# NAVIGATING THE 'BENDS IN THE ROAD': A LONGITUDINAL STUDY OF HOW A MANUFACTURER UNDERTAKES THE SERVITIZATION JOURNEY

Chris Raddats, Jamie Burton, Vicky Story & Judy Zolkiewski

**ABSTRACT**

**Purpose:** To investigate how manufacturers undergoing servitization overcome the challenges of making this business transformation.

**Design/Methodology/Approach:** A longitudinal study using a single case is presented, with data collected at two time points, at the start of, and during the transformation.

**Findings:** ChemCo is not pursuing a 'traditional' servitization journey towards a service-focused state. The original culture/ characteristics of ChemCo and its market mean that some challenges are more significant than others. ChemCo's servitization journey is not smooth; the challenges create delays but organisational changes have also helped it to navigate some of these.

**Originality/Value:** The paper presents a description of how the case company recognises and acts to navigate key servitization challenges over time. In doing so, the case helps to illustrate why the servitization process can be disjointed and variable in pace, depending on external factors.

**KEYWORDS:** Longitudinal, Manufacturer, Servitization, Business Transformation

## 1. INTRODUCTION

Servitization is often presented as a transformational journey (Baines and Lightfoot 2013; Neely 2014). This journey has been characterised as a unidirectional transition as manufacturers increase relative percentages of services in their businesses (Mathieu 2001; Oliva and Kallenberg 2003). Recent research suggests that this journey is more complex (Kowalkowski et al. 2015; Peillon, Pellegrin and Burlat 2015; Turunen and Finne 2014); with many 'bends in the road', including how to enable cultural change within a traditionally product-centric organisation; how to develop service-based sales and implementation capabilities and procedures; and how to make services pay. Developing a service strategy is, therefore, a complex process for manufacturers that often occurs in discontinuous, incremental steps, due to the large-scale cultural changes required and exacerbated by market drivers, such as diverse customer requirements (Johnstone, Dainty and Wilkinson 2008).

Manufacturers' servitization journeys are generally investigated using cross-sectional studies, involving retrospective analyses of the decision-making that led to particular strategies, which are then generally presented as a series of linear steps (Penttinen and Palmer 2007; Raddats and Easingwood 2010). In reality, decision-making is likely to be more complex, with the challenges that manufacturers must navigate as they transform, creating more inconsistent transformation paths. Additionally, there is emerging recognition (Kowalkowski et al. 2015; Peillon et al. 2015) that some organisations develop new service offerings while retaining (in some form) product delivery capabilities. This suggests that the linear business transformation away from products to services, identified in many cross-sectional studies, may be inaccurate. This has implications for how manufacturers respond to the problems they encounter as they transform their businesses. If manufacturers' intent is to deliver value from both products and services, the resources and capabilities they aim to develop will differ from those they would develop if they were attempting a linear business transformation away from product delivery to focusing on value from services alone.

This study adopts a longitudinal approach, using a single case study. The study aims to investigate how a manufacturer undertakes a servitization transformation. Data is captured at two time points (over two years apart); (i) while services were part of a largely product-centric approach to the market and (ii) after the decision was made to focus on services as a strategic business, which resulted in the establishment of a services strategic business unit (SBU).

## 2. LITERATURE

### 2.1 Service Transitions
Much of the work on servitization has investigated how manufacturers become more service-focused. These papers have characterised service transitions (Ferreira et al. 2013; Mathieu 2001; Matthyssens and Vandenbempt 2010; Oliva and Kallenberg 2003; Penttinen and Palmer 2007; Raddats and Easingwood 2010; Wise and Baumgartner 1999) or service growth (Allmendinger and Lombreglia 2005; Auguste, Harmon and Pandit 2006). Literature also promotes moves towards manufacturers having new service-focused offerings. For example, Baines and Lightfoot (2013) set out how manufacturers could transition from offering 'base' (e.g., repair) and 'intermediate' (e.g., maintenance) services to offering 'advanced' (e.g., availability and performance) services, which include an element of risk/reward. Thus, manufacturers are encouraged to offer services which involve taking over elements of customers' operational processes (Brax 2005; Mathieu 2001), even though most manufacturers' traditional capabilities and expertise are focused on the products themselves rather than these processes.

