

The Practical Challenges of Servitized Manufacture

T. Baines, H Lightfoot

Cranfield Innovative Manufacturing Research Centre, Cranfield University, U K

Abstract

Servitization is now widely recognised as the process of creating value by adding services to products. Since this term was first coined in the late 1980s it has been studied by a range of authors who have specifically sought to understand the methods and mechanisms of service-led competitive strategies for manufacturers. This paper reports on the experiences of a large company as they have moved towards servitized manufacture. This has been based on an extensive series of interviews with key personnel. The results of the study and implications for research are all reported.

Keywords:

Manufacturing, Service, Case-study

1 INTRODUCTION

Servitization is now widely recognised as the innovation of an organisation's capabilities and processes, to better create mutual value, through a shift from selling product to selling Product-Service Systems [1,2]. Such a strategy is now widely advocated as a means by which western manufactures can face-up to the challenges of competitors in lower cost economies. However, few researchers have documented the associated consequences to the organisational design of the host manufacturer as they seek to pursue such a strategy. Therefore, this paper describes the experiences of a typical UK based manufacturer as they have adopted a servitization strategy.

The paper describes case based research that has sought to gain an in-depth and multi-disciplinary understanding of the implications of a servitization strategy. The targeted company (which we refer to under the pseudonym of ServCase) is a large manufacturer that, through the successes of integrated products and services, now generates a large portion of revenue from product-centric service contracts (i.e.: services that are tightly coupled to the product offering). Our research with ServCase has helped us to appreciate how servitization necessitates companies to make modifications ranging from the language they use to interact with customers, through to their organisation design. Such experiences, along with background to this topic and our research design, are all presented in this paper.

2 THE CHALLENGE OF SERVITIZATION

2.1 Defining servitization and Product-Service Systems

The first use of the term servitization came in 1988 from Vandemerwe and Rada in their article in the *European Management Journal* titled 'Adding Value by Adding Services'[3]. Here they defined servitization as the increased offering of fuller market packages or 'bundles' of customer focussed combinations of goods, services, support, self-service and knowledge in order to add value to core corporate offerings. Rightly or wrongly the terms service and product (goods) are intrinsically linked to discussions about servitization. The term 'product' is generally well understood by manufacturers. As Goedkoop [4] defines, a product is a tangible commodity manufactured to be sold, and quite simplistically is

capable of 'falling on your toe' and of fulfilling a user's needs. Invariably, in the world of manufacture, it is usually considered to be a material artefact (e.g.: car, boat, plane). Conversely, we will consider that services are an economic activity that does not result in ownership of a tangible asset.

The concept of a Product Service-System (PSS) is a special case of servitization. A PSS can be thought of as a market proposition that extends the traditional functionality of a product by incorporating additional services. Here the emphasis is on the 'sale of use' rather than the 'sale of product'. The customer pays for using an asset, rather than its purchase, and so benefits from a restructuring of the risks, responsibilities and costs traditionally associated with ownership. Similarly, the supplier/manufacturer can improve their competitiveness as these 'solutions' may be clearly differentiated from product based offerings while, simultaneously, retaining asset ownership which can enhance utilisation, reliability, design and protection.

2.2 Previous servitization research

Since this term was first coined servitization has been studied by a range of authors (e.g Wise & Baumgartner, [5]; Oliva & Kallenberg, [6]; Slack, [7]) who have specifically sought to understand the methods and implications of service-led competitive strategies for manufacturers. In addition, and somewhat independently, during this same period there has been a growth in research on the related topics of Product-Service Systems (PSS), Service-Science (SS) and Integrated Vehicle Health Management (IVHM). This increasing body of research indicates a growing interest in this topic by academia, business and government. One reason for this is the belief that a move towards servitized manufacture is a means to create additional value adding capabilities for traditional manufactures. Furthermore, that such services are distinctive, long-lived, and easier to defend from competition based in lower cost economies. Indeed, many governments see such moves downstream as key to competitiveness (see Hewitt, [8]). As a consequence, more and more western manufacturers are seeking an ever increasing percentage of their revenues from services [5]. However, there is some concern that servitized manufacturers could be in greater danger of bankruptcy and make lower returns in the longer-term [9].

Nevertheless, it is difficult to argue against a careful adoption of some services in certain situations.

