

Servitization Journey: a Preliminary Analysis of a Typical Manufacturing Company

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Abstract Servitization of manufacturing is a phenomenon that has been present in the past two decades or so. The complexity and extension of changes caused by servitization to transform manufacturing organizations to compete through services is a challenge for researchers and practitioners. Concerning the research boundaries, the understanding of how the servitization process occurs is one of the relevant topics for exploration. Thus, this work investigates the transition process towards servitization that has occurred in a typical B2C manufacturing firm. Multiple sources of evidence were considered to analyze data by triangulation using case-based research resulting in a preliminary servitization process map. The results show internal and external contextual factors associated with the design of the servitization business model. The transformation occurred by a paradigm shift in the studied company that re-configured its business model and established an independent business unit to operate a new product-service offering. Future work should analyze the business transformation of product-service offerings concerning product-service design and operation.

Keywords: Servitization; Product-service Systems; Organizational Process; Business Model; PSS.

1 Introduction

The manufacturing industry and services have been considered independently concerning financial performance, market, and sector issues (Horváth and Rabetino, 2019). Nevertheless, more manufacturing companies have transformed themselves to integrate services to their offers and increase their competitive potential (Baines et al., 2017). This strategic change usually occurs when a firm reaches a maturity stage in its product lifecycle and the revenue growth is limited (Kowalkowski et al., 2017). This phenomenon is not recent and has been strongly intensified in the past years (Visnjic et al., 2018).

The term ‘servitization’ was originally described to explain the trend of product companies beginning to create an integrated offer of goods, services, customer support, and knowledge to satisfy the need of customers in order to obtain a competitive advantage and increase the financial performance (Bigdeli et al., 2017). Servitization is understood as the transformation process of a company from taking a product-to taking a service-centric business model (Baines et al., 2017). Examples show that big manufacturers from different industrial sectors such as Caterpillar, IBM, Rolls-Royce Engines, and others have overcome the challenge of product commoditization towards a sharp increase of service offers (Huikkola et al., 2016).

The complexity and extension of changes due to servitization to transform a typical ‘product’ company to compete with services is a challenge for researchers and practitioners (Baines et al., 2017). There is significant literature regarding organizational changes and one of the conceptual models that may explain

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how to do so within the servitization context is the one by Bigdeli et al. (2017). In this sense, one of the most relevant challenges faced by servitization researchers and practitioners is how to effectively transform a manufacturing firm to deliver integrated product-service offers (Baines et al., 2017). The previous authors add that among the main current research frontiers one is the understanding of the servitization process, particularly theories that address the change of organizational process during servitization (Bigdeli et al., 2017). In this context, this paper aims to conduct a pilot investigation on how this process has occurred through the analysis of a typical B2C manufacturing company towards servitization.

The remainder of this paper is structured as follows. Section 2 outlines some concepts related to servitization that support this study development. Section 3 describes the research methods and procedures whereas Section 4 highlights the outcomes and discussion related to the main scope of this work. Finally, Section 5 draws some concluding remarks and suggestions for research continuity.

2 Servitization Concepts

Servitization is a term widely widespread in academia and business arenas (Kowalkowski et al., 2017). It is understood as a phenomenon, trend, or process in which manufacturing companies adopt a service orientation in their business models (Baines et al., 2009). One of the main characteristics is the nature of changes in the organizational processes that transform capabilities from selling products to the offer of product-service systems (Baines et al., 2017).

Different types of service offerings can be offered by servitized companies such as (Baines and Lightfoot, 2013): basic (services focused on product provision); intermediate (services focused on maintenance of product conditions), and advanced (services focused on capabilities or performance). Advanced services are of special interest since they combine products and services in an offer that is crucial to the customer core business (Baines et al., 2017). Advanced services frequently present revenue systems based on product usage, performance incentives, long term contractual agreements, and cost reduction commitments (Baines and Lightfoot, 2013).

2.1 The Process of Servitization

The servitization process is how the organizational change occurs, including the relations among factors that generate changes and their outcomes (Baines et al., 2017). However, previous cited authors add that few studies have dedicated to the understanding of this process per se. The authors also state that the process dimension is not extensively explored, i.e. the literature is scarce of research work to understanding 'how to' this occurs in manufacturing companies, particularly in B2C companies.

