

Holistic approach to evaluating servitization: A content, context, process framework

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Abstract

The need for a holistic framework for studying organisational transformation towards servitization is implicit. This is particularly relevant as servitization demands consideration of both business model and organisational change. The aim of this paper is to provide an integrative framework that systematically captures and evaluates existing literature on servitization. This has achieved through three main objectives; comprehensively examine the literature in organisational change management that would assist with the selection of the most effective evaluation framework, classify previous studies against the proposed framework through a systematic literature review methodology, and analyse the selected papers and propose future research directions.

Keywords: Servitization, Organisational change, Systematic literature review

Introduction

Manufacturing and service industries are often seen as largely independent. Whether discussing national economies, business classifications, education, training or employment, they tend to be thought of as separate. Yet manufacturers themselves can base their competitive strategies on services (Baines and Lightfoot, 2013a), and the process through which this is achieved is commonly known as servitization (Vandermerwe and Rada, 1989). From an academic perspective this is an increasing stream of literature, which in the recent years some efforts have been devoted on guiding future research avenues on the topic. The servitization of manufacturing firm cuts across several disciplines and communities such as product-service systems, service marketing, service operation, and service science. (Lightfoot et al., 2013). It is therefore a field of research studied from a broad range of academic traditions where most research does not question the implicit assumptions underlying service-led growth in product firms.

The topic of servitization also demands consideration of both business model and organisational change. Under the process of organisational change, business models innovation

play an important role as successful change is based on the consistency between a company's strategy and all its structural elements, being business model able to realign these elements. It can be argued that a holistic approach is lacking as servitization also covers different levels of the organisation content (Visnjic Kastalli and Van Looy, 2013) and contingency factors in the organisational environment context (Turunen and Finne, 2013). From all these process, content and context dimensions associated to servitization, a holistic framework should be actively sought in order to better understand this concept. The paper proceeds as follows. We first describe a review of organisational change frameworks. Next, we present the details of the CCP perspective employed in this paper. We then present the research methodology and results. The final section includes the discussion of results, implications, future research lines and limitations.

Organisational Change Framework to review Servitization

Developing a holistic framework that evaluates organisational change has been an enduring quest of scholars in management studies for years. Todnem By (2005) argues that theoretical frameworks and approaches to organisational change management are often contradictory, many of which focus on specific level or parameter of change. One plausible explanation may be that change researchers are inattentive to systematically and simultaneously look at all variables that are important in organisational change effort (Self et al., 2007).

There are several prominent models that focus mainly on the "*content*" variables of the change. These frameworks mainly focus on factors such as strategic orientation, organisational structure, and the impacts of employees on the change process (Armenakis and Bedeian, 1999). For instance, Burke and Litwin (1992) offer a model of change that distinguishes between transformational and transactional dynamics of organisation and explains how individual behaviours, and psychological variables are influenced the effort of change; Kanter (2003) suggests ten commandments for organisational change to emphasises what should be changed through analysing different layers of an organisation.

To get a broad picture of change process, Pettigrew (2012) emphasises that analysing the links between organisational change and the "*context*" in which it is embedded is inevitable. Hence, in an another stream, there are models that concentrate on contextual dynamics of organisational change and deal with responses taken in reacting to external and internal changes (Armenakis and Bedeian, 1999). These models mainly focus on circumstances factors that influence organisational effectiveness. For instance, Haveman (1992) analysed the legislative and technological impacts on organisational change and proposed that in response to unexpected environmental change a shift in organisational structure and activities will increase short-term financial performance and long-term sustainability.

