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Calabretta, Giulia; de Lille, Christine; Beck, Caroline

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The role of service design practices in enabling and embedding the servitization transition

CALABRETTA Giulia^{a*}; DE LILLE Christine^a and BECK Caroline^b

^a Delft University of Technology

^b Livework

* Corresponding author e-mail: g.calabretta@tudelft.nl

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An increasing number of companies are embracing the transition from a product focus to a service focus in their offering in order to face the challenges of the experience economy. However such transition (i.e., *servitization*) is challenging, since it requires companies to change both their processes and their mindset. In this paper we propose service design practices as an effective approach for overcoming the challenges of servitization and for achieving such a multi-layered transformation. By means of expert interviews, ethnography and multiple case studies, we empirically show how service design professionals guide companies towards a sustainable adoption of service orientation and successful implementation of service innovations. Specifically, we describe and exemplify a set of practices through which service design professionals establish a service-oriented mindset, introduce a service-specific development process, and a create widespread commitment to the servitization transition.

keywords: service design practices, servitization, organizational change

Introduction

Several manufacturing firms are currently focusing on servitization to differentiate themselves from competitors, to increase their revenues and to enhance customer experience (Josephson et al. 2016; Oliva and Kallenberg 2003). Servitization is defined as “the increased offering of fuller market packages or ‘bundles’ of customer focused



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combinations of goods, services, support, self-service and knowledge in order to add value to core product offerings" (Vandermerwe and Rada 1988, p. 314). Servitization is a key strategic choice for organizations to adapt to a new kind of economy where services play a key role in value propositions (Ostrom et al. 2015).

While there has been considerable research advancements in identifying the resources and capabilities that enable manufacturing firms to successfully develop new services (e.g., Raddats et al. 2015; Ulaga and Reinartz 2011), transforming a product-led business (i.e., the organization and the culture) to service-led remains a challenge for many companies (Kowlakowski et al. 2015; Ostrom et al. 2015; Raddats et al. 2015; Ulaga and Loveland 2014). More research is needed on enabling the process of organizational adaptation (i.e., the necessary changes in organizational structures and processes) and embedding a service-oriented mindset (Ostrom et al. 2015). Integrating and transforming the different (and sometimes conflicting) objectives and processes of product-led and service-led strategies are not easy. On the one hand, manufacturing companies must establish and reinforce a customer-centric mindset and service-led frame of reference for organizational activities; on the other hand, they must attempt to leverage on existing resources, capabilities and practices in order to contain the risks and sustain financial performance (Kowlakowski et al. 2015). Thus, adaptation must not come at the expense of performance (Eggert et al. 2014).

This article explores a possible new perspective for enabling and embedding the servitization transition and, in particular, the required mindset and process adaptation: service design and its strategic practices. Service design is a human-centred, co-creative, iterative approach to the creation of new services (Blomkvist, Holmlid, and Segelström 2010). Researchers and practitioners are increasingly acknowledging service design as a strategic driver of service innovation (Kimbell 2011; Patrício et al. 2011; Zomerdijk and Voss 2009). Furthermore, as service design embraces holistic and system thinking (Brown 2008; Patrício et al. 2011), it supports innovating organizations to not only focus on the development of a new service *per se*, but also to explore and understand cross-departmental implications and the relational and softer aspects of innovation (Sangiorgi 2012). Thus, service design can help companies reframe their businesses and processes around customer- and service-centric mindsets and practices, and become drivers of organizational transformation (Andreassen et al. 2016; Sangiorgi and Prendiville 2014).

Despite its transformational potential, to our knowledge, no researcher has previously empirically investigated the role of service design in the servitization transition. We attempt to address this void—and simultaneously advance knowledge in the servitization literature—by addressing the follow research question: *how can service design support and embed the servitization transition in manufacturing companies?* To address the above research question, we combined different qualitative methodologies (in-depth interviews, ethnography, multiple case studies) to study how a service design consultancy uses its service design practices to support manufacturing clients in their servitization transition.

The remainder of the paper is organized as follows. First, we briefly review relevant literature on servitization and its challenges, and on the role of service design in service innovation. Then, we describe our empirical investigation by explaining our research design, its rationale and its execution. A presentation of our findings on the role of service design in servitization transition follows, with a subsequent discussion of the findings to

draw conclusions on the role that service design can play in servitization and to position our study within existing literature. Finally, we comment on the practical implications, limitations and directions for further research.