One of the conceptual models that holistically describe the servitization process is proposed by Baines et al. (2017), which is inspired in the literature on organizational change (Pye et al., 2005). They structure the servitization process in four dimensions (Bigdeli et al., 2017): 'external context', 'internal context', 'change context', and 'process change', making possible to understand 'why' (internal and external context), 'what' (change content analysis), and 'how-to' (process analysis). Table 1 summarizes the dimensions adopted in this work.

Table 1 Dimensions of servitization process (Bigdeli et al., 2017)

Dimensions	Brief description
External context	Consists of environment elements related to issues such as political, economic, technological, regulatory, environmental, etc.
Internal context	Considers environment sub-dimensions such as organizational structure, company culture, leadership, political characteristics, confidence level, etc.

Table 1 (continued)

Dimensions	Brief description
Change contents	Means ‘what changed’ (or ‘should be changed’) due to servitization, impacts in the organizational structure, processes, technology, people's capabilities to deliver services, etc. Changes are dependent on the business model (customers, relationship channels, distribution channels, core activities, partners, revenue streams, etc.). Mapping the servitization impacts favors the identification of key-characteristics to implement the servitized business model.
Change process	Corresponds to the way and means the company transforms itself to put forward a servitized offer. It can be described by the change models, the sequence of changing in the business model, path change (beginning and end), and strategies to develop and implement the changes.

3 Research Methods and Procedures

Considering the specific nature of the servitization process (Rabetino et al., 2018), case-based research was adopted by following recommendations from the literature (e.g. Voss et al., 2002; Eisenhardt, 2007). This may be particularly important when considering the low number of B2C companies that implemented the servitization process successfully (Baines et al., 2017). To establish the appropriated methodological fit, an inductive research approach was chosen in a single case study following a retrospective (historical occurrence of company servitization process) and a contemporary approach (current stage of company servitization process). The methodological approach is aligned to investigate ‘how the servitization process occurred in a typical B2C manufacturing company’.

The first step was the definition of a theoretical framework related to servitization as recommended by Voss et al. (2002). Additionally, the dimensions of the servitization process (Table 1 in Section 2.1) were considered to guide the investigation. The focal company was a major household appliance corporation in a developing country (Brazil). The unit of analysis was a new business of the focal company. It was chosen by following the information-oriented selection recommended by Flyvbjerg (2006). By using this approach, the unit of analysis was selected on the basis of expectations about its information content. The case was then a company new business unit based on the offer of a product-service system (PSS), i.e. a domestic appliance (water filter leasing system). The company leases the small equipment by monthly payment and is accountable for product maintenance (repair and update). Long-term contractual agreements are established between the firm and customers (businesses or citizens). In the equipment end-of-life, the company collects and recycles the product and its components when replaced (e.g. for an upgrade) or discontinued (e.g. breach of contract).

Multiple sources of data collection were applied to the development of converging lines of inquiry. A research protocol was developed before gathering data. Data were obtained through 11 semi-structured interviews with employees from different hierarchical levels (e.g. top and medium management, supervision, engineering, and operation) as well as different functions (marketing, new product development, production, and service operation). Other sources of evidence included in loco observations and document analysis about the company servitization process. The cross-case synthesis was applied, by aggregating the findings across the sources and triangulation techniques. At this point of this work, the results showed in the next section are primarily descriptive, since this is working in progress in the sense that data is still being collected and analyzed.

4 Pilot Results and Discussion

The company servitization journey started in 2000 (Figure 1) as a new business unit with distinct characteristics when compared with a typical manufacturing of home appliances (refrigerators, washing machines, dishwashers, etc.). As mentioned in the previous section, a water filter system is leased to

customers, not only B2C but also B2B (mainly small businesses). The focal company took approximately 3 years to develop the business unit/business model. After launching the PSS, there was an implementation period followed by an enhancement phase of the product-service system version (four cycles), with the subsequent market introduction of improved models with the company portfolio of water filters.

