ABSTRACT

Nowadays, manufacturing companies are pressured to be competitive and innovative. Particularly this concerns the delivery of value to their customers. The assessment of the overall value chain, designed and implemented for a specific product and/or service, should be sustained by new business models (NBM), thus contributing to higher levels of customer satisfaction. Integrated product-services are assuming importance, allowing manufacturing companies to achieve longer and stable relationships with their customers. This requires, among other, organizational changes and novel methodologies for product-service development. In fact, an effective integration allows product-service innovation, which being exploited, contributes significantly to businesses’ competitiveness and sustainability. In this paper, a “roadmap” for NBM definition and implementation is presented, along with a new methodology for Product-Service Systems (PSS) development. Two case studies are used to test both the roadmap and the PSS methodology. As such, this work is expected to contribute to a clear understanding of NBM and their integration in a methodology for PSS.

Keywords: Life-Cycle Management, Manufacturing Industries, New Business Models (NBM), Product-Service Systems (PSS), Service Design and Development

1. INTRODUCTION

We are facing globalization. Hence, the sustainable competitiveness of manufacturing companies is important in supporting economic growth and the creation of new employment. This can be made, for instance, through the delivery of added value product-services. Therefore, manufacturing companies are challenged to compete in terms of added value, achieving supremacy in the markets, since purely cost-based competition is not compatible with the goal of maintaining social and sustainability values (Brady et al., 2005; Cooka, 2006). The added value is related to the company’s ability in delivering customer-focused solutions, adding, for example, services into their core products. This trend, servicing of manufacturing, is getting more importance in our global economy (Bates et al., 2003; Rothenberg, 2007; Vasantha et al., 2011). To support
BM have included a transition from products to services, the reduction of vertical integration in large businesses, and an increase in the importance of networks of smaller businesses, working in open collaboration, to form a value system (Chesbrough & Schwartz, 2007; Ostaeyen et al., 2013). Furthermore, the development of innovative strategies, to add or to integrate services, in their core products, is a response to the market globalization and its volatility, and obliges manufactures of producing goods to adapt their BM, and to an increase of the service content in their offers. This strategy of involving the delivery of services integrated in products is supported by existing core competencies on design, production and distribution of high quality and complex products (Clayton et al., 2012). Thus, the definition and implementation of NBM that sustain the offer of a new product-service, is very close interlinked with product and service development activities. Hence, the research question one might want to explore in the current paper is:

**Considering manufacturing companies, what kind of integration between PSS and NBM is possible to occur?**

This paper has been structured in order to answer the previous research question. First, we present the related work to both BM and PSS. Then, in methods section, we introduce a roadmap to support the definition, implementation and management of NBM (Leitão et al., 2013). The roadmap suggests different methods and tools to drive top managers in NBM definition and management. Also, an original methodology for product-service development is proposed (Marques et al., 2013). The work is then supported by two case studies: i) testing the implementation of the roadmap for NBM; and ii) testing the importance of using a PSS methodology designed for manufacturing companies. After, a discussion of the previous cases is offered. Finally, conclusions and future work are presented. With the research developed so far, we expect to guide manufacturing companies in the development of NBM integrated
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