



A classification model for product-service offerings



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ABSTRACT

Organisations have been approaching servitisation in an unstructured fashion. This is partially because there is insufficient understanding of the different types of Product-Service offerings. Therefore, a more detailed understanding of Product-Service types might advance the collective knowledge and assist organisations that are considering a servitisation strategy. Current models discuss specific aspects on the basis of few (or sometimes single) dimensions. In this paper, we develop a comprehensive model for classifying traditional and green Product-Service offerings, thus combining business and green offerings in a single model. We describe the model building process and its practical application in a case study. The model reveals the various traditional and green options available to companies and identifies how to compete between services; it allows servitisation positions to be identified such that a company may track its journey over time. Finally it fosters the introduction of innovative Product-Service Systems as promising business models to address environmental and social challenges.

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1. Introduction

The evolution of customer needs and expectations (including environmental aspects) and the erosion of product margins and intense competition have forced manufacturing companies to change their perspective toward new business models to secure additional sources of revenue and profits (Mathieu, 2001; Gebauer et al., 2005; Neely, 2009). Concurrently, pressure from customers and environmentalists has forced many organisations to understand and better manage their sustainability (Mont, 2002). Extending their traditional business into the service domain and offering bundles of products and services (PS) was a natural response for many firms (Wise and Baumgartner, 1999; Pawar et al., 2009). This phenomenon is called servitisation of manufacturing (Vandermerwe and Rada, 1988) and represents business models that have evolved from a “pure product” orientation toward an integrated Product-Service System (PSS).

To respond to the challenges revealed by the servitisation phenomenon (Martinez et al., 2010), product-based manufacturers have significantly changed by re-designing their organisational principles, structures and processes (Gebauer and Friedli, 2005;

Gebauer and Fleisch, 2007; Neu and Brown, 2008), as well as their capabilities (Ceci and Masini, 2011; Davis, 2004), relationships with customers (Miller et al., 2002; Galbraith, 2002) and suppliers (Evans et al., 2007; Windahl and Lakemond, 2010). There are several successful case examples of companies that have begun servitisation, such as, IBM, Rolls-Royce and Rockwell Automation.

However, most companies do not deliver PSS effectively, falling into the so called “service paradox” (Gebauer et al., 2005). The “service paradox” describes situations in which companies have invested heavily in extending their service business to increase their service offerings while incurring higher costs and without any realised returns. The current corporate structures and processes in many manufacturing companies have not been designed to plan and deliver services to the market due to their lack of service culture and mind-set (Martinez et al., 2010; Neely, 2009). In these situations, common difficulties include poorly defined service portfolios in new market segments, vague service content descriptions and a dearth of relevant processes and resources needed to support the service provision (Bullinger et al., 2003).

To overcome these gaps, creating a suitable Product-Service (PS) portfolio must first be undertaken (Cohen et al., 2006); this PS portfolio should be characterised by different levels of service sophistication [servitisation] and may include both traditional and green PS offerings. The latter represents a recent evolution in servitisation. This evolution is characterised increasing numbers of PS

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solutions designed explicitly to be environmental-friendly; these designs respond to the increasing societal concern over issues, such as natural resource depletion and environmental degradation. For example, Toyota offers both traditional and green-maintenance services. Toward the same end, Car2Go (a Daimler AG subsidiary) offers green car sharing services that utilise only electric cars. For this paper, the environmental and/or eco initiatives of a PS offering will be referred to as green.

Despite the importance of providing classification schemes for these heterogeneous PS, the current literature only refers to classification models to gain strategic, marketing or operational insights. Particularly, the existing classification models have been developed to discuss specific managerial aspects on the basis of few (or sometimes single) dimensions and therefore have a narrow focus. These models are discussed further in the next section. However, providing a unified schematic representation that captures all the characteristic dimensions of both a traditional and a green PS offering and can assist in understanding the structure and nature of their portfolio is important.

Currently there is no comprehensive model that describes PS offerings in the literature. The lack of literature precedent raises three questions: i) What are the dimensions that define a PS offering? ii) How might these dimensions be described? iii) How might PS offerings be classified in a comprehensive and uniform model?

