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Work focus:

- Circular Economy Strategies
- Life Cycle Assessment
- Life Cycle Costing

Title

Life Cycle Assessment & Life Cycle Costing as enabler for Circular Economy Strategies

Abstract

To prepare products and services for the circular economy, transparency about ecological impact and economic performance is needed. In order to gain such transparency it is important to assess the main parameters which influence the circularity of a product. Focusing on ecologic and economic aspects as dimensions for decision-making, a Life Cycle Assessment (LCA) and Life Cycle Costing (LCC) are applied to an electric motor in this case-study. Here, different circular economy scenarios like remanufacturing or reuse of certain components at the end-of-life are evaluated and compared with linear concepts. Parameters that influence the economic and ecologic performance the most are identified and evaluated. Following the study, a proposal for Bosch is made how such a combined assessment can be integrated into the product development process in order to ensure that circularity strategies are considered from the very beginning of the product development. The aim is the continuous improvement of ecological footprints of products and services, following the scope-3 systematics, under thorough consideration of economic profitability.