A third stream of models of organisation change attempt to address the how question. More specifically, they proposed explicit methods to formulate and implement the "*process*" of change. This process encompasses the phases through which successful organizational changes progress (Self et al., 2007). Research on the process of change has its roots in the primary model that was proposed by Lewin (1947) that compromised unfreezing, moving, and freezing phases. Several other scholars (e.g. (Armenakis et al., 2000, Kotter and Cohen, 2002) elaborated on Lewin's classic change model for practitioners to use as a framework for introducing organisational change. In a similar strain,

In should be noted that the need for a holistic framework for studying organisational transformation is implicit in the change management literature. This is particularly relevant to servitization as both the business model and organisational structure are impacted. Hence, rather than following a topical scheme emphasising specific consideration of change, we elected to simultaneously focus on the three overarching research themes i.e. content, context, and process common to all organisational change efforts. We suggest that the most established

framework that evaluates the three themes is the CCP organisational change model proposed by Pettigrew (1988). This holistic approach to studying transformation provides a robust platform for investigating the literature on servitization and has therefore been adopted for this study. The CCP framework is broad enough to accommodate the myriad ideas and arguments about servitization, which emphasises that the change process involves not only the content of a chosen strategy, or the process which reveals various content alternatives, but also the contexts in which it occurs. Thus, the “why” of change is derived from an analysis of inner and outer context, the “what” of change is encapsulated under content, and the “how” of change can be understood from an analysis of the process (Pye and Pettigrew, 2005, Whipp et al., 1989).

A fundamental factor in any evaluation study is an understanding of “what is being evaluated”. In the scope of this research, the evaluation of servitization can be conducted within different level of activities within an organisation. The most common distinction between the levels of aggregation proposed in strategic change literature is between the functional level, business level, and corporate level (Wit et al., 2010, Wheelen and Hunger, 2011). These are somewhat traditional categorisations in the literature, and in recent years have been extended to include the network of an organisation. The functional level is concerned with developing and nurturing competence to provide the business units or the entire company with a competitive advantage, while the business level emphasises the enhancement of the competitive position of a corporation’s products or services within a specific industry service by a specific business unit. The network level explains the situation where two or more firms move beyond a mere transactional relationship and work jointly towards a shared goal (Kohtamäki, Partanen et al. 2013).

Changes in organisation take place in response to both circumstances, and the existing external and internal conditions that have been shown to influence organisational effectiveness (Paton and McCalman, 2008). Pettigrew’s (1988) framework suggests that two aspects of “context” should be considered while evaluating a change: (1) the inner context which refers to the factors from within the firm through which ideas for change has to proceed, and (2) the outer context which refers to the factors from outside the organisation.

Process are the “how” factors of change effort and specific methods/models employed to formulate and implement an organisational change (Self et al., 2007). According to Armenakis and Bedeian (1999), process of organisational changes is a set of actions needed to accomplish an intended change. Pettigrew (1988) proposed that the process of change is influenced by the organisation’s change formulation and implementation strategies, properly defining the start and end point, and the role of technology in the process. Formulation strategy is an intentional process that includes pathways between identifiable decisions events and the outcomes of these decisions. The role of technology facilitates knowledge flow, allowing interdependencies in the change process, and redefining the boundary between the firm and its surrounding environment. Furthermore, there is an important factor to be considered in the process analysis: the role of business models. Business models are strongly related to servitization as financing may not be as prominent and assume that knowledge is cognitively limited by a firm previous success (Chesbrough and Rosenbloom, 2002).

Along with the categories and sub-categories of the CCP framework, two additional classifications were considered in our proposed framework to improve the practical implications. Since servitization literature entails a range of different topics, we find it helpful to view research contributions that are setting out to be either ‘descriptive’ or ‘prescriptive’. The former deals with establishing theories and how change has taken place, whereas prescriptive refers to proposed ideas and how the change can be carried out. Clearly these distinctions are interlinked and complimentary, but academics and scientists tend to be drawn to descriptive contributions and evidence to help the understanding the world around us,

whereas practitioners are frequently seeking prescriptions to overcome their businesses problems. A comprehensive view of the framework proposed can be seen on Table 1.

Methodology

The theoretical framework illustrated in Table 1 is intended to guide the identification and review of literature and, through this process, enable the research landscape to be interpreted. The challenge is to reliably populate this framework, and so a systematic literature review methodology [Tranfield et al. \(2003\)](#) was adopted. This approach has been designed to manage the diversity of knowledge for a specific academic inquiry, which would then enable the researcher both to map and to assess the existing intellectual territories and to specify research questions to develop existing body of knowledge further.

