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An application framework of service design for servitization

Peng Lu
peng.lu@mail.polimi.it
School of Design, Politecnico di Milano, Italy

Abstract

Einola et al. (as cited in Kohtamäki, Rabetino, & Einola, 2018, p. 186) pointed out that “the tensions that manufacturers face when transitioning from manufacturing products toward the provision of customized integrated solutions are often paradoxical in nature,” which could be taken as the cultural and corporate challenges of adopting a servitization business strategy (Baines et al., 2009; Viet et al., 2013). As an emerging design field, service design offers a holistic, human-centered, co-creative approach to developing new services (Costa et al., 2018), which has the potential to be embodied in the process of servitization. This short paper tries to build a general framework: The Application of Service Design for Servitization (ASDS) Framework, in which 3 levels of service design applications in the servitization transition for a company are proposed, and corresponding roles of service design are discussed. The goal of this framework is to guide and categorize research related to service design being utilized in the process of servitization, and transfer the Service-Dominate logic (S-D Logic) inside the organization.

Keywords: service design, servitization, service dominant logic

Introduction

The term “servitization” was coined by Vandermerwe and Rada (1988) to describe the phenomenon in which the innovations of an organization’s capabilities and processes happen to better create mutual value through a shift from selling products to selling Product-Service Systems (PSS) (Baines et al., 2009). To realize that, organizational changes, which include organizational structure, process, and culture, would occur in the transition towards servitization (Dubruc, Peillon, & Farah, 2014; Jamie et al., 2016; Kreye & Jensen, 2014; Ziaee Bigdeli et al., 2017).

So, when considering adopting a servitization business strategy, the significant cultural and corporate challenges can be broadly categorized into the ***integrated product-service design***, ***organisational strategy*** and ***organisational transformation*** (Baines et al., 2009; Viet et al., 2013). Here, the ***integrated product-service design*** could be interpreted as ***PSS Development process***, which appears to be a path for manufacturing SMEs to follow in the transition from products to services (Teso & Walters, 2016), and the PSS is a marketable set of products and services capable of jointly fulfilling a user’s need (Goedkoop et al., 1999). And the ***organisational strategy*** is the adaptation of necessary ***organisational structures and processes*** to support the customer allegiance required to deliver a combination of product and service (Baines et al., 2009). For ***organisational transformation***, it is a shift of corporate mindset from the traditional manufacturing culture to the service culture (Baines et al., 2009), which could be taken as adopting the Service-Dominant Logic (S-D Logic) (Vargo & Lusch, 2004). In detail, S-D Logic provided a new root to emphasize the customers’ role in co-creating value-in-use and -in-context, to improve his/her systems’ adaptability and survivability by integrating operand (e.g. knowledge and skills) and operant (e.g. products) resources in different ways (Costa et al., 2016).

Einola et al. (as cited in Kohtamäki, Rabetino, & Einola, 2018, p. 186) pointed out that “the tensions that manufacturers face when transitioning from manufacturing products toward the provision of customized integrated solutions are often paradoxical in nature.” Early research also indicated that these tensions between product-oriented and service-oriented (or customized integrated solutions) business models stretch from financial factors to organizational structure and culture (Visnjic Kastalli, Van Looy, & Neely, as cited in Kohtamäki, Rabetino, & Einola, 2018). For example, increasing product-life spans through services may cannibalize product revenues due to the decreasing sales of products (Visnjic Kastalli, Van Looy, & Neely, 2013). Those tensions reveal the obstacles for

organizations to comprehensively adopt the S-D Logic, and finally slow the pace of servitization.