Literature review

Servitization: A Challenging Transition

The transition of manufacturing firms from a product-led to a service-led strategy and the progressive addition of service components to their product offerings have emerged as crucial managerial practices and, subsequently, research topics. According to Kowalkowski et al. (2015), the complexity of the servitization transition is due to transformation encompassing three dimensions: from a product focus to a service delivery focus; from standardization to customization; and from a transactional to a relational interaction with customers. Pursuing all three dimensions implies increased complexity, coordination costs and operational risk (Nordin et al. 2011).

According to Oliva and Kallenberg (2003), such complexity can stifle servitization efforts in different ways. First, companies might lose confidence in the economic potential of services, thus requiring significant additional effort to make the servitization transition credible across different departments. Second, even when companies realize the market potential of services, they might lack the necessary company capabilities and resources to develop them (e.g., coordinating skills, customer centricity, flexibility). Finally, a company might decide to undertake servitization but fail in implementing its servitization strategy successfully given cultural barriers and lack of commitment. A service-oriented culture is specific and profoundly different from a traditional product-centric culture in terms of stronger customer centricity, flexibility and openness to collaboration (Mathieu 2001). Changing such a culture requires substantial time and resource investments (Vandermerwe and Rada 1988). Particularly, even if there is company commitment to the change, its implementation is likely to meet resistance from parts of the organisation not understanding the service strategy or simply fearing the implications of cultural change (Mathieu 2001). Creating a service-oriented environment and mindset throughout the company, and finding the right people for championing and implementing the servitization transition are key (Homburg et al. 2003). Manufacturing companies that neglect to invest resources in managing such transition risk long-term market competitiveness (Parida et al. 2014).

The importance of developing certain firm's capabilities, processes, and mindset, and of responding to their required cultural and corporate changes is well stated in the servitization literature (Vandermerwe and Rada 1988; Oliva and Kallenberg 2003; Brax 2005; Slack 2005). However, how to actually enable and embed the servitization transition (e.g., which tools and processes) has received limited attention (Ostrom et al. 2015; Ulaga and Reinartz 2011).

In this paper, we argue that the principles and practices associated with service design (and described below) can potentially provide important resources for facilitating the organizational and cultural changes required by the servitization transition.

Service Design and Servitization Challenges

Service research has developed a substantial interest in service design, as proven by the increasing number of articles on the subject (e.g., Andreassen et al. 2016; Patrício et al. 2011; Zomerdijk and Voss 2009). Service design is deeply rooted in design principles (Karpen, Gemser, and Calabretta, 2017; Sangiorgi and Prendiville 2014), and can be defined as a human-centred, co-creative and iterative approach to the development of new services (Blomkvist, Holmlid, and Segelström 2010). These defining characteristics of service design make it potentially valuable for addressing some challenges of the servitization transition. First, a key feature of the service logic is a strong customer centricity. Service design professionals (and design professionals in general) have a strong background in deeply understanding human needs and behaviours, co-creating value with customers and generating solutions that are clear, meaningful and effective for users (Brown 2008; Stickdorn and Schneider 2010; Stigliani and Fayard 2010). As manufacturing companies transitioning towards service-led strategies face the challenge to better understand the processes and context that affect the customer's experience, service design surges as a valuable approach to tackle this challenge of the servitization transition (Andreassen et al. 2016).

The development and implementation of new services is a very complex task and establishing the organizational resources, processes and capabilities for supporting service development and implementation is a major challenge in the servitization transition (Oliva and Kallenberg 2003; Ostrom et al. 2015; Ulaga and Reinartz 2011). Given service design's affinity with complexity (Sanders and Stappers 2014; Stigliani and Fayard 2010) and design professionals' intrinsic preference for holistic thinking (Michlewski 2008), the service design approach appears adequate in dealing with the challenges of service implementation and also in the context of manufacturing companies experiencing service innovation for the first time (Andreassen et al. 2016; Patrício et al. 2011).

Finally, developing and managing new services require a co-creation effort between firms, different department employees, customers and other external stakeholders (Ordanini and Parasuraman 2010). The concept of co-creation is central to service design (Lehrer et al. 2012), since collaborative efforts with customers or other actors are at the core of one fundamental design principle; namely, the co-design of ideas and concepts to better understand user needs and deliver value to them (Sanders and Stappers 2014). By engaging different actors with the creation of user values and with a service mindset, service design can help companies in initiating and embedding the organizational and cultural changes that are required to support the servitization transition (Andreassen et al. 2016).

