Business cases for ecodesign implementation: a simulation-based framework

The lack of quantitative mechanisms aimed at evaluating the potential business benefits of ecodesign prior to implementation is a major barrier to wider adoption in manufacturing companies. Ecodesign is defined as the consistent integration of environmental aspects into product development processes. Within this frame, there is a need to understand how the development of ecodesign capabilities affect overall business performance over time. Drawing upon the Ecodesign Maturity Model (EcoM2) as the theoretical foundation, this paper systematically reviews the literature on (i) relevant applications of dynamic modelling and (ii) relationships between ecodesign management practices and key business performance outcomes, in order to develop a simulation-based approach aimed at deriving a business case framework for ecodesign implementation. The resulting framework originates the “business case simulator”, which was subjected to the judgement and evaluation of six industry experts regarding its applicability and usefulness to manufacturing settings. The results are discussed and future research streams – coupled with improvement opportunities to the business case simulator – are pointed.

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