described how the design and effect of programs for responsible sourcing help manufacturing industries govern raw material suppliers from a distance. The study covers 16 conflict mineral sourcing programs, and the focus is on four conflict metals, tin, tantalum, tungsten, and gold, whose mining and trade are implicated in conflict in the Democratic Republic of the Congo. Findings show that in less than 4 years, sourcing programs for conflict-free metals have had great impact on metal supply chains around the world. The largest and most central of these is an industry-led effort. The most effective programs identify product chain “chokepoints” where engagement is focused. There,

facilities are influenced to implement “responsibility management systems,” practice conflict-free sourcing, and undergo compliance audits. This has led to some supply chains, e.g., tantalum, to operate similarly to closed pipelines since 95% of the producers are compliant. However, achieving compliance on scale for gold is challenging. In conclusion, Young identified two topics for future research: the actual sustainability performance for these sourcing programs and the motivations of supplier companies.

## 6 Conclusions and outlook: broadening and deepening LCM research

We titled this special issue *Advancing social and economic knowledge in life cycle management*. In the process, we increasingly recognized the meaning of the management element of LCM, what it is, and how it can be researched, hence the title to this introduction. Advancing LCM requires recognition of management work and engagement with management research.

The combination of life cycles and management enables many kinds of LCM research. Novel terminology and perspectives to LCM research introduced by the included papers convey some of this diversity. Studies with a product chain perspective to LCM offer a complementing contrast to the study of corporate LCM. Advancement of LCM research can thus be achieved by expanding from the company perspective towards, looking deeper into the interactions of multiple actors. Also, critical perspectives have been shown to be valuable for the legitimacy and credibility of LCA and its practitioners. These studies show how deeper studies in the social sciences offer paths for the further advancement of LCM.

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