Despite the potential of service design, only limited research shows how integrating service design principles, tools and practices can support transformative processes like the servitization transition. We aim to generate knowledge on this topic by using empirical data from a service design consultancy and its practices in employing service design to support clients' servitization.

Methodology

We used an exploratory, qualitative methodology to investigate how service design supports manufacturing companies in their servitization transition. Exploratory

approaches are appropriate when there is limited theoretical knowledge on the phenomenon under study (Eisenhardt 1989; Yin 2003). Particularly, we derived our findings by combining data from preliminary in-depth interviews, one ethnographic study and four case studies.

Preliminary interviews

We started with 26 preliminary in-depth interviews with experts in service innovation, servitization and/or service design (design professionals, innovation managers, academics). These interviews helped us gain a general understanding of the role of service design in supporting the servitization transition. Each interview lasted approximately one hour, and was based on a semi-structured interview guide covering the interviewee's experience in service innovation, servitization and service design, and his/her perceptions on success factors and challenges for servitization.

Ethnography at ServiceDesign

The third author conducted the ethnographic study at ServiceDesign, a Dutch service design consultancy specializing in helping companies create and implement new services. At the time of the data collection, the third author had limited knowledge of servitization, service design and service innovation literature, which allowed her to approach the investigation with reduced observer bias (Eisenhardt 1989). ServiceDesign's way of working aligns with the key service design practices for facilitating servitization. In line with the theoretical sampling strategy recommended for qualitative research (Eisenhardt 1989), these features make our setting an "extreme case"—an ideal setting in which the phenomenon of interest is "transparently observable" (Pettigrew 1990, p. 275). In order to improve its effectiveness in helping clients in the servitization transition, ServiceDesign recently started an internal project to redesign their consultancy service with a stronger focus on the implementation and the embedding of the service concept in the client organizations. The third author observed and participated in this project for six months, collecting data on ServiceDesign's strengths in supporting its clients' servitization and helping ServiceDesign develop a toolkit for servitization projects. Data collection followed the general recommendations of ethnographic research (van Maanen 2011; Visconti 2010), and included participatory observation, formal semi-structured interviews, informal conversations and analysis of archival data.

Multiple case studies of servitization projects

To further distil how service design contributes to servitization, we retrospectively investigated four projects committed to ServiceDesign by product-oriented companies wishing to develop service-oriented value propositions. We theoretically sampled the case studies with the aim of investigating different theoretical categories (Eisenhardt 1989); that is, different servitization patterns according to Raddats and Easingwood (2010).

Table 1 - Case studies' description

	Truck&Co	MedSupply	NetPower	QualyCare
<i>Size</i>	Large (>250 employees)	Medium-sized (50–250 employees)	Large (>250 employees)	Medium-sized (50–250 employees)
<i>Industry</i>	Automotive	Medical supplies	Power grid operator	Home healthcare provider
<i>Current value proposition</i>	Selling high quality commercial vehicles and providing maintenance	Selling medical supplies to public and private healthcare providers	Installing and maintaining the power grid	Providing healthcare at home or at nursing homes
<i>Initial degree of servitization</i>	Product-centric business adding services to its product value proposition	Product-centric business	Product-centric business	Product-centric business offering service value propositions
<i>Project with ServiceDesign</i>	Development of a new service for fuel-efficient driving behaviour	Development of a new service for the sales department to offer better customer support	Development of a value proposition for a service for domestic energy saving	Development of a digital service for home care
<i>Respondents</i>	Design professional, Project leader, Upper manager, ICT developer	Design professionals (3), Project leaders (2), Marketing managers (2), Sales director	Design professionals (2), Project leader, Upper manager	Design professional, Project leader, Upper manager, ICT developer

For data collection, we used a dyadic approach and, for a total of 20 sessions, interviewed both design professionals from ServiceDesign and key informants from the servitizing companies (e.g., project leaders, business stakeholders, internal designers). The interviews were retrospective, semi-structured and focused on the following topics: (1) project's content (objectives, stakeholders and main implementation steps); (2) critical moments; and (3) the results and evaluations of the projects.

