

SERVITIZATION CAPABILITIES FOR ADVANCED SERVICES: A MULTI-ACTOR PERSPECTIVE

Chris Raddats
University of Liverpool Management School,
University of Liverpool,
Chatham Street,
Liverpool,
L69 7ZH, UK.
C.Raddats@liverpool.ac.uk

Jamie Burton, Judy Zolkiewski
Manchester Business School,
University of Manchester,
Booth Street West,
Manchester,
M15 6PB, UK.
Jamie.Burton@mbs.ac.uk,
Judy.Zolkiewski@mbs.ac.uk

Vicky Story
Nottingham University Business School,
University of Nottingham,
Jubilee Campus,
Nottingham,
NG8 1BB, UK.
Vicky.Story@Nottingham.ac.uk

Tim Baines,
Howard Lightfoot
Aston Business School
Aston University,
Aston Triangle
Birmingham, B4 7ET
T.Baines@aston.ac.uk

ABSTRACT

Servitization is the process by which manufacturers add services to their product offerings and even replace products with services. The capabilities necessary to develop and deliver advanced services as part of servitization are often discussed in the literature from the manufacturer's perspective, e.g., having a service-focused culture or the ability to sell solutions. Recent research has acknowledged the important role of customers and, to a lesser extent, other actors (e.g., intermediaries) in bringing about successful servitization, particularly for use-oriented and results-oriented advanced services. The objective of this study is to identify the capabilities required to successfully develop advanced services as part of servitization by considering the perspective of manufacturers, intermediaries and customers. This study involved interviews with 33 managers in 28 large UK-based companies from these three groups, about servitization capabilities.

The findings suggest that there are eight broad capabilities that are important for advanced services; 1) personnel with expertise and deep technical product knowledge, 2) methodologies for improving operational processes, helping to manage risk and reduce costs, 3) the evolution from being a product- focused manufacturer to embracing a services culture, 4) developing trusting relationships with other actors in the network to support the delivery of advanced services, 5) new innovation activities focused on financing contracts (e.g., 'gain share') and technology implementation (e.g., Web-based applications), 6) customer intimacy through understanding their business challenges in order to develop suitable solutions, 7) extensive infrastructure (e.g., personnel, service centres) to deliver a local service, and 8) the ability to tailor service offerings to each customer's requirements and deliver these responsively to changing needs.

The capabilities required to develop and deliver advanced services align to a need to enhance the operational performance of supplied products throughout their lifecycles and as such require greater investment than the capabilities for base and intermediate services.

KEY WORDS: Advanced Service Actors, Interviews, Capabilities

1 INTRODUCTION

Servitization has been heralded as a means for manufacturers facing increasing commoditization of their product offer to achieve competitive advantage and create improved customer value (Baines *et al.* 2009; Vandermerwe and Rada 1988). Servitization is increasingly being recognized as a network activity, particularly for the delivery of advanced services, also referred to as use- or results-orientated product-service systems (PSSs) (Tukker 2004). This involves value adding processes being delivered by actors beyond the focal manufacturer (Kowalkowski, Kindström and Witell 2011). Thus, in order to successfully servitize, manufacturers must focus on evolving capabilities that encompass the mobilization of network actors.

Servitization capabilities are often discussed from the focal manufacturer's perspective (e.g., Ulaga and Reinartz 2011). The general presumption is that manufacturers assume responsibility for activities previously performed by customers (Mathieu 2001; Spring and Araujo 2013). A significant problem with such an approach is that manufacturer's internal capabilities are often inadequate to fully address servitization (Paiola *et al.* 2012). There is, however, limited empirical research addressing how manufacturers work with partners in order to provide services (Raddats *et al.*, 2013). Hence, this study aims to investigate the manufacturer, intermediary *and* customer perspectives on the capabilities necessary for successful servitization.

