

# Understanding service design in the context of servitization

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**Abstract.** In recent years, the manufacturing industry has sought to adapt its strategy by including services in its offerings, known as servitization. In this context, service design can be seen as a competitive advantage in the market, as it is considered an agent of transformation and innovation whose objective is to create efficient and effective experiences that meet the needs of users and organizations. However, the intangible nature of services can be a limitation when it comes to visualizing how design, which normally works with tangible aspects, can help in the development of services. Therefore, this article proposes to advance the understanding of service design and its pillars to show and discuss how this topic is currently treated in the servitization literature. Our findings point to a misalignment in service design, identifying a paradoxical understanding of its pillars, which limits its growth in the servitization literature. Finally, we propose questions that could guide future research to deepen the study of service design.

**Keywords:** Service Design, Servitization, Services.

## 1 Introduction

As customer needs develop, manufacturing companies need to innovate, integrating services into their offerings in order to achieve greater competitive advantages in increasingly globalized markets (Baines et al., 2017; Gebauer, et al., 2011). As a result, service-oriented and product-oriented systems have undergone significant transformations (Ayala et al., 2017). This movement is known as “servitization”, first introduced by Vandermerwe and Rada (1988); that is, this movement gives rise to customer-focused business models that consider individual customer behaviours and adapt to meet customer needs personalized needs. However, it is a major challenge to shift from a product-centric perspective to a service-oriented perspective (Bintner et al., 2008; Spring & Araujo, 2009; Baines et al., 2016), as services require capabilities, processes, responsibilities, culture that are different from what is used to deliver products (Story et al., 2016). Thus, as an alternative, we sought a holistic view of all processes and the environment that affect the development of services and their implications for the consumer (Lemon & Verhoef, 2016). Seeking this holistic view, we fall into service design research, which has been adopted as a strategic and interdisciplinary approach that aims to plan and organize services to create a unique experience; in this way, companies that

offer a certain service can benefit from service design. In other words, service design refers to the entire development and delivery process, not just the result (Stickdorn & Schneider, 2010). According to Stickdorn & Schneider (2010), service design is based on five pillars: user centered, co-creative, sequential, evident and holistic. Despite some definitions, service design and its pillars are little explored in the servitization literature, often being portrayed only as “services” or as a step in the service development process (Edvardsson et al., 2000). Thus, it is not clear which strategy or taxonomy the service design fits best, as the subject is approached in different ways and without much detail. Therefore, the aim of this article is to advance our understanding of how service design and its pillars are treated in the servitization literature.

## 2 Service design pillars

For a long time, the design of product was seen only as something related to aesthetics, but it is also related to functionality, usability, enabling competitiveness and sustainability (Baxter, 2018). Design is a creative problem-solving process that considers tangible and intangible values considering the user's needs (Evenson, 2006). Therefore, for Kotler & Rath (1984), using design in organizations is a strategic element, as it promotes cost reduction and innovation and is a company identity process leading customers to satisfaction. However, its management needs methodology and control, as it is a problem-solving activity with a systematic, logical and orderly process (Mozota, 2003). This means that awareness of the importance of design has grown, and many companies are discovering that design can also be used to improve the customer experience and the efficiency of internal processes, but what happens is that most of these studies are based on innovation through product design and hides the view that design can also be used as a strategic tool in offering innovative services (Gloppen, 2009). Consequently, few studies portray the term service design due to the difficulty of answering the following question: "how to plan the design of something intangible like services?". Therefore, to try to help understand the fundamentals of service design and how it works, Stickdorn and Schneider (2010) raised five pillars on which service design is based. Such pillars are (i) user centered; (ii) co-creative; (iii) sequential; (iv) evident; and (v) holistic.

**(i) User centered** – Services are not standardizable and occur exactly from the provider's interaction with the user. Therefore, the experience of everyone involved and affected by the service must be considered, and it is necessary to understand the needs of users, their habits, and culture because only then will the development of something that is, in fact, useful be guaranteed.

**(ii) Co-creative** – It is not enough to place the user at the center of the process; it is necessary to consider all stakeholders. Each has different needs and realities, so this integration guarantees a good value proposition for a service.

**(iii) Sequencing** – A service is formed by user moments and interactions with the involved touch points. Therefore, each of these moments needs to be very well planned to be connected consistently and coherently in a sequence of interrelated actions.

(iv) **Evidencing** – Services, in general, are intangible, but in service design, it refers to the feeling that something is happening or has already happened. They can be used to convey tranquility to the user, emotional benefits, and make the experience much more prosperous.

(v) **Holistic** – Service design needs to keep a holistic look at the whole process; that is, it cannot just focus on the service itself but the overall context. Every environment and element of service must be considered. Physical artifacts, environments, settings, and procedures must be mapped.