Data analysis

The analysis followed several steps, according to the guidelines of case study and qualitative data analysis methodology (Eisenhardt, 1989; Miles and Huberman, 1994). First, in line with our research questions, the first author analysed each case separately and selected quotes exemplifying key aspects of service implementation and critical moments in service implementation. Based on the selected quotes the first author completed an initial list of the main themes, constructs and insights for each case. This resulted in a first coding scheme for further refined. Subsequently, for increasing the reliability of within-case analysis and for conducting cross-case analysis, each author coded one case (using the provided coding scheme as a guideline), and the results were compared and combined during three collective sessions (Eisenhardt, 1989; Yin, 2003). The cross case-analysis refined the list of codes, by adding new entries or by collapsing existent entries into others. From the emerging codes we established tentative relationships between constructs. We then refined these initial relationships through replication logic, regularly re-examining each case to contrast and validate the occurrence of certain constructs. We also compared relationships and constructs with extant literature to emphasize similarities and differences, increase the internal validity of the results, and refine recurring themes and constructs. The iteration between data, literature and analysis was repeated several times. The results of this iterative process are presented and discussed in the following paragraphs.

Findings

According to our data analysis, ServiceDesign enacted the servitization transition of their clients by introducing a customer-centred mindset and a service-driven innovation process. This suggests that service design can support manufacturing companies in their servitization transitioning both at a cultural and process level. Furthermore, ServiceDesign embedded the new mindset and process by recurring to a set of design-driven practices that created organizational commitment to the servitization transition. In the following paragraphs, we first describe the customer-centred mindset and the service-driven innovation process introduced by ServiceDesign. Then, we illustrate the design-driven embedding practices.

Enacting the Servitization Transition

Introducing a customer-centred mindset. As indicated by the interviews, the manufacturing companies in our sample tended to rely on quality improvements and technological breakthroughs as main drivers of their decision making in service innovation projects, thus reflecting a product-driven mentality and simply transferring their product-driven approach to the service context. Design professionals in our sample actively introduced a customer-centred focus in the product-focused mindset of their clients, so

that the customer's needs, perspectives and behaviours become the unifying drivers of innovation decision making and practices. A top manager at Truck&Co uses the following words to recognize such an important role of ServiceDesign:

"I think in organizations such as ours, products important. But when we start developing services, keeping the product in the middle and everything else around it (...) will not reach the full potential of the service. You have to blend the product with everything else, and put the customer in the middle, listen to what he really wants, and find out their needs. And that is the reason why we hired [ServiceDesign]."

Despite some clients already used to taking customer needs into account in their innovation practices, ServiceDesign helped them develop a deeper and more authentic understanding of customer needs and satisfiers by leveraging the human centeredness of their methods. As a manager from NetPower indicates:

"At a certain point, [the design professional] added an extra customer analysis step that was really based on discovering what is behind the things that people say, and how people experience the issue of energy. That was an important action, because it gave a building block in terms of not only quantitative market and technical research, but also in what are the customer's motives and how you can connect with him through your proposition, design and service."

Some of the companies indicated that they missed the capability of translating a customer-centred vision (NetPower) or customer needs (Truck&Co) into concrete service value propositions. Relatedly, the design professionals in this study not only provided a deeper understanding of the customer perspective, but also supported their clients in translating the customer perspective into service value propositions fitting this perspective. As the project leader of Truck&Co recalls, the design professionals made the team so genuinely engaged with customer needs that it became very easy and straightforward to develop a driving service accordingly, with no disagreement on its feasibility and market potential.

Furthermore, in some cases, the customer-centred mindset became ingrained not only in the innovation teams directly involved with the design professionals, but also in the entire organization. For instance, in the MedSupply case, the customer perspective was progressively understood and embraced by the entire company for driving their overall innovation portfolio decision making (e.g., what are the next most appropriate innovation projects?). In the QualyCare case, the design professionals helped the client organization to embed the customer perspective in their company vision, as a starting point for shaping the organization and its core processes accordingly.

Introducing a service-oriented innovation process. In addition to instilling a customer-centred mindset, design professionals in our study supported the servitization transition at the process level by introducing a service-oriented innovation process that also revolves around customer centricity. The process involved two sequential phases ("Discover" and "Create") and two integrated, concurrent and iterative phases ("Develop" and "Implement"). For each phase, the design professionals in our study used a set of human-centred design tools and methods to support the effective execution of the process. Our

case studies show that the design professionals actively supported companies in adopting such service-oriented innovation process. As the project leader at NetPower indicates:

[The design professionals] brought along a refined service design approach. Previously, our approach was defined in broad terms, there's a building-the-team phase, the analysis phase and then we'll think of developing things, and writing up a business case. But [the service design approach from ServiceDesign] clearly has further refined our approach towards a more user-centred one, and thus a more service-oriented one."