The three main principle and generic guidelines of the systematic review process applied in the management science field ([Tranfield et al., 2003](#)): (1) a detailed planning of the review with a precise definition of the aim and objectives to be addressed in the course of the review, (2) a rigorous conduction of the review comprising the identification and selection of relevant studies, applying particular criteria for inclusion and exclusion supported by an appraisal of the quality of the reviewed studies and the strength of their findings, and (3) reporting and disseminating the review results.

One of the critical problems regarding the topic of servitization is that different scholars tend to use different term to describe the transformation towards advanced services ([Baines et al., 2009b](#)), and the boundary of those terms is still blurred ([Hou and Neely, 2013](#)). Therefore, in order to be more focused, the scope of the searches were only emphasised on the term “servitization”. Note that since the searches were conducted in the entire body of the selected papers (e.g. title, keyword, literature review, references, etc.), other relevant topics to servitization including Product-Service Systems (PSS), service science, service operation, advanced services etc. were automatically included in our samples. By using a leading database, Scopus, that comprehensively envelop the research communities around servitization, we gathered a total of 302 peer-reviewed journal papers written in English and published during 1988 and November 2014. We manually screened the titles, abstracts, keywords, and contents of each of the 199 papers and excluded all manuscripts that (1) lacked a clear contribution to the servitization research and just focused on the term as an example to explain another subject/issue, and (2) focused on pure service industries such as tourism. Taken together, these steps condensed the literature sample to a final set of 158 relevant research articles published in 74 journals that formed the evidence base of our review. The researchers carried out the reading of these articles in their entirety and based on the extracted relevant data decided which category (i.e. content, context, and process) and sub-category suits best for the papers.

Table 1 – The theoretical framework developed to identify and classify servitization research

| CONTENT | | | | CONTEXT | | | | | | | | | | PROCESS | | | | | | |
|---------------------|-------------------------|----------------|------------------|--|---------|-------|---------------------------|----------------------|----------------|---------------------------|-----------|----------|--------|-----------------------------------|---------------|------------------|-----------------|--------------------|----------------------------|-----------------|
| Network Level | Corporate Level | Business Level | Functional Level | Inner Context | | | | | | Outer Context | | | | | | Models of Change | Start-end-Point | Role of Technology | Formulation/Implementation | Business Models |
| | | | | Structure | Culture | Power | Political Characteristics | Strategic Directions | Level of Trust | Stage of Board Dev. (Age) | Political | Economic | Social | Technological | Environmental | | | | | |
| Descriptive | What was changed? | | | What was the situation when the change occurred? | | | | | | | | | | How did the change take place? | | | | | | |
| Prescriptive | What should be changed? | | | When should the change take place? | | | | | | | | | | How should the change take place? | | | | | | |

Results and Analysis of Research Contributions

Research exploring the 'Content' of servitization

Papers grouped under the content category comprises of four levels of activities. The network level focuses on analysing the impact of servitization on networking activities on firms in different industries. Also, the current research agenda towards the configuration of activities and value creations amongst business networks (or as some suggested business ecosystems) discusses a swift transition of management mentalities from traditional product-focused supply chain optimization to the alignment of service value chain, where the customers role as value creator is a central feature of the construct (F. [Bustinza et al., 2013](#)).

In the corporate level, several studies examine product-service business development by small- and medium-sized equipment manufacturers (SMEMs) and focus on underlying dynamic and operational capabilities in service business development (Gebauer et al., 2013). These papers generally emphasised the corporate decisions towards servitization and examined that comprehensive understanding of the service market helps managers to realise that services can generate a major part of the value proposition in manufacturing companies.

The general theme of the papers in the business level content is the links between the operational activities of organisations' business units and transformation towards servitization. For instance, by conducting several case studies Johnson and Mena (2008) explored the challenges and opportunities that face the supply chain management activities within organisations that are pursuing a servitization strategy. In addition, significant evidence exists in addressing the convergence of crafted operational configuration and advanced technologies ([Baines and Lightfoot, 2013b](#)). The research contribution at the functional level has focused on the specific functional aspects of an organisation including sales, marketing, communication, etc. In this regard, Turunen and Toivonen (2011) examined the relationship between servitization and customer relationship management. They argued that although earlier literature has emphasized the positive effects of a separate service unit, their comparative case study indicates that a separate unit as such does not guarantee success in service business.