As an emerging design field, service design offers a holistic, human-centered, co-creative approach to developing new services (Costa et al., 2018), which has the potential to be embodied in the process of servitization. For instance, servitization is seen as an opportunity for Service Design to instil a User Centred Design approach within product-based businesses, and demonstrate how the user involvement brings value to the company (Teso & Walters, 2016). Besides, design literally shapes organizational reality, which is part of organizational DNA (Junginger, 2015). Designers have been increasingly approaching issues of organisational and behavioural change (Sangiorgi, 2011), and service design can even reform service systems and organizations (Yu & Sangiorgi, 2018). Based on the above empirical understanding, service design is key for the organizational changes of companies in the process of servitization. Furthermore, Junginger & Sangiorgi propose an Orienting Framework (Figure 1) including three levels of the potential impact that service design can have on the organization, respectively ***Service Interaction Design***, ***Service Design Interventions***, and ***Organisational Transformation*** (Junginger & Sangiorgi, 2011), which has the potential to guide the utilization of service design in the transition of servitization. All the above previous research builds a solid foundation for service design to be applied in the process of servitization. However, related literature is still lacking. In particular, the theoretical framework of applying service design in servitization has not been fully explored. So, based on previous research, this short paper aims to propose a framework and routine for application of service design in the process of servitization. In addition, the role of service design in different stages would also be discussed.

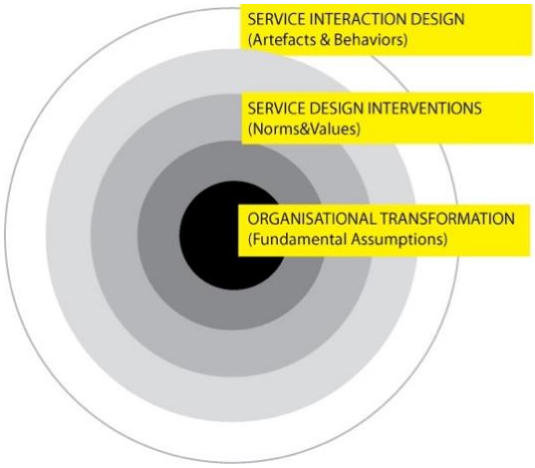

Figure 1: Levels of potential impact of Service Design projects (Junginger & Sangiorgi, 2011)

Building the Application of Service Design for Servitization (ASDS) Framework

The Preliminary Analysis and Development

Based on the understanding of servitization (Vargo & Lusch, 2004), it is noticeable the target for service design in the servitization transition is smoothing the potential tensions from the three main challenges (the ***integrated product-service design***, ***organisational strategy,*** and ***organisational transformation*** (Viet et al., 2013; Baines et al., 2009)) and aiding the process of organizational transformation of embracing the S-D Logic, i.e. transforming from product-dominant logic to service-dominant logic. Here, the above three challenges can be interpreted as 1) ***external performance***, 2) ***internal support***, and 3) ***internal driver***. And the relationship among them could be interpreted as below (Figure 2). For the ***integrated product-service design*** ***(New PSS Development)***, it could be taken as the external performance of the adoption of S-D Logic, but it is not a signal that this organization successfully adopts the S-D Logic; when it goes to ***organisational strategy (organizational structure and process)***, the organization physically changes to adopt the S-D Logic; and the end of ***organisational transformation*** could be taken as the signal that the organization has successfully adopted the S-D Logic.

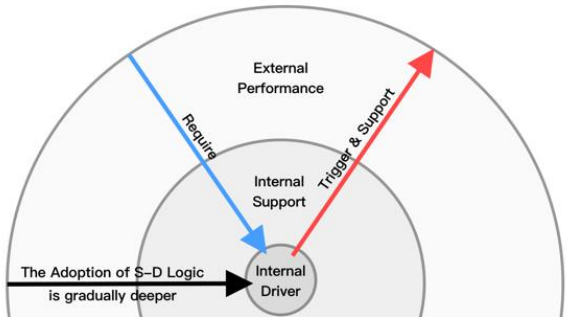

Figure 2: The levels of the 3 challenges in servitization

The Orienting Framework of Junginger & Sangiorgi (2011) introduces the levels of service design in the organizational change process and the

concepts of ***artefacts and behaviors***, ***norms and values***, and ***fundamental assumptions,*** which are highly coincident with above three levels of challenges in servitization. These could be taken as the "breakpoints" that trigger the action of service design in deeper levels. But within the context of service design in servitization, we should switch the spotlight from service design to the S-D Logic, i.e. we should define the level of service design based on the penetration of S-D Logic inside the organization. Indeed, whilst this Orienting Framework (Junginger & Sangiorgi, 2011) points out the possible levels of service design in the organizational change, we still need to add knowledge-transferring as the dimension to guide the penetrating levels of service design. The knowledge needed to be transferred in the servitization process is the adoption of S-D Logic.