Therefore, we propose an innovative PS offering classification model that may be used in both business-to-business (B2B) and business-to-consumer (B2C) domains. While using the PS offering to direct the investigation, the model will describe the PS portfolio of a company (including both traditional and green PS solutions) to map the transformation of the PS offerings over time and compare the different players within the market. The model structure and its major dimensions are derived from literature data; in addition, a case example involving the Italian branch of an international group operating in the heavy truck industry is used to illustrate the application on this model in a real-world context.

The remainder of this paper contains a literature review that focuses on existing PS offering classifications. The methodological approach used to build a model from a theory is subsequently discussed. The following sections describe a developed conceptual classification model and its application to a company. Our conclusions, research limitations and further developments are presented in the last section.

2. Literature review

This section presents the rationale behind PS business models first, followed by the four dominant elements of PS business models found in the literature. We will end this section by reviewing the dimensions of the PS offerings we found.

2.1. Rationale of PS business models

A product service system (PSS) is “a system of products, services, supporting networks and infrastructures that are designed to be competitive, satisfy customer needs and have a lower environmental impact than traditional business models” (Mont, 2002, p.239). This definition characterises a PSS as a comprehensive business model able to fulfil user requirements by providing increasingly dematerialised systems (Goedkoop et al., 1999; Manzini et al., 2001; Roy, 2000). The literature asserts that implementing PSS solutions may trigger changes in both production and consumption patterns (Briceno and Stagl, 2006) that benefit manufacturing and service companies, as well as government, society, and customers. In particular, Mont (2002), Manzini and

Vezzoli (2003), Aurich et al. (2006), Baines et al. (2007), and Velamuri et al. (2011) state that if a company adopts a PS business model, it can do the following: i) provide higher quality offerings that are more customised to customers, offering differentiation to create retention and loyalty; ii) reduce both resource consumption and the environmental impact of a product during its life cycle; iii) improve corporate benefits; and iv) help create new jobs.

2.2. The four dominant elements of PS business models

Although PS business models have varying descriptions in the literature (e.g., Mont, 2004; Tukker and Tischner, 2006), several authors agree (Kindström, 2010; Meier et al., 2010; Schuh et al., 2008; Gaiardelli and Resta, 2010) that a PS business model encompasses four main elements:

1. The value proposition is also referred to as PS offering and concerns the bundle of products and services offered, representing the benefit for which the customer is willing to pay.
2. The infrastructure and network, such as the internal and external organisational structures, resources and capabilities, determine how products and services can be produced and delivered to customers.
3. The relationship capital that exists between the parties allows companies to target customers and distribution channels and determine how their products and services will be delivered; building strong relationships with the customers is also a major focus.
4. The sustainable aspects of the PSS are related to the three pillars of sustainability: economy, society and environment.

This paper focuses on the first element (“value proposition”, which is also called a PS offering) and the dimensions used to characterise and describe it.

2.3. Dimensions of PS offerings

In the literature, many different dimensions have been proposed to describe the various services offered by manufacturing companies. For instance, Mathieu (2001) identifies two different forms of PS offerings that differ based on their recipients (PS offering focus). These services include i) services supporting the product and ii) services supporting the actions of the customer. The services supporting the product usually employ standardised solutions and a low intensity relationship between the parties involved. The services supporting the actions of the customer refer to highly customised solutions that require significant involvement and commitment by both the customers and the providers. In this case, people are the predominant variables in the expanded marketing mixture [i.e., price, product, promotion, and place]. Both Mathieu (2001) and Kapletia and Probert (2010) provide a service classification based on the focus of a PS offering. Manzini and Vezzoli (2003) propose three dimensions based on product ownership, use and decision-making power. These dimensions define three types of PS offerings: i) services that add value to product life cycle, ii) services that provide a final result to customer, and iii) services that enable platforms for customers. These dimensions have been used by other authors.

The same dimensions are reported in Tukker's work (2004), where eight archetypal PS models are introduced and categorised into three major types (product-, use- and result-oriented services). Similarly, the ownership and use aspects, in combination with involvement in the process of a customer, are also considered by Bartolomeo et al. (2003). These researchers cluster PS offerings into two main areas: product-based services (including product-result,

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