2 THEORETICAL FRAMEWORK

2.1 Advanced Services

A number of commentators have developed service typologies. Mathieu (2001) identified services supporting supplier's products (SSP) and services supporting client activities (SSC). Oliva and Kallenberg (2003) developed a hierarchy from basic product-orientated services (e.g., product installation) to advanced services (e.g., process orientated consulting). Baines (2013) delineates 'base' services (e.g., spare parts), intermediate services (e.g., maintenance, repair and overhaul [MRO]) and advanced services (e.g., availability contracting). Baines and Lightfoot (2013) define advanced services as: "*a capability delivered through product performance and often featuring; relationship over (an) extended life-cycle, extended responsibilities and regular revenue payments*" (p.22).

The delivery of advanced services in particular has a large impact on customers, enabling them to perform new business processes (Baines 2013). However, they are also more likely to require an integrated network of providers, acting together, to generate the required capabilities to create such a novel value outcome.

2.2 Capabilities For Advanced Services

Capabilities for servitization were historically derived by the OEM through its comprehensive product knowledge and intellectual property rights (IPR). OEMs possess highly developed product-related expertise which facilitate the delivery of multiple product-related offerings (Ulaga and Reinartz 2011). However, for a manufacturer to offer advanced services, new capabilities are needed, e.g., risk management (Baines 2013) and the ability to develop and price advanced services on a risk/reward basis (Baines 2013; Cova and Salle 2008). If activities previously performed by the customer are taken over, then the manufacturer also needs to develop new service methodologies or processes (Paiola *et al.* 2012). Advanced services may also require the firm to integrate products from multiple vendors (Davies, Brady and Hobday 2006). In order to achieve this, manufacturers may need to develop relational/partnering capabilities, working with partners in their network (Baines and Lightfoot 2013; Gebauer, Paiola and Saccani 2013; Storbacka 2011). Therefore, a manufacturer can pursue the 'internal' development of capabilities, or look to its wider network (Araujo, Dubois and Gadde 2003; Spring and Araujo 2013) to pursue the 'external' development (development outsourced to suppliers/partners) or take a 'mixed' approach (co-developing capabilities with customers/partners) (Paiola *et al.* 2012). For advanced services, it is more likely that a 'mixed' approach to capability development is required, since advanced services generally result in a customer being better able to perform a business process (Baines 2013).

3 METHODOLOGY

A qualitative approach was adopted for this study due to a general paucity of understanding of the nature of the problem and an associated requirement for exploratory research to develop understanding of the underlying causes of human action (Miles and Huberman, 1994). Thirty-three semi-structured interviews were conducted with senior executives across 28 organisations that have experienced a servitization process either as prime manufacturer (19), customer (11) or as an intermediary (3). In the first instance Managing Directors (MDs) of the manufacturers were contacted and they were either interviewed or provided guidance on who to interview within the organization (Directors of Sales, Operations, Strategy, Service Development or similar). At the customer organisations the MD or Operations/Supply Chain Director were interviewed. All the firms were UK based, Business-to-business (B2B) organisations purposively sampled across a range of sectors in order to build a representative sample of high-profile industrialists capable of delivering an informed opinion on the capabilities driving servitization and particularly advanced services delivered by a network of actors across multiple contexts. The manufacturers targeted were organisations with a clear manufacturing heritage and track record of technological innovation that also now offer 'advanced services'.

Independent semi-structured interview guides were developed for the interviews, including questions addressing definitions of servitization in the context of the respondents firm, organizational change necessary to adopt servitization, and enabling/inhibiting factors for the exploitation of servitization. Of the 28 organizations a sub-set of 10 were selected in dyadic relationships with each other (manufacturer-customer) in order to explore capabilities from dual perspectives. Respondents were encouraged to talk in detail about their organizational servitization experiences in context, resulting in 'narratives' and 'stories' (Gabriel and Griffiths, 2004). The resulting transcripts were sense checked by respondents and then thematically coded by the research team. A template analysis approach was adopted (King 2004); loose *a priori* capability codes were developed from literature (Dubois and Gadde, 2002) and applied as an initial template, which was then developed and added to during the research as recommended by King (2004). Parallel data coding was carried out; with some segments of text classified within more than one code (King 2004). The template, developed from analysis of the contextual narratives of servitization experience, enabling the researchers to code emerging capability themes via detailed reading and re-reading of the text (Crabtree and Miller 1999; King 1998).