In the article "*Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries*", Carlile introduced an Integrated 3-T Framework for Managing Knowledge Across Boundaries. And this 3-T Framework describes the boundaries of three capabilities (i.e. from the known to novelty: Transferring, Translating, and Transforming) that required for effective communication across domains (Figure 3) (Carlile, 2004).

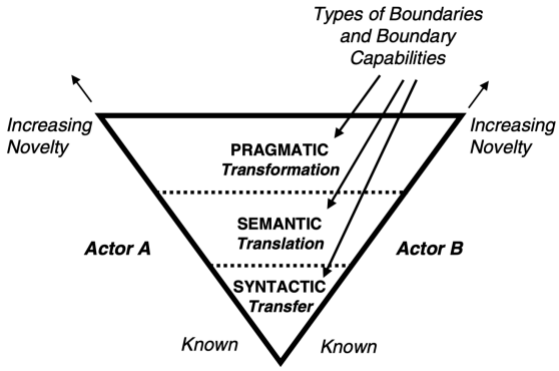

Figure 3: An Integrated/3-T Framework for Managing Knowledge Across Boundaries (Carlile, 2004)

So, based on this 3-T Framework (Carlile, 2004) and Service Design Impact Orienting Framework from Junginger & Sangiorgi (2011), the short paper proposes the Application of Service Design for Servitization (ASDS) Framework (Figure 4).

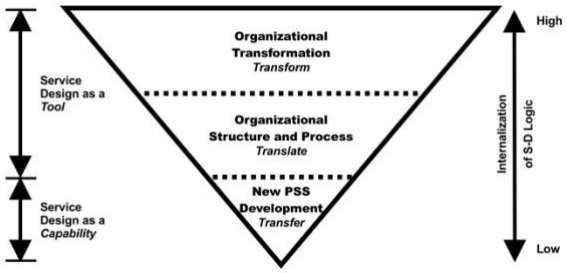

Figure 4: The Application of Service Design for Servitization (ASDS) Framework

A Synthesis Perspective

In the ASDS Framework, 1) ***New PSS Development*** requires transferring knowledge from external service design professionals, in which service design could be taken ***as a capability*** inside the New PSS Development process. Then for 2) ***Organizational Structure and Process***, the New PSS Development should be translated into the new organizational structure and process of those companies. For the cultural layer of 3) ***Organizational Transformation***, it means infusing the S-D Logic into the companies which creates a transformation inside the companies. For the latter two levels, service design could be considered ***as a tool*** to facilitate the above processes. In summary, from bottom to top, the servitization journey of company involves a process of internalizing the S-D Logic, recognized as the “knowledge” existing inside this company, and service design is utilized to smooth the tensions during this journey.

1st Level - Service Design for New PSS Development

During this stage, Service Design professionals may come mainly from outside the target company so that this process could be considered as a transferring of knowledge of service design capabilities into the new PSS development process. The process of developing new services differs from the process of developing new products, in terms of higher complexity, lack of a linear structure, and need for integrated implementation (Calabretta et al. 2016). Service design professionals may need to cooperate with traditional product developers to fix that tension and develop New PSS, which suits the objectives of the companies or even individual strategic business units and meets the targeted market needs.

At this level, service design is taken ***as a capability***. What the organizations need during this stage are the service design capabilities to support the New PSS Development process. Because of this, the room for utilizing service design would be limited. The main issue for service design professionals is the effective delivery the service design capabilities to the targeted organizations.

2nd Level - Service Design for Organizational Structure and Process

Although companies could exploit external professionals to develop new PSS in order to improve operating efficiency, companies need to fix the New PSS Development capabilities and adapt the organizational structure and process to those new capabilities. In this case, the target of service design professionals is to fix the tensions emerging during the transition from the existing organizational strategy to the new organizational strategy which allows them to achieve those New PSS Development capabilities.