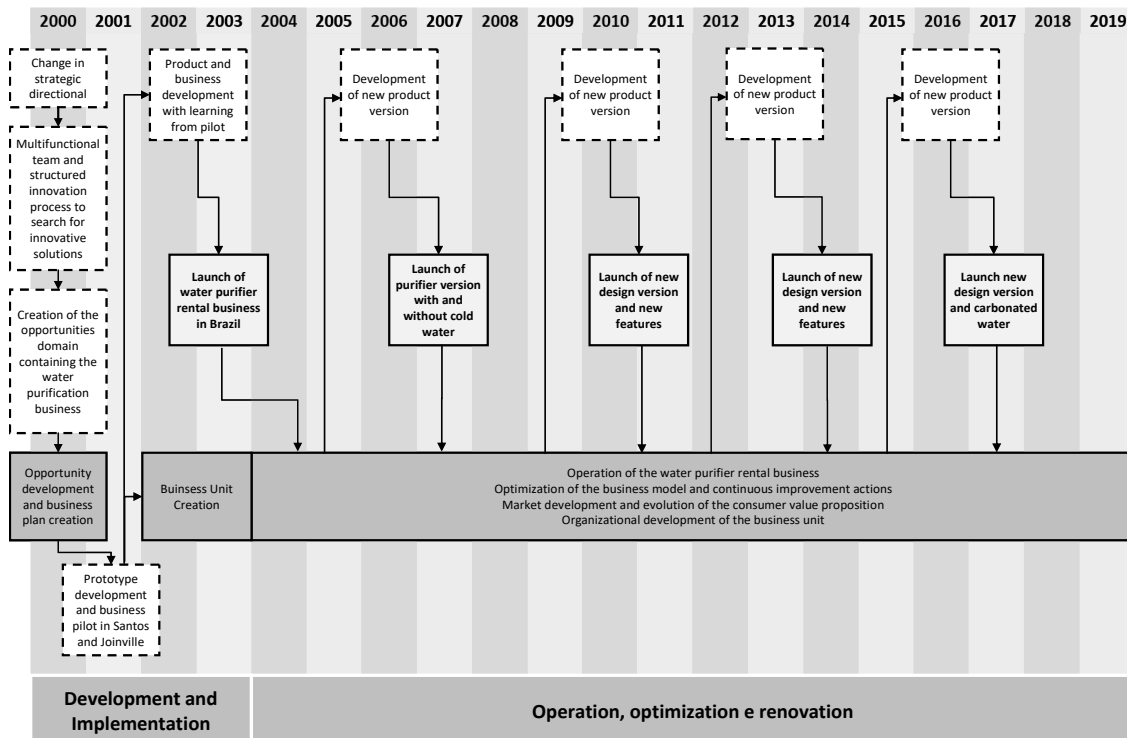


Fig. 1 Milestones of firm servitization journey.

It is worth noting that the servitization process was based on a company paradigm change with the introduction of this new business model in that particular firm based on a servitized offer, as raised by Barnett et al. (2013), instead of a gradual transition from product to services to reach an operation based on services (Reinartz and Ulaga, 2013). Thus, the servitization journey (Fig. 2) can be divided into two main stages: ‘pre-operational’ (i.e. groundwork with pilot tests in a couple of cities) and ‘operational’ (i.e. fully market introduction in all over the country from 2004).

4.1 Dimensions of Servitization Process

This initial analysis was carried out anchored in the dimensions of the servitization process by Bigdelli et al. (2017), summarized earlier in Table 1.

4.1.1 External Context

When developing the servitized business model, there has been a large influence of external factors, e.g. economic, social, environmental, and technological, as suggested by Bigdelli et al. (2017). At the beginning of 2000, the market scenario of household appliance companies was somewhat commoditized. This resulted in an increased profit margin for retailers and a decrease in gains of home appliance makers. This economic situation headed to internal pressure at the studied company to achieve better results and

new revenue streams. At the same time, there was a sharp augment of purchasing power in the developing country's economy and, consequently, an increase in demand for the acquisition of products and services. In addition, new patterns of consumption arose and were more centered on product usage instead of possession. Together with those economic changes, a concern with the environmental impacts and shortage of natural resources was growing, especially related to water supply. Besides that, the emergency of new information and communication technologies supported the creation of new sales channels and customer relationship digital systems. To sum up, the external context was associated with the economical, environmental, and technological factors that affected the company decisions en route to developing alternative business models.