### 3 Methodology

We carried out a literature review to better understand the proposed theme, through which we were able to identify gaps and recent developments in the study area, in addition to establishing the context for future research and formulating hypotheses and research questions. Briefly, we separate the review into two phases. In the first phase, we selected the keywords (service design and servitization) and the bases on which the searches would be carried out - Scopus, Science Direct and Web of Science. Already, in phase two, using search filters, the searches were carried out. We separated the inclusion and exclusion criteria by phases. The searches carried out in the three databases resulted in 1,445 articles using the terms “servitization” and “service design”. We applied the primary exclude filter, where duplicate and unconnected articles were eliminated, resulting in 113 articles. To further narrow down these results, in these 85 articles, we applied one more primary inclusion criterion, where only articles that addressed services or servitization in the title were entered, resulting in 93 articles. From these 93 articles, secondary inclusion and exclusion criteria were applied, and articles that did not have access to the full text and that did not address services or servitization were excluded, and to be included, articles needed to address services, servitization, or service design in the abstract. With this filter, we go from 93 articles to 65. Of these 65, the tertiary inclusion and exclusion criteria were applied; that is, articles that talked about tools, processes, and approaches to service design were included, considering the five pillars in the introduction, conclusion, limitations, and contributions, and articles that do not explore the pillars from service design and focused only on servitization and conceptualization were excluded, resulting in 40 articles of which were analyzed in more detail. Using the exclusion criteria, we rejected a total of 1,405 articles

### 4 Results and Discussion

Our results indicate that service design has been debated in a shallow and superficial way in the servitization literature, meaning that service design and its pillars are, most of the time, portrayed in an interpretive way. A general conclusion from the servitization literature is that companies need to be user-oriented and not product-oriented (Kowalkowski, Gebauer, Kamp, 2017; Kohtamaki, Hakala, Partanen, Parida & Wincent, 2015; Kindström, & Kowalkowski, 2014). Of the five pillars that shape the service

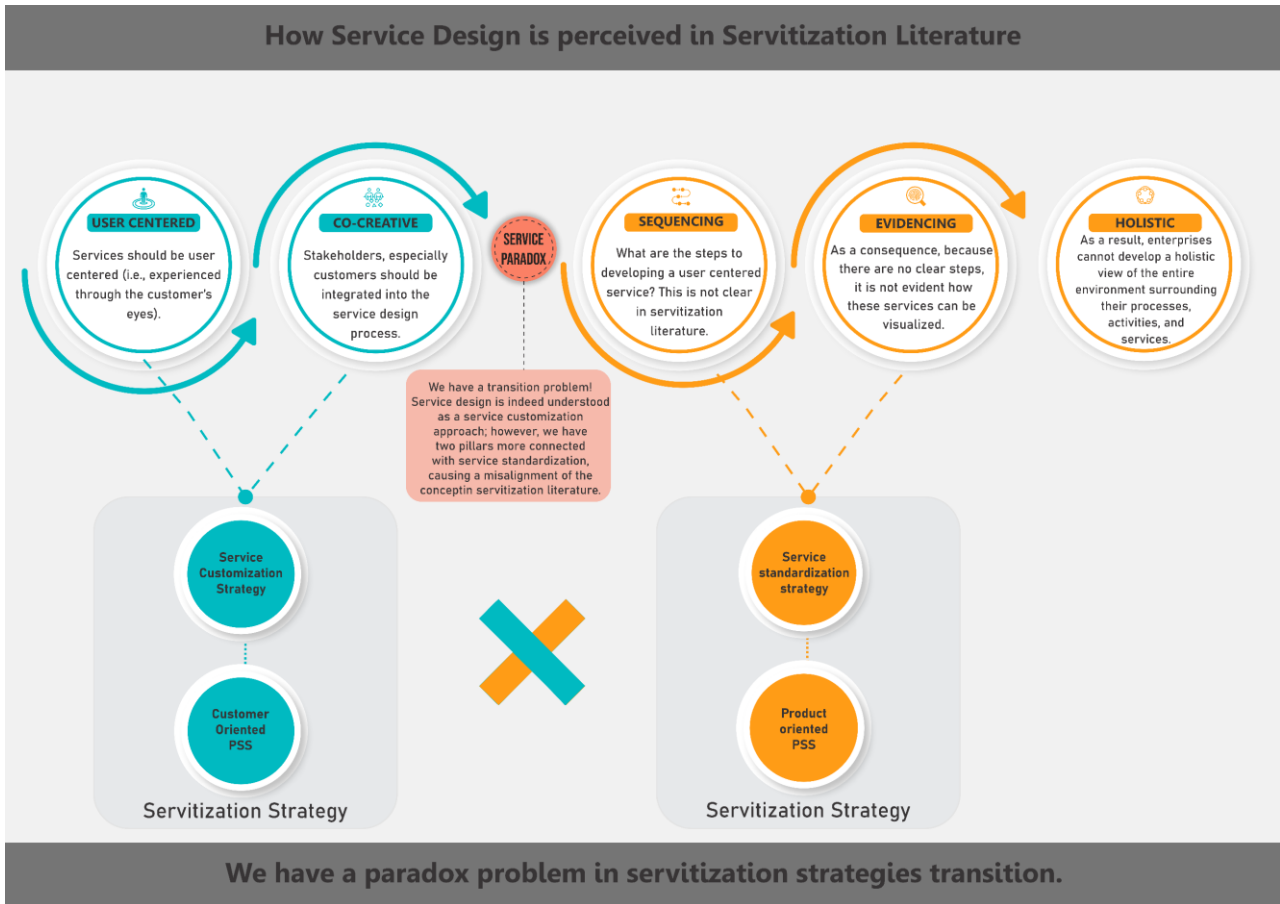
design concept (see Stickdorn & Schneider, 2010), the most discussed in the servitization literature are user centered and co-creative (Fliess & Lexutt, 2019; Morgan, Anokhin & Wincent, 2019) as shown in Table 1.