So, the role of service design for the companies or organizations here shifts from ***as-a-capability*** to ***as-a-tool***. At this level, what the organizations need is more than the service design capabilities: they require service designers to engage the organisation, to visualise and demonstrate the value of change, to read and interpret the organisation itself (Junginger & Sangiorgi, 2011), i.e. service design becomes a tool to translate the S-D Logic as the form of new organizational structures and processes.

3rd Level – Service Design for Organizational Transformation

In order to keep servitization evolving, companies are required to permanently modify their way of thinking and acting (Calabretta et al., 2016), which calls for an organizational transformation which ensures the S-D Logic is deeply embedded within the company. In this process, ***as a tool*** for those organizations, service design could be used to communicate with managers and other employees inside companies to cultivate and transform their mindset: service designers should use the design inquiry as a conversation with the organization to unveil their deeper assumptions for potential stronger resistances (Junginger & Sangiorgi, 2011). During this stage, S-D Logic achieves the highest internalization and eventually blends into the culture of the companies.

Conclusion

Beginning with the definition of servitization, this short paper introduces the three main challenges (the ***integrated product-service design***, ***organisational strategy*** and ***organisational transformation***) to adopting the servitization in business strategy (Baines et al., 2009; Viet et al., 2013) and tensions which could be triggered when organizations face those challenges. This short paper then analyses those challenges and interprets the relationship between those challenges. Built on the Orienting Framework of Junginger & Sangiorgi (2011), this short paper suggests to add knowledge-transferring as a dimension to interpret the penetrating levels of service design in the servitization process.

Based on Carlile's Integrated 3-T Framework for Managing Knowledge Across Boundaries (Carlile, 2004) and the Orienting Framework of Junginger & Sangiorgi (2011), this short paper proposes the Application of Service Design for Servitization (ASDS) Framework. Inside the framework, the 1st level is the Service Design for New PSS Development, the 2nd level is Service Design for Organizational Structure and Process, and the 3rd level is Service Design for Organizational Transformation. Separately, those 3 levels respond to the three main challenges mentioned before. Furthermore, roles of service design inside those 3 levels shift from ***as-a-capability*** in the 1st level to ***as-a-tool*** in both the 2nd and 3rd levels. In addition, the journey from 1st level to 3rd level, i.e. the servitization transition of the companies, is also accompanied by the internalization of S-D Logic inside the companies. The aim of the ASDS Framework is to guide and categorize the research for service design applications for manufacturing companies to embrace the transition of servitization.

Unavoidably, this short paper has some drawbacks and disadvantages and requires further work. Given the author's lack of practical experience in business and service design, this short paper bases its reflections on conceptual theories and empirical common sense. Further research and practice should be made to verify those ideas. In addition, relatively weak business and management knowledge have resulted in a superficial and generally exploratory discussion on the utilizing of service design. Moreover, the lack of sufficient literature for review may lead to the content appearing relatively rough.

References

Baines, T., Lightfoot, H., Benedettini, O., & Kay, J. (2009). The servitization of manufacturing: a review of the literature and reflection on future challenges. Journal of Manufacturing Technology Management, 20(5), 547-567. https://doi.org/10.1108/17410380910960984

Bigdeli, A. Z., Baines, T., Bustinza, O. F., & Shi, V. G. (2017). Organisational change towards servitization: A theoretical framework. Competitiveness Review, 27(1), 12-39. https://doi.org/10.1108/CR-03-2015-0015

Burton, J., Story, V., Zolkiewski, J., Raddats, C., Baines, T. S., & Medway, D. (2016). Identifying Tensions in the Servitized Value Chain. Research-Technology Management, 59(5), 38-47. https://doi.org/10.1080/08956308.2016.1208042

Calabretta, G., Lille, C. D., Beck, C., & Tanghe, J. (2016). Service Design for Effective Servitization and New Service Implementation. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 91-104.

Carlile, P. R. (2004). Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge Across Boundaries. Organization Science, 15(5), 555-568. https://doi.org/10.1287/orsc.1040.0094

Costa, N., Patrício, L., & Morelli, N. (2016). Revisiting PSS and Service Design in the Light of SD-Logic. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 119-131.