4 RESULTS

The findings suggest that there are eight broad capabilities that are important for servitization, which are discussed below:

Technical expertise

Manufacturers' service engineers will generally have strong technical knowledge of their own products. Intra-company links between services and product engineering should provide a differentiator, enabling a manufacturer to offer more exclusive services than service provider firms or other OEMs without these links. Manufacturers and Intermediaries should also have good technical knowledge of products from other OEMs that they supply:

"We provide the engineering capability, we have a test facility, we do MRO ... but what we don't have is a product" (Intermediary, Aerospace sector).

Clearly for manufacturers, this knowledge is likely to be less exclusive than for their own products.

Customer-focused methodologies

Our data supports the idea that offering advanced services can require manufacturers to develop service methodologies that align to customers' processes. Technical expertise concerning products

must therefore be coupled with knowledge of how customers perform product-related activities, e.g., operations and maintenance:

“We are working with them in a long-term relationship to help optimise how we run the laboratories from a process point of view.” (Customer, Health sector).

Ultimately, manufacturers must be able to offer customers an improvement on what they can do themselves or what competitors can offer, in terms of cost, service quality and innovation.

An implication of providing customer processes is that the contractual relationship between the manufacturer and customer might change, with ‘gain share’ or risk/reward contracts more prevalent. Manufacturers need to be able to assess and manage risk for these offerings and price them in such a way that they are attractive to customers, but are still profitable. A key element here is that manufacturers and customers need to have an agreed set of operational data on product performance on which such services can be based.

Developing a services culture

In order to deliver advanced services there is a need for manufacturers to shift to a more service orientated organisational culture:

“So if you were to take a design and manufacturing company and go into the service sector there’s undoubtedly got to be a large cultural change.” (Manufacturer, Defence sector).

Developing a service culture is often quite difficult for manufacturers who are used to designing and building complex high-value products, e.g., talented engineers might view their future careers in product engineering rather than services. Thus, senior managers need to carefully re-position the new company focus in the minds of all stakeholders, e.g. employees, customers, shareholders and identify potential blockages in terms of processes and rewards structures that might inhibit the new culture from flourishing.

Thus, designing and implementing suitable service processes becomes not just a technical issue, but one requiring the recruitment of qualified engineers with the willingness and aptitude to work in a more service-oriented, customer-focused environment.

Network relationships

Offering advanced services fundamentally requires very strong and trusting customer relationships:

“Having the relationship is pretty much key to our success” (Intermediary, Construction equipment)

Genuine partnerships are required to enable manufacturers to understand those elements of the customers’ businesses for which improvements can be made. Trusting relationships may evolve through an appreciation of each other’s values, rather than simply an appreciation of a track record.

Relationships with other actors in the network are also important, with partnerships between OEMs allowing the scope of advanced services to be extended, if one acts as the prime contractor. If OEMs are to work together then trusting relationships are critical, with both parties needing a strong partnering ethos, with an acceptance that one company often cannot develop and deliver advanced services alone.

Relationships between a service provider (without their own product portfolio) and an OEM can also be important as the parties might be able to work together better than two OEMs, for whom competitive issues might dominate the relationship.

Service innovation

Service innovation will often start with new customer requirements, perhaps to reduce costs or to perform an activity in a better way:

“Our technology people meet with them regularly ... we also discuss innovations with them on a regular basis” (Customer, Government sector).

Manufacturers are likely to need to develop new methodologies to enable customers to perform their processes more innovatively. For example, Web-based technology including telemetry can enable a manufacturer to better manage the installed product base and react quickly in the event of outages or faults.

Customer intimacy

Having an intimate understanding of the customer’s business challenges is a key requirement:

“They understood what we were on about and how we were developing” (Customer, Government sector).