**Table 1** – Service design pillars frequency of occurrence

Service Design Pillars related literature						
Authors	Year	User centered	Co-Creative	Sequencing	Evidencing	Holistic
Macdonald et al.	2011		x			
Kindstrom & Kowalkowski	2014	x	x	x		
Rabetino et al.	2015	x	x			
Tunisini & Sebastiani	2015	x	x			
Kohtamäki et al.	2015	x	x			
Baines et al.	2017	x		x		x
Green, Davies, & Ng	2017	x	x			x
Kowalkowski et al.	2017	x	x		x	
Hakanen, Helander, & Valkokari	2017	x	x			x
Story et al.	2017	x	x	x	x	x
Kuijken, Gemser, & Wijnberg	2017	x	x			
Mahut et al.	2017	x				
Batista et al.	2017	x	x			
Salonen, Saglam, & Hacklin	2017	x	x			
Song, W., & Sakao, T.	2017	x		x		x
Martinez et al.	2017	x	x	x		
Lenka et al.	2018	x	x			
Oliveira et al.	2018	x	x			
Beltagui & Ahmad	2018	x	x			x
Costa et al.	2018	x	x	x	x	x
Iriarte et al.	2018	x	x	x	x	x
Fliess & Lexutt	2019	x	x		x	x
Morgan, Anokhin, & Wincent	2019	x	x			
Raddats et al.	2019	x	x			x
Ruiz-Alba et al.	2019		x			
Hazée et al.	2020	x	x			
Kamal et al.	2020	x	x			
Magro & Pinar	2020	x	x			x
Sholihah et al.	2020	x	x		x	x
Jang, Bae, & Kim	2021	x	x			x
Struwe & Slepnirov	2021	x	x	x	x	x
Rabetino et al.	2021	x	x	x		
Lievens & Blažević	2021	x	x		x	x
Kim & Lee	2021	x	x	x		x
Holgado & Macchi	2021	x	x	x		
Bigdeli et al.	2021	x				
Feng et al.	2021	x				x
Kreye & Van Donk	2021	x	x			

Frank et al.	2022	x	x			x
Kurpiela & Teuteberg	2022	x	x			

Another general conclusion is that success in servitization is achieved when customers are involved throughout the process; it is important to consider the customers' perspective to understand the situation and experience it throughout the service journey. This will ensure that customer needs and expectations are met satisfactorily and effectively, thereby increasing customer satisfaction and loyalty. (Jang, Bae & Kim, 2021; Alba et al., 2019; Batista et al., 2017;). Given the studies carried out, we found that the servitization literature often portrays service design in customization approaches, requiring a customization and flexibility strategy to meet the individual needs of the customer (Lenka et al., 2018). However, one of our main findings is that we found a transition problem; that is, some pillars are more related to the standardization of the service, while others are related to the customization of the service. While the servitization literature more emphatically discusses the user centered and co-creation pillars for the development of services, associating them with the customization strategy, it also mentions and links two other pillars (sequential and evident) to the standardization practices, thus causing a misalignment of service design concepts in the servitization literature. Consequently, this transition problem led companies to a service paradox problem, where companies should choose between customizing or standardizing services. We then created a framework (Figure 1) to better visualize this conflict, which shows how service design, and its pillars are understood in the servitization literature, making it clear in which stages customization occurs and in which standardization occurs.