Research exploring the 'Context' of servitization

Papers grouped under this category offer contributions on the factors that determine why organisations carry out servitization and who influence the management decisions. We take into account the inner context variables and the outer context variables to synthesise the contributions of identified papers. Papers in the inner context principally focus on the impacts of internal situations/environment on the transformation towards servitization. Concerning the organisational structure, [Oliva et al. \(2012\)](#) suggested that the creation of a separate service organisation as a profit centre has a significant positive mediating effect on the managerial commitment towards delivering advanced services. Several other studies concentrated on the strategic directions of the organisation. Specifically, strategic directions to maintain revenue streams and improve profitability ([Baines et al., 2009a](#)), and the co-creation strategies that firms would follow in order to become financially sustainable while moving towards servitization.

Complementary to the inner context, we also examined the existing studies covering the effects of external factors on servitization. On the political level, the studies mainly focused on describing the impacts of political determination on the institutional characteristics of organisations that facilitate or hinder the efforts towards delivering advanced services ([Mont, 2004](#)). Several studies examined the economic implications of servitization, covered from firm-level competitive bidding for service contracts, to national level GDP growth in developing and emerging economies, to re-shoring benefit in advanced economies. Moreover, a number

of papers prescribed servitization as a promising business model in addressing environmental and social challenges (Gaiardelli et al., 2014). Some studies have also tackled environmental, sustainability issues, by examining Life Cycle Analysis (LCA) based methods that can be applied to extend producer responsibility in addressing balanced economic and environmental benefit. Moreover, some studies examined the influence of the industry on the adoption of advanced services. For instance, Turunen and Finne (2013) adopted contingency theory and organisational ecology theory, and evaluated the propositions including the effects of population density, competing populations, resource dependency, and institutional linkages.

Research exploring the 'process' of servitization

These papers are categorised into five specific themes under the process. We identified a number of studies that examined the role of business models and business model innovation in achieving organisational change towards servitization. Concerning the start-end point of servitization, the selected studies have offered very different perspectives, involving sequential perspectives and an organic development approach. The sequential approach point out service maturity stages: (1) the methods based, decoupled stage; (2) the asset-based, semi-integrated stage; and (3) the services-based, integrated stage (Howard et al., 2014).

Several studies have concentrated on the enabling role of technology for servitization adoption. Studies also proposed the role of technologies impacts upon evolution of sales organisation. For instant, improvement in customer contact through the use of ICT and precision analytics, has transformed traditional sales into customer-focused organisation and global account management teams (Sheth and Sharma, 2008). Related to formulation/implementation strategy process, some authors proposed key constructs related to product-service bundles development, examined typologies of product-service bundles, evaluated the structure and sequence of the phases to develop those bundles, and analysed delivery approaches to address customers.

Discussion

There is not any theoretical framework developed to analyse Servitization through the perspective of an organisational change process. Even when there are a vast number of theoretical models available in the general field of organisational change, there is a need to develop such a model in the specific case of servitization studied as an organisational change process. In this regard, CCP perspective is a comprehensive framework that allows embracing the core dimensions of servitization to the specific domain of organisational change. Based on the findings of the literature review within the CCP framework, papers could be classified into each of the main subcategories, Content, Context or Process, according to their main research contribution. For example, the analysis of papers classified into the Content subcategories reflects that servitization affects to different level of activities within an organisation. In the frame of the CCP perspective, those subcategories are functional, business, corporate and network levels, and the literature review shows that servitized firms need the commitment of the entire organisation as it is effectively affected in all its levels.

Analysing the four content subcategories, we have identified a higher proportion of descriptive studies, particularly concentrating on the business and network level. Between the main key topics analysed, it is possible to find papers studying the role of CRM, the effect of servitization on financial performance or networked impact. With regards prescriptive papers, [Baines et al. \(2009a\)](#) adopt structural and infrastructural perspectives in operations management; they captured a set of operations principles, structures and processes that serve as a practical guide for a manufacturer in the delivery of product-centric serviced offering. Covering network level, there are some prescriptive studies that explore the supply chain's ability to provide industrial services, Moving on to the corporate level, papers are proposing

that the industrial equipment and machinery manufacturers need to consider retaining the ownership in selling capabilities or Performance-based contracts.