To succeed with servitization a manufacturer is likely to need some new and alternative organisational principles structures and processes [6]. These may be different to those associated with traditionally product manufacture. For example, it may be insufficient to simply attempt to replicate the Lean principles of Toyota. This is an area of some contention amongst scholars as the adoption of Lean is often seen as the solution to tackling the poorer performers in the services sector. While this may be appropriate in some instances, authors such as Chase [10] argue strongly for reversing the trend of applying operational management based concepts in the services environment. They suggest that there is a subtle mix of organisational structures that are appropriate to a servitized manufacturer that are distinct and different to those associated with, either a more traditional product manufacturer, or a pure service provider. However, researchers have yet to fully understand the nature of these structures and their associated issues.

3. RESEARCH DESIGN

The aim of the research presented in this paper has been to gain a deeper understanding of the issues that arise when a servitization strategy is followed in real-life. Specifically, we have set out to investigate a "servitized organisation" that designs, builds and delivers integrated product and services, and to identify the challenges they are encountering in the pursuit of such a strategy.

Our method has been to carry out an in-depth and multi-disciplinary case-study analysis. The choice of case company was critical to this study, as we sought to investigate a manufacturer who has a track-record of achieving business success through providing a portfolio of product related services. Therefore, our case study organisation is a UK based OEM that designs and manufactures high value capital equipment for the power, defence and aerospace markets. For reasons of confidentiality and in order to give us greater freedom to discuss our results and findings, we refer to the company as 'Serve Case'. The company, which operates globally and today generates over 50% of revenues from the provision of services that are closely coupled to its products. Whilst ServeCase continues on its servitization journey, it is sufficiently advanced to provide a basis for exploring the characteristics of an operations strategy in this evolving context. This case study has taken place from June-November in 2007. During this time we have worked with seasoned researchers from across the disciplines (engineering, manufacturing, management). Our approach has been first to develop a history map with ServCase to understand how they have arrived at their servitization strategy. Then working in pairs, researchers have conducted interviews with key personnel from across the organisation (e.g. marketing, customer support, engineering, manufacturing operations, and supply chain) and captured their views on how the organisation operates and the issues they are facing. Each interview was recorded and then transcribed. These were then analysed using mind-mapping techniques to identify the common issues arising across the organisation. It is these issues that are the principal findings of this study, and these are presented in the following section.

4. SUMMARY OF KEY FINDINGS

4.1 Emergence of Servitization at ServCase

ServCase provides capital equipment products, and often offers these with a broad range of services that ensure asset availability via a risk and revenue sharing contract. While the origin of this business dates back to the early 1990s it really only took shape in the early 2000s. This market proposition emerged in response to customers who sought to offset their repair and overhaul costs and responsibilities for products. Similarly, ServCase sought to prevent component suppliers attacking their lucrative aftermarket. To counteract these significant threats, ServCase's initiated a series of Joint Ventures (JVs). Since then, their services business has grown to such an extent that over 50% of company revenues are now derived from such contracts. The changes issues that have arisen as a consequence of this transition from traditional manufacturer are summarised as follows.

4.2 Language is particular and peculiar

One of the most striking differences at ServCase is the everyday language used by the employees in the delivery of services. Whereas with a conventional manufacturer personnel use (and fully understand) nomenclature such as product, part and component they may only loosely understand the term service. As a noun, the word 'services' usually refer to the offering (e.g.: maintenance, repair, insurance) and a single offering is a service. However, as a verb, service can also be used to refer to a level of performance (e.g.: the company provided good service). This is only one example of many words and phrases whose semantics take on particular and specific meanings. This distinction appears strongest amongst personnel who deal most closely with customers of services. Future challenges are, therefore, to make such language pervasive throughout the organisation.

4.3 Value dimensions are special

One reason that language changes, is that a servitized product offering is different. At ServCase the nature of the boundary with the customer changes from being bias towards transactional to that of relationship. Traditional manufacture tends to take a linear view of product production (by the manufacturer) which is then sold (a transaction) to the customer for their use (consumption). However, when ServCase deliver an integrated product and service there tends to be a series of 'touch points' between the host business and customer. For example, initial contract negotiation may be lengthy; monitoring of the asset in use may be carried out by the business; this may lead to servicing of the product by the business; and finally the host may take-back the product at end-of-life. While the product itself may still be sold to the customer (as is the case with ServCase) the associated services are more closely associated with a relationship business model. Hence, servitization tends to combine both transactional and relationship business models and, most importantly, revenue, profits and cash flow arise mainly from the relationship aspects of this model.

