

**Servitization: allowing better solution delivery and performance for
manufacturers of longer lifespan products**

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Abstract

Manufacturers are shifting the traditional transactional paradigm by delivering customized solutions in a process known as servitization. This study proposes that the competitive performance of servitization is higher for firms selling long-lifespan products as they enable better customization cost recovery. To test this hypothesis, we analyse the moderating role of product lifespan on the servitization-performance relationship. Through merging a unique survey of Manufacturing Multinational Enterprises (MMNEs) and the Lifespan Database for Vehicles, Equipment and Structures (LiVES) a unique sample is created. Analysis of the data shows a positive relationship between servitization and performance. This relationship becomes significantly stronger for MMNES that sell long-lifespan products. Our findings are robust for correlation, regression and structural equation modelling analyses. This study explains why servitization boosts performance in some industries but has a neutral effect on others. By including product lifespan in the equation, we improve understanding of why servitization is an excellent mechanism for asset management in industrial relationships.

Keywords: Servitization, solution business models, product lifespan, competitive performance.

Extended Summary

Manufacturers are increasingly pushed to transition from a standardised product business model towards a solution model that offers greater customisation and responds to the specific needs of each customer (Storbacka *et al.*, 2013). Rising market orientation as well as increased information availability and affordability together with the limited scope of cost leadership strategies for manufacturers within a knowledge-based economy have combined with advances in production techniques to drive manufacturers towards greater personalisation. By offering customised solutions, producers are adding greater value to their products (Bustinza *et al.*, 2018, 2019; Storbacka, 2011).

As such, intangible assets are crucial for manufacturers in their efforts to create this added value (Teece, 1998). Intangible assets generate differentiation that enables firms to achieve competitive advantage. Intangible assets materialize as economic value in the form of services which, when developed in the context of product firms, require organizational change known as servitization (Rabetino *et al.*, 2018). Offering complementary services is increasingly important for manufacturers, as it enables them to co-create with users and more easily personalise their products (Storbacka *et al.*, 2011). As a result, manufacturers can establish more lasting relationships with end consumers than do the simple transactions associated with business models based on the guileless sale of products.

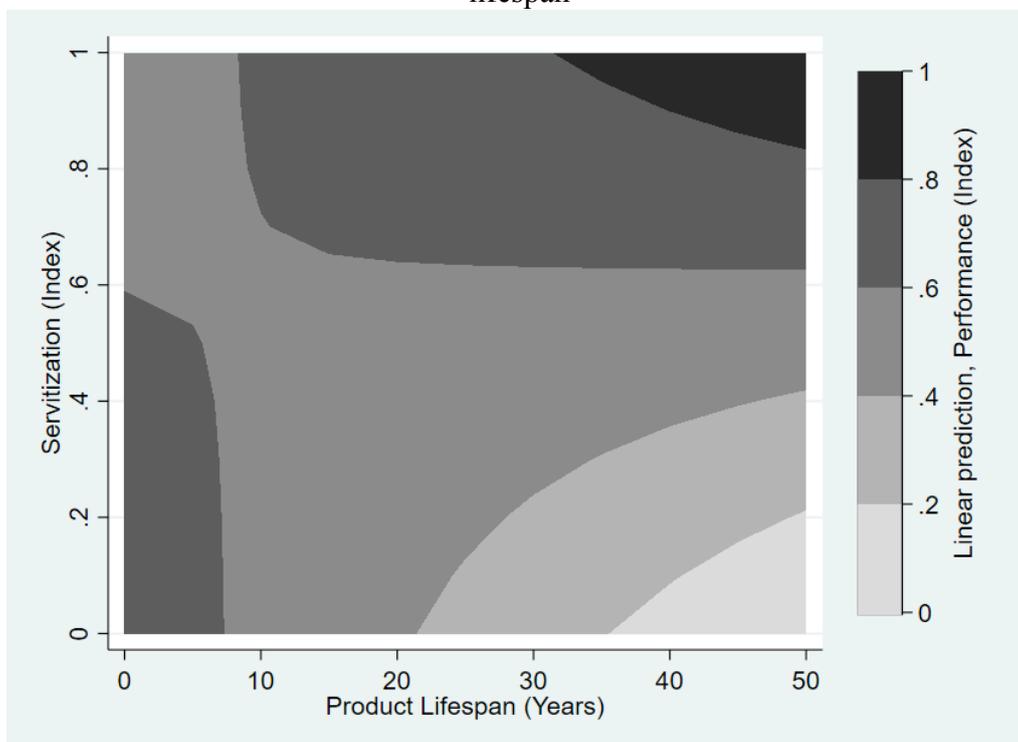
But the transition towards a solution business model is not of equal value to all manufacturers (Nordin and Kowalkowski, 2010). Indeed, the more extraordinary and infrequent is a purchase for a buyer, and the more the purchase represents an important investment, the greater the importance of offering customization. This, especially when the lifespan of the purchased product is considerable (Vendrell-Herrero *et al.*, 2019). And therefore, in these circumstances, the greater the role of servitization is likely to be for the performance of the manufacturers of these products.