**Fig. 1.** – How service design pillars are followed and perceived in servitization literature

## 5 Future research directions

Based on studies, and insights from quantitative, qualitative and conceptual work, we formulated seven research questions (RQs) about service design, its effects and the use of the five pillars. One of the objectives of this work was to identify how service design and its pillars were perceived in the servitization literature; thus, the questions and answers proposed below will support future research. Those questions were elaborated after an in-depth review of service design pillars in servitization literature.

*RQ1: Why the servitization literature frequently portrays the service design approach's last step to be a holistic view of the environment?*

Service design has become a challenge for companies that adopt servitization (Story et al., 2017), as it is seen as an area focused on creating experiences that are based on understanding the user's perspective. In other words, the lack of a line of research that guides servitized companies on how to design services makes some past and current authors (for example: Hanington, 2003; Holmlid, 2009; Meroni & Sangiorgi, 2016) state that service design is only an approach that focuses on human needs and concerns and understands that the result of this process is to provide a holistic service to the user. According to Stickdorn & Schneider (2010), having a systemic view is challenging, as considering all aspects of service is complex. However, it is essential for those involved to have this broad perspective of the process in which the service takes place to gain a complete understanding of the system and the different actors involved. Therefore, to achieve this holistic view, it is necessary to consider both the use and the context of the service, including emotional, environmental and behavioural aspects (Leonidou et al., 2018; Loureiro, Romero, & Bilro, 2020)

*RQ2: Why does the servitization literature frequently connect only user centered and co-creative pillars in service design approaches?*

We believe that these two pillars have a great impact on the development of the service design process, but developing only these two pillars does not guarantee the success of companies. Service design involves an interactive process and an interdisciplinary approach (Giacomin, 2014; Holmlid & Evenson, 2008). Everything needs to be integrated to enable the desired customer experience and orchestrate interactions between different socio-material elements (Pirinen, 2016; Yu & Sangiorgi, 2014).

*RQ3: Is service paradox a key limitation that hamper service design approaches and studies?*

Many studies have sought to provide an answer for companies to overcome this paradox and become successful service providers (e.g., Gebauer, Krempf, & Fleisch, 2008). However, due to the lack of clarity in the terminology used in service design studies, there is no consensus on the factors, and it is not clear when a service transition can be considered successful. Therefore, we believe that the paradox perspective can be a useful theoretical tool to understand the service design approach. We base this belief on Gebauer, Fleisch, & Friedli (2005), who claim that involving all departments and actors affected by the service transition can contribute to overcoming the service paradox.

*RQ4: Why servitization literature relates user centered and co-creative pillars mainly to service customization strategy and sequencing and evidencing pillars to service standardization strategy?*

Several authors argue that service personalization creates a deeper relationship, increasing loyalty and allowing a better understanding of users' needs (Cusumano, Kahl, & Suarez, 2008; Frank et al., 2022). However, like any strategy, customization can also

come with risks. Therefore, we propose that these two pillars (user centered and co-creative) be used as a proxy for the respective servitization strategy and empirically tested to be validated, as is often mentioned in the servitization literature as pillars of customization.

## 6 Conclusions

This work sought to understand how service design and its pillars are perceived in the servitization literature and how this strategy can be developed to achieve success in the service journey. Our study contributes to the servitization literature by supporting an approach that is often simplified or little explored by scholars. We conclude that the service design approach is not rigid and immutable; it must be adapted to meet the diverse challenges of companies and their businesses. The issue here is that it must always be based on core values, driven by exploratory research; customer-centric; highly collaborative and creative; detailed and rigorous; focused on finding and creating measurable value; be strategic; designed for multichannel; and capable of simplifying complexity (Stickdorn & Schneider, 2010). One of our main contributions to the servitization literature is the proposal to study service design and its pillars as proxies for standardization, customization, and modularization strategies.

Furthermore, the lack of conceptualization and content in the literature on the pillars of service design is a great opportunity for scholars to develop servitization studies in the coming years. Until now, the service design tools, existing processes and even the types of services companies should offer (Spring & Araujo, 2009) remain uncertain (Sangiorgi & Junginger, 2015). The fact is that, according to bibliographical references, companies that manage to integrate and innovate with service design make their service offering relevant and have a great chance of being successful in their service journey (Gebauer & Friedli, 2005; Iriarte et al., 2018). However, the gap found is how a servitized company develops its service design approach, which can be paramount to success in servitization (Davies, Brady, & Hobday, 2007; Galbraith, 2002). Other contexts, such as Industry 4.0 (Benitez et al., 2019; Moraes et al., 2020), open innovation (Frank et al., 2022), sustainability (Kai et al., 2016; Kai et al., 2017), or even business models (Kai et al., 2016; Baierle et al., 2021) should be investigated in service design approach.

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