All companies confirmed that the lack of a structured process for developing new services might have hindered the servitization transition. The service design process introduced by the design professionals appeared to be more structured than the clients' original way of developing new services for their servitization transition. For example, the marketing manager of MedSupply explains that one of the reasons why they hired the design professionals to support their servitization transition was the structured design-driven process that they proposed, and the detailed plan on "how we are going to come in a number of steps to a business case for the new service proposition". At the same time, the structure of the service design process is perceived as simple enough to be quickly implemented.

By introducing a clear, simple structure in their clients' service development process, the design professionals seemed able to blend the benefits of the customer-centred and iterative service design approaches with the benefits of the linear and rational approach commonly used in managerial problem solving. The design professionals in our study also achieved such balance through a clear specification of the tools to be used in each phase, of the tangible deliverables to be expected, and of the roles within the team. As the design professional in the NetPower project recalls, having tangible deliverables (like the customer journey) really helped the company not only to empathize with the customers, but also to get a feeling of moving to a goal and being on track in the development of the new service. According to the Marketing Manager of the MedSupply project, having such clear deliverables and a set of specific tools also created a common language across different stakeholders, with positive consequences for generating commitment and project ownership.

Embedding the Servitization Transition

Gaining and maintaining top management support. Our data shows that design professionals dedicated substantial effort in gaining and maintaining top management support, since this represents a fundamental condition for the servitization transition to occur and persists over time. Design professionals in our sample spent time in explaining and discussing their customer-driven service innovation process with top management to make them aware of what is expected from them in terms of participation and supporting resources, and ultimately to get their commitment. The Marketing Manager at MedSupply provides an example:

"Organizing a crash course in service design for the higher management to teach them more about the process and what to expect was a great way of providing them with the knowledge they needed to support this project, and later on enable its progressive implementation."

Providing clear knowledge about the service innovation process (and its outcomes) reduced managers' perceived uncertainty of transforming a manufacturing company into

a service-oriented one, thus removing resistance towards the servitization transition. Design professionals in our sample also leveraged effective communication to achieve this objective; namely, by communicating in ways that fit top management language, interests and frames of reference. For instance, in the MedSupply project design, professionals combined their design tools (e.g., the customer journey map) with typical business tools (e.g., the service blueprint and the business model canvas) in order to translate the same information in different languages to engage top management and a broad array of stakeholders.

According to our interviews, top management support should not be limited to the initial commitment, but should be renewed and maintained throughout the entire project, especially in those critical moments in which organizational and structural changes emerge as necessary for service implementation. According to our data, the design professionals used frequent and clear communication and a co-creative way of working to maintain top management involvement, especially in critical decision-making moments. As a design professional explains with reference to the QualyCare project:

"We did it really together. We involved [the top management] in every step. Then it's also theirs. It's also their own baby. ... When we present several alternative solutions in a project we usually don't have our favourite. The client has to decide. We discuss with them and then we get to the favourite solution together."

Co-creation encouraged top management (and other stakeholders) to consciously devote cognitive effort to the co-creative tasks, thus ensuring that they developed ownership of the customer-centric process itself—and of its outcomes—and subsequent support for the servitization transition.

Creating bottom-up acceptance. Design professionals in our sample complemented top management support with a bottom-up approach for creating diffused acceptance of the servitization transition. A reasonable explanation could be that implementing a service development process and a service for the first time has so many organizational and structural implications that more operational parts within a manufacturing company could be involved from the early stages to prevent structural resistance to change. In line with that, design professionals in our sample first introduced the service-driven innovation process in innovation teams close to the market, and then progressively gained upstream organizational commitment. As the design professional working for MedSupply recalls:

"It became an escalating story. It started as a kick-start course on service design for a group of four people in a [business unit] ... and when they were doing that for a little while, [the company] decided we needed to scale this up to the entire organization. At that moment it became a really big project."