The metrics used to define value offered to the customer vary to reflect the changing business model. This is particularly apparent in the measures employed to assess performance. Conventional manufacture will frequently focus on QCD (Cost, Quality and Delivery) associated with product families. Here, quality conformance will typically be assessed in terms of reject components; cost will be comprise of labour, materials and overheads; and delivery performance will tend to be assessed in terms of due-date performance. With services at ServCase, value becomes more associated with asset use, rather than sale or repair, then the appropriate measures can be subtly different. Quality becomes associated with reliability of services in the field; cost can include

penalties incurred through asset down-time; and lead-time may become more critical. Here, a future challenge is to precisely define, distinguish and communicate the key performance measures

4.4 Products and design process are different

As the value proposition changes, then product designs at ServCase have also altered to reflect the balance of value gained through asset use rather than more simply artefact ownership. As mentioned above, ServCase sell their product, and offer complementary services to assure asset availability. As significant revenue is generated through services, their products incorporate a facility for remotely sensing performance in the field. Here, extra cost is added to product manufacture which can not be recouped at point-of-sale, but rather relies on the customer taking-up the service contracts offered. This is typical of the many product features that are introduced to aid maintenance and servicing to support asset availability in the field.

Design process also differ. Traditionally, product designs are conceptualised remotely, prototyped and refined, and then put into practice. With services, prototyping tends to take place through application. Here, one danger is, as ServCase have found, for engineers to attempt to apply conventional product design processes. Understanding more about how these processes differ is a considerable future challenge.

4.5 Integrating service and product delivery systems is challenging

As with product designs, the organisational design required to support the value proposition also changes. The conventional view of materials flowing into a factory, through production, to be consumed by the customer is does not adequately describe ServCase. While a small portion of this somewhat uni-directional material flow does occur, there is also super-imposed a complex service delivery system that monitors and supports the asset in use. This system transcends the traditional internal / external barriers of the host business; instead calling on partners and suppliers to affect the delivery of the required service.

This delivery system is directly impacted by the relational component of the business model and associated performance measures (as outlined in section 4.3). These requirements are so particular, that ServCase has decoupled this delivery mechanism from their more conventional production system. However, they recognise that as business pressures increase, sharing of resources and knowledge, are likely to necessitate these systems to be more tightly integrated. How to achieve this is a topic of some debate within the organisation.

4.6 Transformation issues are both particular and pervasive

ServCase illustrates a manufacturer that, in the adoption of a servitization strategy, is encountering changes to language, value, along with designs of product and organisation. Throughout this case, time and time again, we have been made aware that one of the biggest challenges that ServCase are facing is transformation. Sections 4.2 – 4.4 above summarise how across the organisation and its broader supply chain ServCase has changed, and continues, to change. Against each of these strands ServCase is defining new design paradigms, and each of these introduce particular challenges to the mind-sets of customers, employees, and suppliers. For example, educating employees in the language of service, changing process to better suit the nature of service design, and adopting integrated product and service delivery systems. Understanding the specific

transformational issues, and how to overcome these, is a principal future challenge.

5. CONCLUDING REMARKS

ServCase is one example of a UK company that has adopted a servitization strategy. Our work here has given us a much clearer understanding of the particular issues that are arising as ServCase attempts to deliver integrated products and services successfully. In brief, these are:

- Language used in service is particular and peculiar.
- Value dimensions are special and biased towards relationships rather transaction.
- Products and design process are different and better enable service support.
- Integrating service and product delivery systems is challenging.
- Transformation issues are both particular and pervasive throughout customers, employees, partners and suppliers.

There is little to suggest that these issues are particular to the ServCase business or sector. However, for completeness, our future work will now look externally to this organisation to carryout a complementary investigation of the suppliers, partners and customers of ServCase. In conducting such an investigation we look forward to further developing our understanding of the challenges faced through servitization, and reporting these in future papers.

6. ACKNOWLEDGEMENTS

We wish to acknowledge the support of the Engineering and Physical Sciences Research Council for their support in carrying out this work. Also, we are grateful to our colleagues Professors Evans and Neely for their work in setting-up and managing the case study on which this paper is based.

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