



# Investigating the linkages between service types and supplier relationships in servitized environments

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## ABSTRACT

Manufacturers undergoing servitization resort to an increased number of suppliers to deliver services. Although managing upstream relationships is particularly critical in servitized contexts, theory development on this topic is still at an early stage. This study analyses the linkages between the types of services that servitized manufacturers outsource and the relationships they establish with their suppliers.

First, we present a framework that is based on a multidimensional description of buyer–supplier relationships and on a categorisation of services. Second, we present the empirical findings coming from multiple case studies and discuss the characteristics of buyer–supplier relationships for Product support, Customer support and Process related services (the three categories investigated) in the light of the presented framework.

The paper contributes to the servitization literature by showing that there is no *one best way* to shape buyer–supplier relationships in servitized environments. Instead, the type of service being outsourced is one of the key factors that influence the way upstream relationship should be crafted.

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## 1. Introduction

Manufacturing companies are shifting from being pure manufacturers to offering solutions and services, often delivered through their products or in association with them (Neely, 2008). In the literature, this move toward integrated offerings of products and services falls under different terms, such as “servitization” (Vandermerwe and Rada, 1998), “transition from products to services” (Oliva and Kallenberg, 2003), “going downstream in the value chain” (Wise and Baumgartner, 1999), “product service systems (PSS)” (Tukker, 2004), “moving towards high-value solutions, integrated solutions and system integration” (Davies, 2004; Windahl and Lakemond, 2010) and “manufacturing/service integration” (Schmenner, 2009). Manufacturers have strong technical and product-oriented capabilities, but are often weak in service-oriented ones (Neu and Brown, 2005). Hence, they may outsource the delivery of services (e.g. a remote helpdesk, field maintenance, spare parts supply). Upstream relationships with suppliers delivering such services are therefore critical for successfully providing solutions (Windahl and Lakemond, 2006; Johnson and Mena, 2008). Nonetheless, buyer–supplier

relationships in servitized contexts have received little research attention until recently (Bastl et al., 2012). In particular, research to date has not investigated how buyer–supplier relationships are linked with the types of services outsourced. This paper focuses on this research gap. The study is based on case-based research. The paper is organised as follows: Section 2 provides a literature review and presents the research framework. Section 3 illustrates the research methodology. Section 4 describes the empirical findings, which are then discussed in Section 5 in the light of the extant literature. Implications for research and practice as well as the limitations of this research are discussed in Section 6.

## 2. Background and research framework

### 2.1. Product-centric servitization

Servitization of manufacturing firms implies “the innovation of an organisation's capabilities and processes to better create mutual value through a shift from selling products to selling PSS” (Baines et al., 2009a, p. 555) that are “integrated product and service offerings that deliver value-in-use” (Baines et al., 2007, p. 1545). Besides the variety of terms found in the literature to describe this phenomenon, researchers agree on what pushes companies towards this transformation, i.e. the expected financial, strategic and marketing benefits (Baines et al., 2009b). In particular, in this paper we will

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refer to servitization in product-centric contexts (Baines et al., 2009b; Raddats and Burton, 2011). In product-centric contexts manufactured products are central to a company's value proposition, and several product-related services, such as field-maintenance and remote support, integrate the final offering.

## 2.2. Buyer–supplier relationships in servitized contexts

In a servitized environment the management of upstream relationships with the network of suppliers in charge of providing services has proven to be critical (Johnson and Mena, 2008; Martínez et al., 2010; Gebauer et al., 2013). However, this topic has received little research attention to date. Indeed, literature reviews about servitization (Baines et al., 2009a; Nordin and Kowalkowski, 2010) rarely include the investigation of the relationships companies undergoing servitization establish with their suppliers to deliver PSS offerings. Several studies have either considered the development and delivery of a solution as the effort of a single firm or neglected the role of suppliers, as observed in Paiola et al. (2013) and Visintin (2012). Few works, instead, have considered resorting to external parties for providing services in servitized environments (e.g. Mathieu, 2001b; Davies et al., 2007; Nordin, 2008; Kowalkowski et al., 2011) and only recent studies have explicitly dealt with buyer–supplier relationships in the provision of PSS (Lockett et al., 2011; Bastl et al., 2012; Saccani, 2012; Paiola et al., 2013; Durugbo and Riedel, 2013; Finne and Holmström, 2013). Durugbo and Riedel (2013), in particular, recently proposed an analytical model to assess the inclusion of a new supplier into the collaborative network that delivers a PSS. Finne and Holmström (2013), instead, have studied triadic relationships in a servitized context, analysing the role of the manufacturer and how the capabilities and resources of different actors combine to lead to an effective service delivery. Lockett et al. (2011), in their turn, posited that buyer–supplier relationships in servitized environments are characterised by increased complexity compared to the “traditional” manufacturing supply chain. Their findings, which come from a case study, also suggest that limited information sharing and transferring of risks from the manufacturer prevent suppliers from achieving the expected benefits of servitization. This conclusion is also supported by Bastl et al. (2012), who compared the expected characteristics of buyer–supplier relationships derived from the literature with the findings of an in-depth case study. Finally, Saccani (2012) proposed a framework that matches four servitization strategies with three different types of buyer–supplier relationships (namely, open market, cooperation and partnership) and vertical integration of the service delivery. None of these studies, however, has considered the specific nature of the service provided as a factor influencing the characteristics of the relationship between the manufacturer and the supplier (s) involved in the service delivery. Actually, Paiola et al. (2013) investigated the linkages between the different types of services offered and sourcing decisions (internal, external or mixed development), but they did not analyse the characteristics of the relationship with external suppliers.

