

Bringing Service Design to manufacturing companies: Integrating PSS and Service Design approaches

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Manufacturing companies increasingly try to innovate in their offers to consumers by creating more complete solutions that combine product and service components. However, shifting from a product-centric perspective to a solution-oriented perspective is challenging. The present study adopted a design research methodology and built on Service-Dominant logic, integrating the human-oriented perspective of Service Design with an organizational network-oriented perspective of Product–Service System. It creates a new Integrative PSS approach, evolves design models, and provides an application in a manufacturing industry. This paper details how the application supports the design of product–service system solutions from the exploration to the implementation stages, highlighting the physical evidence of service, and contributes to advance design research at the intersection of PSS and Service Design.

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To address globalization and rapid technological development, manufacturing companies attempt to integrate services in their product offerings to create more complete solutions (Baines, Bigdeli, & Bustinza, 2017; Gebauer, Gustafsson, & Witell, 2011). This transition, known as servitization, consists of shifting the business from selling products to offering product–service system solutions (Oliva & Kallenberg, 2003). Product–service system solutions are bundles of product and service components intended to co-create value-in-use for customers (Baines, Lightfoot, Benedettini, & Kay, 2009) and are usually supported by organizational networks (Beuren, Gomes Ferreira, & Cauchick Miguel, 2013).

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Rolls-Royce (pay power-by-the-hour) and Xerox (copier service management system) have developed successful solutions that are cited frequently in the servitization literature (Baines et al., 2007; Kowalkowski, Gebauer, Kamp, &



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Parry, 2017). In these particular cases, the manufacturers remain the owners of the physical product, take responsibility for the performance and disposal of equipment, and make efforts to improve the efficiency of the overall technical product–service system solution. However, to take advantage of the servitization process, manufacturing companies would benefit from a more widespread transition to integrated goods–service solutions (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015).

Service Design offers a holistic, human-centered, co-creative approach to developing new services (Meroni & Sangiorgi, 2011; Sangiorgi, 2009; Wetter-Edman, Sangiorgi, Holmlid, Grönroos, & Mattelmäki, 2014). This approach is multidisciplinary, incorporating contributions design, interaction design, service marketing, among others (Patrício & Fisk, 2013). Service Design employs an iterative process (Holmlid & Evenson, 2008) to analyze and orchestrate interactions between different types of socio-material elements (Kimbell, 2011), with a special focus on the service interface and customer experience (Secomandi & Snelders, 2011).

Recent advancements in Service Design have incorporated Service Dominant logic (S-D logic) (Wetter-Edman et al., 2014), according to which organizations do not pre-produce value but strictly offer value propositions that customers convert into value through usage (Chandler & Lusch, 2015; Vargo & Lusch, 2016). Customers are always co-creators of value by integrating the company’s offerings with their constellation of resources, including personal capabilities. For example, in healthcare, patients integrate the service offerings from hospitals with their own network of resources and co-create value to stay healthy. This perspective has influenced Service Design and led to the development of service offerings that facilitate customer value co-creation processes (Meroni & Sangiorgi, 2011; Wetter-Edman et al., 2014).

PSS and Service Design approaches offer complementary perspectives, but further integration is needed. On the one hand, PSS approaches support the design of product–service solutions within the manufacturing industry (Baines et al., 2007). However, PSS approaches rooted in cleaner production (Boehm & Thomas, 2013) have led to a firm-centric perspective focused on creating more efficient and environmentally sustainable product–service system solutions that tend to overlook the customer experience (Stacey & Tether, 2014; Valencia, Mugge, Schoormans, & Schifferstein, 2015). Some PSS design perspectives have been used to develop a more systemic analysis of service networks by considering product–service system solutions as the result of a social construction linking technological artifacts with relevant social groups, such as organizations or local actors, in order to co-create solutions (Morelli & Götzen, 2016; Morelli & Tollestrup, 2009; Morelli, 2002, 2006). Developing novel product–service system solutions, therefore, has the potential to enable higher value-in-use and to enhance the competitiveness

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