According to our empirical investigation, the bottom-up approach was also driven by the fact that innovation teams closer to the market can better capture the user perspective that is at the core of the design-driven service innovation process. Thus, ideas were generated from innovation teams close to the market, and then promoted through different company levels until reaching top management. For instance, in the QualyCare case, whilst servitization began as a top-management initiative, the design professionals introduced a more bottom-up approach for executing the process transition. Thus, the value proposition for developing the new service was not defined by top management and

then passed down for its execution, but rather derived by the innovation teams through the combination of different ideas and user insights under the guidance of the designers. Subsequently, the proposition was improved and consolidated by integrating the creative inputs from different company levels till top management approval.

Training approach. The service design consultancy in our sample invested significant time at the beginning and during each project in training the client team in using service design tools so that they could execute the customer-centric service innovation process with the design professionals and develop ownership to it and its outcomes. These practices engaged the organizations with the transition on a deeper level by creating a profound, shared understanding of the servitization transition, and by letting the organization, especially the employees, experience the service design process. As a manager from MedSupply recalls, the training sessions on human-centred research and customer journey mapping helped in creating awareness about the different innovation approach, keeping the team committed to a paced and effective execution, and ultimately facilitating organizational learning.

The training approach also helped embed the customer-centred mindset described before. By training clients in using customer-centred methods for understanding the market(s) and developing fitting offerings, and by engaging them directly with such customer-centred activities (and with the customers themselves), ServiceDesign encouraged cognitive and emotional connections between clients and their users. As the NetPower case illustrates, using *contextmapping*¹ for gaining customer insights on what power energy really means for people helped the client organization experience the customer perspective, and subsequently embed it into their service offering and way of working.

Facilitating approach. In addition to and in parallel with training clients in the service-driven innovation process, the design professionals involved in this study facilitated its execution by helping clients go through all the steps and related methodologies. One design professional explained that in some cases, and given the novelty of the process and the required degree of change, training might be insufficient. The innovation team and involved stakeholders might regress to their previous practices as soon as the training was concluded. To prevent this rejection, the design professionals learnt to act as facilitators and sparring partners for client organizations throughout the project execution. The facilitator role was played by supporting both the management and the content of the project. In terms of project management, design professionals supported the manufacturing organizations in maintaining the project's pace and the focus on the servitization objectives. In the words of the Marketing Manager at MedSupply:

"The design professionals put quite some pressure on [project management], that you really have to do things to get results and deliver the new services. (...) For the first time in years the structure of the yearly business planning has not changed. So we kept the same structure and the same focus on developing new services. And that has absolutely been the designers' work by looking at it in a different manner."

¹ Contextmapping is a qualitative design research method to uncover deep insights into how individuals experience a product or a service in their context of use. For a full description of the methodology, please look at Sleeswijk Visser, Stappers, Van der Lugt, and Sanders (2005).

In terms of content facilitation, the design professionals acted as sparring partners in the enactment of design tools that allowed the execution of the projects. Particularly, they facilitated by asking the right questions, providing valuable inputs, helping summarizing and indicating core issues. As the project leaders at both MedSupply and QualyCare indicate, such roles went beyond the conclusion of the specific project they were involved with. The designers kept visiting the companies monthly to consult and spar on the implementation of the new service and its further embedding within the client organization.

Using visualizations and materializations. The design professionals in our cases used a variety of visualization tools for reducing the perceived intangibility of the service, and thus the perceive uncertainty of the servitization transition. The frequent use of visualizations and materializations of the emerging new service (or parts of it) (e.g., the blueprint, customer journey map, storyboards) made the service innovation outcomes more tangible and easier to communicate to different stakeholders. In the words of the Project Leader for the MedSupply project:

"For instance, [the design professionals] used the business canvas model. This is the translation of the service concept into strategic decisions and what needs to be done. That is needed, of course, to get [the service concept] into the business plan."

The use of compelling images and a narrative style made the objective of communication stick in the minds of stakeholders for longer. According to the Project leader at QualyCare:

"In the beginning of the project, the service blueprint, but also to the personas, [...] bring a lot of information to you, and to a point that it stays in your head for a significant amount of time."

By leveraging on their creative and emotionally engaging tools, design professionals in our sample helped organizations to think differently, thus creating the proper ground for departing from their traditional product perspective to adopt a service perspective (i.e., a customer-centred mindset). As the project leader at QualyCare observes:

"My first impression is that they were very creative. And I appreciate that, just to have a different way of thinking. And by means of their drawings, the customer journey and all the tools, they encouraged us to think different as well. That was actually my main reason to collaborate with ServiceDesign rather than with other kinds of consultancies."