To achieve this, the manufacturer’s account managers need to be able to understand what these problems and requirements are in order to deliver effective solutions.

Services infrastructure

Having an extensive service infrastructure local to the customer can also be a differentiator, be it offices, engineers or even holdings of spare parts:

“(We) see it as being important to participate more locally, closer to our customers and we’re benefiting from that.” (Manufacturer, Power sector).

For the largest customers, a manufacturer might locate its service engineers in the customer’s site to provide fast resolution to problems encountered.

A manufacturer might also develop a large-scale service capability, perhaps off-shored to dedicated service centres, to achieve a critical mass for delivering that service. Off-shoring can help to deliver efficiencies and cost savings which might not be possible by the customer alone. These service centres might undertake a range of back-office functions, such as technical support and software design.

Tailored and consistent service offerings

Manufacturers need to provide consistent and timely service offerings. Providing a degree of flexibility in the service offerings can also be seen as an important requirement for manufacturers:

“It’s ability to respond, it’s the ability of them to fix whatever needs to be fixed” (Customer, Transportation sector).

Whilst complete flexibility is unlikely to be possible, having a degree of modularity in each service offering (e.g., differing response times) will allow customers to select the one most suitable for them and allow variation as their requirements change.

5 DISCUSSION

5.1 Implications For Theory

The study's aim was to investigate the capabilities demonstrated by firms developing advanced services. Initial findings show eight capabilities for developing and delivering advanced services. Whilst some previous studies have identified capabilities for servitization (e.g., Storbacka 2011), this study is one of the first to specifically address capabilities for advanced services. Given that these services should enable customers to better perform their business processes (Baines 2013), the capabilities that underpin them are necessarily relational in character and may require deeper investment in people, technology and infrastructure than base and intermediate services. By offering advanced services firms also need to develop new approaches to service specification, delivery and payment (Baines and Lightfoot, 2013).

The study highlights differences in capabilities between manufacturers and intermediaries, e.g., manufacturers have deep product knowledge of their own products, whilst intermediaries are able to build infrastructure close to the customer, which a manufacturer might not be willing or able to do. Additionally, the study identifies the same set of eight capabilities as being important to customers; providing verification of their importance.

Template analysis has facilitated the identification of overlapping and related capabilities for the provision of advanced services. Future research should investigate how separate actors collaborate to develop network capabilities (Raddats *et al.*, 2013) that are more effective than what could be achieved independently. This should involve further investigation of how relational activities and balanced innovative capabilities can be developed to deliver successful advanced services.

5.2 Implications For Practice

Managerial implications of this research include the need for manufacturing firms to balance the need to retain personnel with deep technological product knowledge whilst at the same time implementing organisational change that creates an improved service-centric culture. This may require retraining or exiting staff, or recruitment of new staff versed in solution selling or designing and implementing service methodologies. Equally, a clear managerial lead is required to re-position the company as a provider of advanced services in the eyes of its key stakeholders, be they customers, employees, suppliers and intermediaries or shareholders. Identification of the eight capabilities offers a guide of where managers should focus investment for advanced services.

In terms of providing tailored solutions, it is also clear that firms should develop innovative service methodologies and infrastructure in order to improve customers' operational processes, reducing risk and controlling costs. Manufacturers and intermediaries potentially possess complementary but distinct capabilities for the provision of advanced services. Whilst customers may value the expertise that manufacturers, intermediaries or a combined network can provide, they are only likely to want these advanced services if they offer clear benefits over what can be provided in-house or by competitors.