Costa, N., Patrício, L., Morelli, N., & Magee, C. L. (2018). Bringing Service Design to manufacturing companies: Integrating PSS and Service Design approaches. Design Studies, 55, 112-145. https://doi.org/10.1016/j.destud.2017.09.002

Dubruc, N., Peillon, S., & Farah, A. (2014). The Impact of Servitization on Corporate Culture. Procedia CIRP, 16, 289-294. https://doi.org/10.1016/j.procir.2014.01.028

Goedkoop, M. J., C.J.G. van Halen, H.R.M. te Riele, & P.J.M. Rommens. (1999). Product Service-Systems, ecological and economic basics, Dutch Ministries of Environment (VROM) and Economic Affairs (EZ) Report.

Jamie, J. B., Story, V., Zolkiewski, J., Raddats, C., Baines, T. S., & Medway, D. (2016). Identifying tensions in the servitized value chain. Research Technology Management, 59(5), 38–47. https://doi.org/10.1080/08956308.2016.1208042

Junginger, S. (2015). Organizational Design Legacies and Service Design. The Design Journal, 18(2), 209-226. https://doi.org/10.2752/175630615X14212498964277

Junginger, S., & Sangiorgi, D. (2011). Service Design and Organizational Change: Bridging the Gap Between Rigour and Relevance. International Journal of Design, 5(2), 4339–4348. http://hdl.handle.net/11311/968585

Kohtamäki, M., Rabetino, R., Einola, S., (2018). Paradoxes in Servitization. In Kohtamäki, M., Baines, T., Rabetino, R., & Bigdeli, A. Z. (Eds), Practices and Tools for Servitization: Managing Service Transition (pp. 185-199). Springer International Publishing.

Kreye, M. E., & Jensen, P. L. (2014). Key variables of organisation design in servitization. In Proceedings of the 21st International EurOMA Conference, European Operations Management Association.

Sangiorgi, D. (2011). Transformative Services and Transformation Design. International Journal of Design, Vol 5, No 2 (2011). http://hdl.handle.net/11311/968237

Teso, G., & Walters, A. T. (2016). Service implementation: a framework to assess readiness of manufacturing SMEs. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 78-90.

Tempelmayr, D., Stadlmann, C., Mang, S., Überwimmer, M., & Ehrlinger, D. A framework of capabilities and business dimensions influencing servitization based upon service dominant logic, service science and network and system theory. http://www.ise-monitor.eu/fileadmin/user_upload/Full_paper_A_framework_of_capabilities_and_business_dimensions_influencing_servitization.pdf

Vandermerwe, S., & Rada, J. (1988). Servitization of business: Adding value by adding services. European Management Journal, 6(4), 314-324. https://doi.org/10.1016/0263-2373(88)90033-3

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. Journal of Marketing, 68(1), 1-17. https://doi.org/10.1509/jmkg.68.1.1.24036

Viet, D., Urmetzer, F., Martinez, V., Zaki, M., & Neely, A. (2013). THE FUTURE OF SERVITIZATION: Technologies that will make a difference, Cambridge Service Alliance Report. https://cambridgeservicealliance.eng.cam.ac.uk/resources/Downloads/Monthly%20Papers/150623FutureTechnologiesinServitization.pdf

Visnjic Kastalli, I., Van Looy, B., & Neely, A. (2013). Steering Manufacturing Firms towards Service Business Model Innovation. California Management Review, 56(1), 100–123. https://doi.org/10.1525/cmr.2013.56.1.100

Yu, E., & Sangiorgi, D. (2018). Exploring the transformative impacts of service design: The role of designer–client relationships in the service development process. Design Studies, 55, 79-111. https://doi.org/10.1016/j.destud.2017.09.001

Ziaee Bigdeli, A., Baines, T., Bustinza, O. F., & Guang Shi, V. (2017). Organisational change towards servitization: a theoretical framework. Competitiveness Review, 27(1), 12–39. https://doi.org/10.1108/CR-03-2015-0015