Context analysis are those factors that determine why organizations carry out servitization and who influence management decisions. Considering inner and outer context variables, most of the contingency factors in the organisational environment affect servitization. In the particular analysis of inner context, most of the papers are focused on the strategic directions and structural dimensions related to the servitization decisions. Power dynamics, level of trust, or stage of board development have not been analysed under a descriptive or prescriptive way. With regards outer analysis, most of the papers are focused on the economic and industrial aspects of servitization. In contrast, a very limited number of papers examine the social, environmental, or political dimensions. Moreover, we were unable to locate studies addressing the technological, regulatory or ownership structures in both a descriptive or prescriptive orientation.

With regards to the servitization process analysis, literature review emphasises the importance of formulation/implementation of strategy and the prominent role of business models and technology/innovation. Nevertheless, models of change –as methods to asset the effect of strategy implementation on a regular base– have the final objective of increasing performance. There are few papers analysing the final effect of servitization strategy on performance, and the results are contradictory. Besides, there is an important lack in papers studying the start-end point analysis, claiming for further research on monitoring firms before and after servitization implementation. In summary, we found that most of the studies are concentrated on the servitization design, delivery and procurement processes, business models and innovation, scenario simulations, decision making process, or new service development, being done with limitations the analysis of the marketing processes related to the final customer, that is, the analysis of the visibility of the entire value chain with the final customer included.

Contributions and Future Studies

The principal contribution of this paper is itself an agenda for future work. With this in mind we have not dwelt on identifying specific lines of enquiry on servitization. There are however two somewhat macro opportunities that we see for the servitization community, and these are as follows and pertain to the current overall body of knowledge on servitization.

- *Stronger infusion of generic theory into the servitization debate*; servitization is a cross-cutting theme, and many linkages exist with established topics across engineering and management. Our review has been constrained to the core literature on servitization, this having been completed, it would now be valuable to repeat this exercise to identify and draw links with established theoretical contributions in allied areas.
- *Exploring servitization in action through the lens of the theoretical framework*; in particular, a macro study that dynamically compared and contrast, the processes of industrial transformation, with the knowledge base captured in the theoretical framework. Many facets of servitization would be reviled, some of which would undoubtedly be dealt with by contributions captured in the framework, but there would also be others that do not feature. This process would not only lead to identifying specific research opportunities, but also enable the theoretical framework itself to be refined.

Furthermore, as discussed, we find it helpful to view research contributions that are setting out to be either ‘descriptive’ or ‘prescriptive’. Consequently we propose the following opportunities for descriptive research to better understand the:

- Effect of servitization implementation on the performance of the firm. In particular, model the relationship between variables such as product maturity, regulatory and fiscal environment, installed base, size of organisation, and competitors.
- Importance of outer context of the firm on the adoption of servitization. In particular, political characteristics, level of intra-organisational trust, social implications of servitization, and overall risks.
- Forms of servitization. Our ideas are coalescing around services being either base, intermediate or advanced, but tactically what are the routes that manufacturers follow?
- Organisational transformation pathways. How do manufacturers innovate? What barriers do they encounter? How do they navigate these? What lessons do they ultimately learn that can be generically applied?

Prescriptive research should help to better deal with:

- Identify the opportunities for value creation within customers. How to assess the role of business partners and technology providers.
- Messaging and demonstrating value to the customer and within their own organisation. How to evidence value and how to communicate this to stakeholders within the organisation, customers and financial sponsors.
- Acquisitions, alliances and mergers. How to identify opportunities and threats to intellectual property. How to deal with technology partners, especially for ICT capabilities, and how to decide when to insource these.
- Risks and costs. How to identify possible risks, and how to model the costs associated with mitigating these. How to price offerings.
- Managing customers. How to identify and engage stakeholders at customers? How to educate them and communicate a value proposition based around servitization?

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