This study argues that the importance of servitization for the performance of manufacturers is in part explained by the longevity of the product commercialized. Long lifespan products, due to their frequently high purchase cost and complexity of maintenance requiring a substantial asset management effort, are especially susceptible to the benefits of servitization as conductor of customised value-added from a more solution-oriented business model. Product longevity also allows servitization to better reach the customer embeddedness and solution integration benefits, which are key for manufacturers to transition towards a

solution business model (Storbacka *et al.*, 2013). As such we hypothesize that Product lifespan positively moderates the relationship between servitization and firm performance.

This study tests the working hypothesis with a unique database of 301 multinational manufacturing firms that operate worldwide in conjunction with LiVES (Lifespan Database for Vehicles, Equipment and Structures), a database that provides information about the average products' lifespan for a number of industries (Murakami *et al.*, 2010). Part of the sample produces and commercializes products with long lifespans (e.g. aerospace, defence and automotive) whilst other part of the sample operates in sectors with less costly products with shorter lifespans (e.g. electronics and appliances). Preliminary results are summarized in the contour plot exhibited in Figure 1. The figure shows a two-dimension graph where different combinations of servitization (Y-axis) and product lifespan (X-axis) yield different predicted performance levels which are represented in the colour-scale of the figure. From the contour plot, we observe that firms selling products with shorter lifespan (<10 years of product lifespan) do not benefit from servitization strategies. Additionally, servitization seems essential for enhanced performance in businesses offering longer lifespan products (>30 years of product lifespan).

Figure 1: The relationship between servitization and performance along different product lifespan



It is worth stressing the importance of the analysis. In line with Markides and Williamson (1994), our study concludes that in the context of an increasingly knowledge-based competitive environment, transactional strategies of product exploitation are insufficient in the long term. We show that multinational firms that supply integrated product-service solutions through servitization are more successful when they offer products with long lifespans that have the time to generate synergetic value-added that is greater than the sum of its parts (Storbacka, 2011). An enduring servitization facilitates the development of joint competencies that enable customer embeddedness and the co-creation of advanced solutions which, in turn, helps to achieve a greater coverage of customers' technological needs (Storbacka *et al.*, 2013).

Manufacturers producing short lifespan servitized products may not only have difficulties optimizing their servitized value, they may be left with an insufficiently long relational investment cost recovery period. Thus, the issue of the contextualization of capitalization on intangible assets in long-term relationships is affected by our findings. To date, the literature has analysed this matter in contexts of product innovation (Lafuente *et al.*, 2018). Our study extends the analysis to models of service implementation in manufacturing.

A limitation of this study relates to the cross-sectional nature of the data used in the study, which does not allow for longitudinal heterogeneity analyses. As a result, future work based on longitudinal data seems decisive to better understand the temporal evolution of servitization strategies in businesses offering products with different lifespans. Finally, the conclusions generated in this study are the result of the analysis of large manufacturing multinational firms. We believe that our findings and recommendations can be extended to organizations with a heterogeneous product-service portfolio, for example, distinguishing between firms whose customers are end users and firms that sell their products-services to other organizations, or to other types of firms, such as large firms whose activity focuses more on local markets vs. small and medium-sized enterprises (SMEs).

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