Recent research has suggested this service transformation might not be linear, with Peillon et al. (2015) highlighting an example of a capital goods manufacturer retaining product-orientated capabilities, even if service growth is undertaken. Instead, many manufacturers adopt more than one service growth trajectory, and a unidirectional transition along the product-service continuum (Oliva and Kallenberg 2003) may not be applicable to all (if any) servitization transformations (Kowalkowski et al. 2015). Thus, manufacturers may actually develop a strategic portfolio of both products and services. Equally, manufacturers' service offerings may not move from one category (e.g., intermediate services) to another (e.g., advanced services), but instead manufacturers are likely to offer a range of services (Raddats and Kowalkowski 2014). Thus, there is a need to further explore how different types of manufacturers deploy resources and develop capabilities, when they are developing a portfolio of value offerings.

### 2.2 Servitization Challenges
In addition to the strategic portfolio arguments raised above, a number of challenges have been articulated in the literature that might also prevent a linear, uni-directional servitization transition. If we recognise that an individual manufacturer is attempting to strategically develop a balanced portfolio of product and service offerings, then we need to consider how these challenges impact the development of its key servitization processes. First, manufacturers' product heritage may mean that their senior managers' commitment to services is limited (Alghisi and Saccani 2015; Windahl 2015). Second, there are higher risks associated with developing advanced services than base or intermediate services (Benedettini, Neely and Swink 2015; Josephson et al. 2015). Third, manufacturers struggle to transform their organisational culture to become more service-focused (Barnett et al. 2013; Reinartz and Ulaga 2008) and this may be particularly true for organisations that deliberately retain product offerings. Fourth, manufacturers need to ensure that servitization is not just an internally focused transformation and that it also supports the needs of their customers (Alghisi and Saccani 2015). Fifth, manufacturers are increasingly working with other companies in their networks and direct competition with these actors needs to be minimised; for example, downstream intermediaries (Lofberg, Witell and Gustafsson 2015); potentially an issue if the manufacturer is developing a greater range of capabilities and offerings. Sixth, manufacturers may lack the requisite service-focused capabilities and processes to fully exploit servitization; for example

developing and launching new services or having a salesforce capable of selling services (Kindström and Kowalkowski, 2014; Ulaga and Loveland 2014). Seventh, manufacturers need to be able to scale their servitization efforts to reach a critical mass so that services are profitable (Fang, Palmatier and Steenkamp 2008) and this could be hindered if resources remain committed to delivering product offerings. Finally, manufacturers need to address the internationalisation challenge, and how services can be delivered in other countries (Neto, Pereira and Borchardt 2015).