Additionally, clear, tangible visualizations were used for stimulating business stakeholders to incorporate the customer-centred mindset in their decision making, to act consistently with it, and to eventually embed the customer-driven process and its outcomes into the rest of the organization. As the design professional in the NetPower project indicates:

"There were documents, so we had a service blueprint, and we had a couple of personas, and we had insights, infographics of users, and we had done desk research. [The innovation team] presented all these tools in the shape they were, and consolidated everything in a business case on which the Board of Directors can make a decision. That was still quite a lot of work."

Conclusive remarks

In this study, we have investigated service design as an important mechanism to trigger and maintain the servitization transition of different product-centric companies. In particular, our findings show how the principles and practices of service design can help override organizational resistance and embrace the mindset and process change required by the servitization transition.

Our findings suggest that service design helps manufacturing companies develop customer centricity, which is a key element of a service-focused mindset. While several studies have attempted to explain what customer centricity implies and requires in servitization (e.g., Kowalkowski et al. 2015; Ulaga and Reinartz 2011), there is limited research on how to develop and strengthen it. Service design consultants, whose practices and tools are by definition customer-centric, use a training and facilitating approach to let manufacturing organizations experience customer centeredness and to connect emotionally and rationally with customers and their needs. Thus, through repeated and extended exposure to customers, service design can embed its central role in the development and success of new services in the mindset of manufacturing companies. Furthermore, our data show that service designers not only create sensitivity for and understanding of customer needs, but also an ability to translate customer-driven insights into customer-driven value propositions. Thus, the customer-centricty enabled by service design resembles the more complex and relevant *service-related data processing and interpretation* capability identified by Ulaga and Reinartz (2011) as a more complicated conceptualization of customer centricity, but also more appropriate for product-service system offerings.

Similarly, service design enables manufacturing companies to transition to a service-oriented process, which is customer-centric, iterative and characterized by overlapping stages with an early start for the implementation. Such a process is comparable to the service development process for manufacturing firms proposed by Kindström and Kowalkowski (2014). The role of design lies in enabling the actual reconfiguration of manufacturing companies' activities through training at all levels of the company (from top management to front-end employees), and through structure and simplification. The choice of looking at service design consultants (external players) builds on the work of Agarwal and Selen (2009), who provide empirical evidence that the process of building service innovation capabilities is collaborative. According to our findings, service design helps in triggering, enabling and maintaining commitment to the actual reconfiguration of manufacturing companies' activities through training at all levels of the company (from top management to front-end employees) and through structure and simplification.

This study has a few main limitations with implications for further research. First, the study is based on a small sample (one service design consultancy and four case studies from the same consultancy). Thus, despite this not being the aim of the method, the generalizability of our findings cannot be assessed. Future research could improve our findings through insights from additional case studies (for instance, involving different service design consultancies, or smaller companies embracing the servitization transition) and quantitative data corroborating the impact of service design practices on the servitization transition's performance measures. In addition, the study is limited by the Western European geographical focus (ServiceDesign is a Dutch consultancy and the clients from the case studies are companies operating prevalently in the European market). Applying our findings to other regions could further enhance the transferability

and generalizability of our contribution. Furthermore, based on how ServiceDesign manages the servitization projects of its clients, we suggest certain service design practices that seem to be specific for enabling the servitization transition. However, given our limited sample, such specificity to the servitization context needs to be further validated—perhaps through a comparative research design where the practices and effects of service design in servitization cases is compared with non-servitization cases (e.g., service innovation in service companies).

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About the Authors:

Giulia Calabretta is Assistant Professor at Delft University of Technology. Her research focuses on how strategic design can effectively guide businesses towards becoming more innovative in nature and structure. Her research has been published in several academic journals. Recently she has co-edited and co-written the book "*Strategic design: – Eight essential practices every strategic designer must master*".

Christine De Lille is an Assistant Professor at Delft University of Technology. She investigates ‘Designing User-Centered Organizations’ with a focus on the practice of small to medium-sized enterprises as well as of the aviation industry. Main areas of her work include service design and user-centred design, and how a user-centered perspective impacts and transforms organizations.

Caroline Beck is a service design consultant at Livework. She works on projects with a strategic focus and where the design approach has an impact on organizations' processes and performance. In her job as a service designer she combines her curiosity for understanding people and businesses with her passion for design and innovation.