

Life Cycle Assessment (LCA) for Small and Medium Sized Enterprises

Degree programme : BSc in Industrial Engineering and Management Science | Specialisation : Business Engineering

Thesis advisor : Prof. Dr. Bastian Widenmayer

Expert : Prof. Dr.Jörg Grimm

Industrial partner: Bern University of Applied Science, Industrial Engineering and Management Science, Biel

LCA helps to find weak points and improves the company's environmental factors. But it is not a simple method. Especially for small and medium-sized enterprises, the implementation is a challenge. So how can we support SMEs with an appropriate software solution and bring them closer to the useful method of LCA?

Introduction and Objectives

Life cycle assessment (LCA) evaluates the environmental impact associated with a product or service, from raw material sourcing to final disposal. LCA is often used to identify weak points in the life cycle and therefore helps to make the right decisions. Accurate data is needed, and it requires a lot of expertise, to understand and apply the complicated methodology. Consultancies have developed their own methods based on their experience as experts. Numerous software programs offer solutions for LCA creation. The research is directed specifically to small and medium-sized enterprises (SMEs) as it was assumed that they have more difficulties in carrying out an LCA. The research addresses the following research questions: (1) What is the gap between what the market offers in software tools and what is really needed by SMEs for carrying out a LCA? (2) What are the requirements for an LCA software solution specific for SMEs?

Research Design

This research is based on 10 qualitative and semi-structured interviews that represent one software provider, five consultancies, one representative of an association and three SMEs. The interviews lasted between 10 and 50 minutes. They were conducted independently of the industry.

Results

The research shows that LCA software solutions offered in this area are very complex and require a high level of expertise, which SMEs often do not have. LCAs are mainly carried out by large companies. They have high availability of the necessary resources, such as personnel, but also financial resources and data. SMEs do not have such resources available and use the services of consulting firms. (Figure 1) SMEs are often overwhelmed with data collection and do not have the time or resources to carry out a LCA. An idea for a corresponding software solution would

be to specify it for each sector. In this way, information from each sector could be shared with each other and data already processed could be used by others.

Implications and Recommendations

For SMEs to work with such software, the entire interface would have to be simplified. The software should have a clear template so that SMEs with little prior knowledge can work with it independently. Another option is online training offered by the software provider. With various videos, the functions can then be learned.

Many SMEs have difficulties with the English language, so it would be important to offer the software solution in the appropriate language, here in Switzerland in German.

But in the end, the question remains whether such a software solution is really in demand. In this research, the respondents revealed that they are not dissatisfied with the current situation. The SMEs are happy to get help from consultancies if necessary and are satisfied with what they offer. The processing of a detailed LCA and the operation of the available software solutions needs experts. This situation is not likely to change strongly since SMEs make such calculations seldom. But nevertheless, this would have to be investigated further by interviewing more SMEs and provide them with an example of what a specific LCA software would offer them.



Leonie Daria Liechti

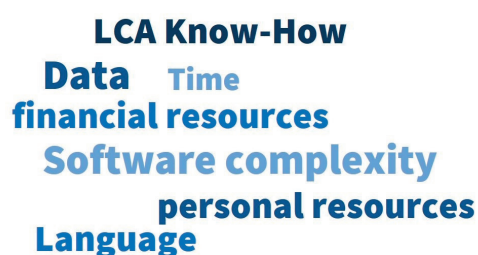


Figure 1: Challenges for SMEs in conducting a LCA