

Chapter 61

Product–Service Systems as Enabler for Sustainability– Oriented Innovation: The Case of Osram’s Off–Grid Lighting

Friedrich Grosse-Dunker
Dark Horse GmbH, Germany

Erik G. Hansen
Leupana University Lüneburg, Germany

ABSTRACT

Corporations increasingly subscribe to the principles of corporate sustainability, which is generally described as the integration of economic, environmental, and social dimensions. As sustainability presents a new source of ideas and visions leading to new business opportunities and competitive advantage, the role of Sustainability-Oriented Innovation (SOI) is ever more emphasized. However, developing products under the paradigm of SOI is risky: both the product’s market success and (non-economic) sustainability effects are uncertain. Product-Service System (PSS) – i.e. a combination of products and services – constitutes a significant approach to overcome some of the limitations of SOI and, additionally, can spur the diffusion of SOI. In this chapter, we use an exploratory research strategy to further investigate the links between SOI and PSS. We present a case study on off-grid lighting in Kenya and analyze the sustainability effects on the product and PSS level. The complexity of SOI and the sustainability potentials of PSS are illustrated. Moreover, we also emphasize the role of a joint achievement of sustainability-oriented product innovations and PSS innovations.

DOI: 10.4018/978-1-4666-4852-4.ch061

INTRODUCTION

For the last decade, the prevailing form of doing business has been increasingly challenged by a number of problems such as climate change, environmental degradation, and social inequalities. These challenges culminate in the view that to only focus on economic aspects of business is ever more difficult or even impossible as it is essentially unsustainable (Hart & Milstein, 2003).

From a business perspective, corporate sustainability seeks to address these issues by transcending the conventional responsibilities of businesses (i.e. to make profits) to also include non-economic aspects such as ecological and social responsibilities (Sharma, 2002; Schaltegger & Burritt, 2005). Scholars have lately emphasized to put sustainability at the core of the corporation, i.e. its products and services (Hart, 1997; Schaltegger & Wagner, 2010). New regulations, but also raising consumer demand for socially and environmental benign products drive the need for more sustainable products and services. The notion of sustainability-oriented innovations (SOI) thus embraces concepts, criteria, and processes to develop more sustainable products and services (Hansen et al., 2009).

One important lever for SOI is the concept of product-service systems (PSS) or servitization (Baines et al., 2007; Mont 2001, 2004; Hansen et al., 2009). Generally, PSS approach represents a spectrum between pure products and pure services (Baines et al., 2007; Pawar et al., 2009). PSS where the manufacturer remains with the ownership of the products are especially interesting. In this case, PSS follows the idea that the environmental burden is dramatically decreased when switching from selling products to providing solutions through product-service combinations. In contrast to mid to long-term leasing and performance contracting in the business to business context (Williams, 2006), this chapter focuses on systems of shared use in business to consumer markets.

Current empirical studies on shared use in business to consumer markets are usually case studies (Baines et al., 2007) and focus on such as car sharing (Huyer, 2004; Engelhardt et al., 2003), ride sharing (Hansen et al., 2010), and on washing machine and power tools service centers (Mont, 2004). Besides few others (Devisscher & Mont, 2008; Manzini & Vezzoli, 2000), existing cases predominantly focus on developed nations. The cases often evaluate the sustainability impacts of PSS (Pawar et al., 2009, Devisscher & Mont, 2008). PSS is said to be a concept that “aims to improve overall system efficiency, along with improving efficiency of each system element” (Mont, 2001, 13). However, most of the case studies are limited to studies where existing products and technologies are integrated into a PSS, i.e. the innovation considers only the servitization of the unchanged product or technology. There is virtually no research on cases where the product innovation joins the introduction of the PSS. Our research question is thus twofold:

1. How can the mechanism of PSS help to introduce a sustainability-oriented product innovation?
2. Which sustainability effects materialize on the product level, which ones at the service level?

This chapter addresses this gap with a case study approach (Yin, 2003) about a multinational corporation based in Germany that offers a product-service system in a developing nation. By concurrently addressing economic, environmental, as well as social impacts, the case highlights the multi-dimensionality of SOIs. We furthermore emphasize the importance of PSS as being an innovation enabler on a (technological) product level and therefore underline the importance of product-service offers in the context of sustainability.

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/product-service-systems-as-enabler-for-sustainability-oriented-innovation/94984

Related Content

Broadening the Concept of Green Marketing: Strategic Corporate Social Responsibility

Özlem Alikılıç (2015). *Handbook of Research on Developing Sustainable Value in Economics, Finance, and Marketing* (pp. 86-109).

www.irma-international.org/chapter/broadening-the-concept-of-green-marketing/121350

Corporate Social Performance and Firm Location: Empirical Evidence

Gaurav Dawar and Shivangi Bhatia (2023). *International Journal of Social Ecology and Sustainable Development* (pp. 1-16).

www.irma-international.org/article/corporate-social-performance-and-firm-location/323800

Work Happiness in the Sustainability of Organizations

Juan Francisco Salazar Llanos and Jaella Peña Romero (2022). *Handbook of Research on Organizational Sustainability in Turbulent Economies* (pp. 19-34).

www.irma-international.org/chapter/work-happiness-in-the-sustainability-of-organizations/301026

Intelligent Technologies for Excellency in Sustainable Operational Performance in the Healthcare Sector

Suchismita Swain, Peter Oluwatosin Oyekola and Kamalakanta Muduli (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-16).

www.irma-international.org/article/intelligent-technologies-for-excellency-in-sustainable-operational-performance-in-the-healthcare-sector/313963

Content-Based Music Recommendation Using Non-Stationary Bayesian Reinforcement Learning

Brijgopal Bharadwaj, Ramani Selvanambi, Marimuthu Karuppiah and Ramesh Chandra Poonia (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-18).

www.irma-international.org/article/content-based-music-recommendation-using-non-stationary-bayesian-reinforcement-learning/292053