

Product performance and functionality: LCA's perspective

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Goal:

The promotion of the contemporary well-being is based mainly on the use of natural resources, which generates several environmental impacts throughout the production and consumption process. The current economic model based on overproduction and hyper consumption is increasingly being questioned, among the various actions in the face of this reality, some of the current proposals concern no longer thinking about product ownership, but its use, taking into account then the performance and functionality present in the product. Proposals such as product-service system, performance economy, functional and cooperative economy, circular economy and sharing economy are strongly based on this principle. Such proposals are based on the creation of value without the possession of the product and point to a detachment from the economic growth in relation to the consumption of resources and generation of environmental impacts, validating, in a way, the “decoupling” proposal. But what is the sustainable benefit brought by such proposals based on performance and functionality? Is this change a relevant factor in the face of the global socio-environmental crisis, which reflects the negative externalities of an unsustainable globalized economic model? For these answers to be given, it is necessary to use methodologies that can quantify and qualify the sustainable benefits of this change. In this sense, the life cycle assessment - LCA has been used as a possible methodology, as it can provide the necessary information regarding the environmental impacts generated throughout the life cycle of the product / service.

Method:

This study is based on a systematic literature review method, this decision was supported by three main aspects: (i) as it is a rigorous methodological process that results in the selection of the most relevant articles, thus reducing the possibility of losing important information ; (ii) by establishing the inclusion and exclusion criteria, the final selection is allowed to be reproducible; (iii) it consists of mapping, consolidating and evaluating the available knowledge of a topic, in addition to identifying the knowledge gaps to be filled, in order to further develop the body of knowledge accumulated in the literature.

Results:

As main contribution of this study was to point out how LCA can collaborate to inform the benefits of these performance and functionality propositions against the effective ownership of the products (the prevailing reality). The study points to the idea that such proposals of performance and functionality meet the premises of "decoupling" and that there are fruitful contributions with the use of LCA to evaluate proposals related to the performance and functionality of products, as well as there are limits to this use.