This gap motivates our research. In this paper we investigate whether and how the characteristics of buyer–supplier relationships in the context of product-centric servitization are related to the type of service outsourced to third-party suppliers. To this purpose, we develop a research framework that will be illustrated in Section 2.5. The framework is based on two elements:

- A new categorisation of the service types included in servitized offerings. Such a categorisation is based on a review of existing classification schemes (reported in the Section 2.3);
- An operationalisation of the characteristics of buyer–supplier relationships that is based on a model taken from the literature (Cannon and Perreault, 1999). Such a model is presented in Section 2.4.

## 2.3. Classifications of services in servitized contexts

Table 1 reports eight classifications of the services offered by servitized manufacturers.

Synthesising these classifications, it is possible to outline four different service categories that may be included in PSS offerings. The first one encompasses services that aim at ensuring product functionality over time, such as preventive and corrective maintenance. This category is considered explicitly in most of the reviewed papers (Frambach et al., 1997; Mathieu, 2001a, 2001b; Gebauer, 2008; Gebauer et al., 2008; Ulaga and Reinartz, 2011).

A second category includes services that aim at training a product's end users and/or facilitating their interaction with the product. These services are mostly based upon interactions between individuals from the customer and service provider organisations. This category is only considered explicitly in Mathieu (2001a, 2001b) and Gebauer et al. (2008). In other works these services are either included in other groups (Gebauer, 2008; Frambach et al., 1997; Oliva and Kallenberg, 2003) or not mentioned.

The third group focuses on customer processes and encompasses services that aim at supporting customers to (re)design, manage and optimise the processes enabled by a product. This category includes professional and consultancy services such as process engineering, testing and simulation (Oliva and Kallenberg, 2003; Gebauer et al., 2008). Some of the reviewed works overlook this category (Frambach et al., 1997; Mathieu, 2001a, 2001b), while others split these services into more than one category (e.g. Gebauer, 2008; Ulaga and Reinartz, 2011).

Finally, a fourth category includes services that go even further into the customer value chain, up to taking over the responsibility for operating a product and/or a business process on behalf of the customer. These services are referred to as *operational services* (Oliva and Kallenberg, 2003; Gebauer, 2008), or *process delegation services* (Ulaga and Reinartz, 2011).

Based on the literature review above, we can derive a categorisation of service types for the purpose of our study. Hereinafter we will focus only on the first three groups of services identified above, the fourth being outside the scope of our study.

The first type, named product support (PS) services, aims at ensuring a product's functioning. The second, named customer support (CS), consists of services “supporting the client's actions in relation with the supplier's product” (Mathieu, 2001a, p. 40). The third type, named process related (PR) services, aims at improving and/or optimising the customer's processes and includes professional services such as consultancy, design, engineering and construction services. Table 2 provides a description and some examples of each service type.

Compared to existing classifications, ours deliberately excludes services that are supplementary to sales activities, such as order taking and billing, since they are not particularly relevant for the purpose of our study. In addition, operational services that take over customers' operations (Oliva and Kallenberg, 2003; Gebauer, 2008; Ulaga and Reinartz, 2011) are not considered. Indeed, the management of customers' operations can be seen as a final point in the transition from products to services, that concerns only complex technology/products, in particular contexts and/or for particular customers. Therefore, we consider this kind of offering out of the scope of the present study.

## 2.4. Characteristics of buyer–supplier relationships

A plethora of research deals with buyer–supplier relationships. For instance, Zaefarian et al. (2011) extensively reviewed the literature on this subject and reported 32 typologies and taxonomies of business relationships. In order to investigate the characteristics of buyer–supplier relationships, among several

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