

Where Is Greenness Made in Product Life Cycle? A Multi perspective Literature Review and Framework for Future Research

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Abstract

A plethora of studies have been conducted to address sustainable product fulfillment. To facilitate the understanding, authors have published their review papers focusing on different issues, e.g., green product design approaches, decision support systems implemented in sustainable manufacturing, cross relationships between product attributes and consumer decision-making. Although these review papers potentially advance research on the respective issues or topics, an overview of the product life cycle stages in sustainable product fulfillment, which were the most frequently examined, is not seen. This study is to review the relevant literature, in attempting to identify these life cycle stages and further explore the relevant issues, such as the methodologies used, the sustainability dimensions (i.e., economic, environmental, and social) considered, and the industries involved. Based on a rigorous search and selection process, 114 papers were retained for analysis. As shown in the results, green consumption was the focus in 54 papers, thus being the most examined stage. It is unexpected to see that the end-of-life treatment stage was discussed in only 5 articles. Regarding methodologies, quantitative research was the most frequently conducted, contributing to 65 papers. While a variety of industries was involved in the 114 papers, the automotive industry was the study background in 11 papers. Although achieving sustainability from all the three dimensions is very important, most of papers (79 out of 114) considered one or a combination of two dimensions. With the results and analysis, we further shed on the prospects, obstacles, and future directions in facilitating sustainable product fulfillment from all the three dimensions of sustainability.

Keywords

Sustainable product fulfillment, Sustainable consumption, Green product design, Sustainable dimensions

Biographies

Linda L. ZHANG is currently a Full Professor of Operations Management in Department of Operations Management at IESEG School of Management (LEM-CNRS 9221), Lille-Paris, France. She obtained her BEng and Ph.D. degrees in Industrial Engineering in 1998 and 2007, respectively. Her research interests include sustainable supply chain and operations management, product and production configuration,

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Dr. Shuang MA is a Lecturer at the School of Economics and Management, University of Science and Technology Beijing, China. Her research is focused on mass customization, product family design and optimization, green supply chain design, and supply chain perspective on additive manufacturing, healthcare services, etc. Dr. Ma obtained her Ph.D. degree in Management Science & Engineering from the Tianjin University. Before that, she had a bachelor's degree in enterprise management and a master's degree in human resources management from the Hefei University of Technology in China. Her work has appeared in the *Journal of the Operational Research Society*, *IEEE Transactions on Engineering Management*, *Advanced Engineering Informatics*, etc. and in various conference proceedings.