REFERENCES

- Araujo, L., Dubois, A. and Gadde, L. 2003. "The Multiple Boundaries of the Firm", *Journal of Management Studies*, vol. 40, no. 5, pp. 1255-1277.
- Baines, T.S. 2013. "Servitization Impact Study: How UK based manufacturing organisations are transforming themselves to compete through advanced services", 22nd May. Available at: www.aston-servitization.com/publication (accessed on 03/-3/2014).
- Baines, T.S. and Lightfoot, H.W. 2013. "Servitization of the manufacturing firm. Exploring the operations practices and technologies that deliver advanced services", *International Journal of Operations Management*, vol. 34, no. 1, pp. 2-35.
- Cova, B. and Salle, R. 2008. "Marketing solutions in accordance with the SD logic: Co-creating value with customer network actors", *Industrial Marketing Management*, vol. 37, no. 3, pp. 270-277.
- Crabtree, B.F., and Miller, W.L. 1999. Using codes and code manuals: A template organizing

- style of interpretation. In: B.F. Crabtree & W.L. Miller (Eds.), *Doing qualitative research* (2nd ed., pp. 163–178). Newbury Park, CA: Sage.
- Davies, A., Brady, T. and Hobday, M. 2006. "Charting a path toward integrated solutions", *MIT Sloan Management Review*, vol. 47, no. 3, pp. 39.
- Dubois, A., & Gadde, L.-E. 2002. "Systematic combining: An adductive approach to case research", *Journal of Business Research*, vol. 55, no. 7, pp. 553–560
- Gabriel, Y., and Griffiths, D. 2004. Stories in organizational research. In: C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 114–126). London: Sage.
- Gebauer, H., Paiola, M. and Saccani, N. 2013, "Characterizing service networks for moving from products to solutions", *Industrial Marketing Management*, vol. 42, no. 1, pp. 31-46.
- King, N. 1998. Template analysis. In: C. Cassell & G. Symon (Eds.), *Qualitative methods and analysis in organizational research*, (pp. 118–134). London: Sage.
- King, N. 2004. Using templates in the thematic analysis of text. In: C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 256–270). London: Sage.
- Kowalkowski, C., Kindström, D. and Witell, L. 2011, "Internalisation or externalisation?: Examining organisational arrangements for industrial services", *Managing Service Quality*, vol. 21, no. 4, pp. 373-391.
- Mathieu, V. 2001, "Product services: from a service supporting the product to a service supporting the client", *Journal of Business & Industrial Marketing*, vol. 16, no. 1, pp. 39-61.
- Miles, M.B., and Huberman, A.M. 1994. *Qualitative data analysis* (2nd ed., pp. 10–12). Newbury Park, CA: Sage.
- Oliva, R. and Kallenberg, R. 2003. "Managing the transition from products to services", *International Journal of Service Industry Management*, vol. 14, no. 2, pp. 160-172.
- Paiola, M., Saccani, N., Perona, M. and Gebauer, H. 2012. "Moving from products to solutions: Strategic approaches for developing capabilities", *European Management Journal*, available at: www.dx.doi.org/10.1016/j.emj.2012.10.002. Accessed 18th March 2013.
- Raddats, C., Story, V., Burton, J. and Zolkiewski, J. 2013. "The role of relationships in developing product service systems", *Proceedings of the 1st Spring Servitization conference*, Aston University, pp.89-94., ISBN 978 19058 66656. Available at: www.aston-servitization.com/publication (accessed on 03/03/2014).
- Spring, M. and Araujo, L. 2013. "Beyond the service factory: Service innovation in manufacturing supply networks", *Industrial Marketing Management*, vol. 42, no. 1, pp. 59-70.
- Storbacka, K. 2011. "A solution business model: Capabilities and management practices for integrated solutions", *Industrial Marketing Management*, vol. 40, no. 5, pp. 699-711.
- Tukker, A. 2004. "Eight types of product service system: eight ways to sustainability? Experiences from SusProNet", *Business Strategy and the Environment*, vol. 13, no. 4, pp. 246-260.
- Ulaga, W. and Reinartz, W.J. 2011. "Hybrid offerings: how manufacturing firms combine goods and services successfully", *Journal of Marketing*, vol. 75, no. 6, pp. 5-23.
- Vandermerwe, S. and Rada, J. 1988. "Servitization of business: Adding value by adding services", *European Management Journal*, vol. 6, pp. 314-324.