4.1.2 Internal Context

The issues that influenced the investigated company in this context were related to the organizational culture, the structure of power and leadership, new strategic guidelines, and the creation of a new business servitized business model. Innovative company culture and an entrepreneurial mindset enabled dealing with the adverse economic conditions by pursuing new business opportunities. In 2000, the company CEO created a global vice-presidency for innovation and hired a large consultant firm to implement a global innovation process. Several teams were set-up all over the world to identify and develop opportunities for innovative business. Within the context of a new strategic direction to search for opportunities beyond the traditional company business model (i.e. design, manufacturing, and selling products), a multi-functional team identified opportunity domains where now the business model of the water filter is placed in. This opportunity was then refined and developed based on a business plan, approved by top management later on. However, there were several risks to business success. Those were primarily related to the performance of the water filter due to adverse and heterogeneous conditions of the water supply systems in Brazilian cities. Moreover, there were difficulties in customer acceptance of the water filter especially because of the ownership, i.e. leasing instead of buying the home appliance. As evidence of leadership support, a hundred-day pilot was conducted in two Brazilian cities to verify and confirm the introduction of the new business model. After conducting the pilot test, the final stage of PSS development took place.

4.1.3 Change Context and Process

To establish this new business, the leadership created an independent business unit to ensure proper resources allocation as well as the development of capabilities and processes for this new business. This was a very important decision to achieve the success of this business model, as corroborated by Oliva et al. (2012). The decision included an independent company division to which was possible to develop its own culture and environment in a service-oriented direction. In addition, it enabled to structure of the new business unit to the business needs without the influence of internal competition with the company's traditional business model. Moreover, having an independent business model enabled to implement performance measures and leadership monitoring. Those practices facilitated visible and agile decision process by top management (company directive committee). Thus, a start-up business may develop faster and more agile faced with the challenges and limitations of a company's traditional structure (Oliva et al., 2012). The main challenges were associated with the drastic changes in the business model by reconfiguring the proposal from selling to leasing a product.

Some of these challenges are:

- **Sales and Marketing.** At first, it was necessary to develop a new market niche. A selected marketing and sale team was created for the new business unit as a way to focus and customize the necessary market activities. The main selling channel changed from traditional retail to a 'virtual store'. This forced the company develop new capabilities associated with direct sales and distribution of home appliances. Additionally, an exclusive customer support center was created as a new way of customer long-term relationships.

- **Financing.** To deal with a novel economic model of which the revenue occurs by constant cash flow, larger fixed capital in products that were leased, a novel financial structure was implemented as well as a performance system to financially manage costs and expenditures.
- **New product Development and Technological Issues.** Technology-related new capabilities were also necessary, e.g. to develop the product filtering system as well as the know how to manage the product in the end-of-life. The latter was achieved by an external partnership with other firms that were integrated to the company supply chain to generate value to the customers, as recommended by Kindström and Kowalkowski (2014). In parallel, the sales of water filters evolved with newcomer's entrance. This has led to a market price reduction. Thus, the new company business unit revised its product portfolio by introducing an additional model with cool water in 2007, and new design, colors, and functions from 2011 to 2014. In 2017, a innovative model was launched with included sparkling water. The company put in place a strategy to diversify the family of water filters in order to face competitors with more commoditized models in the market.
- **Operation.** After launching the PSS in 2003 other challenges arose such as the need to optimize the business model by focusing on the customer support. Those were addressed by a continuous improvement program, as recommended by Kindström and Kowalskowsli (2014).

The current stage of the business is still evolving. After 17 years from launching the first model and service operations, the water filter reached a maturity stage. Today, the company put efforts on revenues growth (e.g. with franchising the business model) and continuous improvement in both product and service operation. The experience with the rental of water filter has originated a joint venture to explore other offers in the beverage market. The focal firm designs and manufactures the equipment and another beverage company produces the capsules (e.g. soft drinks, tea, juices, etc.). Customers own the equipment and buy capsules and consumables (e.g. cylinder for sparkling water) along the life cycle either by single purchase or by subscription.

5 Concluding Remarks

The analysis of servitization transition of manufacturing companies in developed countries remains a research gap. This investigation carried out a preliminary map of servitization process introduction by considering the contextual factors and changes towards a servitized business model of a typical manufacturing company in an emerging economy. This work confirmed that there was a paradigm change in the focal company with the introduction of a new business model of a product-service system (water filter). This groundwork analysis showed that some issues were decisive in this journey: entrepreneur mind set, leadership support, and strategic direction. One possible contribution with the next stage of this research is to demonstrate difficulties and challenges of a servitization journey at micro level (e.g. product development that assisted service operation) that might bring insights to possibly make this process easier in other similar companies. The paper is a starting point for a more comprehensive study. Nevertheless, the adoption of a single case study in this study truly limit the external validity of those results, thus, this should be replicated to other B2C firms.

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