### 2.3 Overcoming the servitization challenges

To address these challenges, the literature proposes a number of solutions (aligned to the previously identified challenges). First, manufacturers need to appoint leaders who can manage the transition to a more service-focussed business (Raddats, Burton and Ashman 2014). Second, to minimise risks, manufacturers need improved knowledge of in-service product performance and be able to commercially design and operationally deliver availability- or performance-based contracts (Alghisi and Saccani 2015; Datta and Roi 2011). Third, it might be that radical (rather than incremental) change is required to 'kick start' the introduction of a service culture in manufacturers (Barnett et al. 2013; Brax 2005). This might include setting up an independent service SBU, with service-focused personnel and targets (Davies, Brady and Hobday 2006; Oliva, Gebauer and Brann 2012). Fourth, manufacturers need to ensure that their customers are 'culturally ready' in order to understand the value that services, particularly advanced services, might bring to their businesses (Alghisi and Saccani 2015; Saccani, Visintin and Rapaccini 2015). Even if customers are ready (and often they will be demanding these services from their suppliers), the correct interfaces and processes need to be put in place so that advanced services can be integrated into customers' existing processes (Alghisi and Saccani 2015). Fifth, manufacturers need to work with other network actors to integrate resources and capabilities to develop new service offerings (Gebauer, Paiola and Saccani 2013; Lofberg et al. 2015). Servicing other OEMs' products is a potentially win-win situation for both the other OEM and the focal manufacturer (Raddats and Easingwood 2010). Sixth, manufacturers need to invest in building the capacity to develop and launch new services, and potentially, the ability to account for differences between new service development (NSD) and new product development (NPD) (Bettencourt and Brown 2013; Spring and Araujo 2013). Equally, it is important to recruit sales people or 'service champions' (or retrain existing staff) who can sell these new advanced services (Bettencourt and Brown 2013; Ulaga and Loveland 2014). Seventh, manufacturers need to overcome challenges linked to replicating often 'unique' service offerings for multiple customers; so, a degree of standardisation is required to ensure cost efficiencies and profitability (Ulaga and Reinartz 2011). Finally, manufacturers need to be aware of differing international market environments, including local regulations, new competitors and varying customer demands. They, therefore, need to develop country-specific implementation plans (Neto et al. 2015).

Eight servitization challenges, and possible solutions, have been presented from the literature. It is anticipated that the longitudinal design of this study will illuminate specific approaches to navigating these challenges utilising the following research questions:

**RQ1**: *Do ChemCo demonstrate a linear servitization transformation or a more complex approach?*
*RQ2: What challenges has ChemCo faced during servitization?*
*RQ3: How has ChemCo navigated the challenges of servitization transformation over time?*

### 3. METHODOLOGY

A longitudinal case design is adopted; ideally suited to researching change and development in a phenomenon (Bryman and Bell 2003). In particular, Pettigrew (1990) noted the importance of longitudinal studies in understanding the mechanisms and processes through which organisational change takes place. Indeed, the inclusion of a time dimension into the research process allows for stronger casual influences to be made (Bryman and Bell 2003). Case studies often include a longitudinal element (Bryman 2008); with a longitudinal single-case study particularly suitable to investigate how certain conditions have changed over time, with the time interval between data

collection stages needing to be long enough to allow the changes to be revealed (Yin 2009). The time period of over two years between data collection points in this study allowed us to interpret how the company is developing its strategic aims in terms of its offering portfolio and evolving its processes in response to the key challenges set out in section 2.2.

The purposively sampled single case (ChemCo) in this study is a manufacturer, embarking on its servitization journey in order to compete with two main competitors already offering services. Data collection was conducted before a decision to strategically focus on services was fully implemented, and then two years later after a full strategy had been formulated and once a separate services division had been set up. ChemCo is a global provider of chemicals and chemical recycling. Data was first collected in late 2013 and then subsequently with managers again in early 2016. The collected data was from interviews (three managers in 2013 and a customer in 2014 and three managers during the second stage in 2016), and an analysis of documentary evidence, including product portfolio information and website content. Multiple data collection methods made triangulation of evidence possible. Interview transcripts were coded using the eight servitization challenges and a summary, Table 1, is presented below outlining how recognition of, and action in response to, the challenges has evolved at ChemCo.

Longitudinal studies may suffer from attrition, whereby key personnel leave the organisation between different data collection stages (Bryman and Bell 2003). The key informant (the Product and Marketing Manager [PMM]) was interviewed during both stages. The other interviewees were different at each stage, and were chosen to provide the most valuable data about the company journey and actions at that time. Furthermore, in a longitudinal study, researchers must be aware that their involvement with an organisation might influence the findings (Bryman 2007). Thus, our methodology was designed to avoid this influence and the PMM was clear throughout that the primary driver for actions was the changing market conditions.

## 4. FINDINGS

Historically, ChemCo pursued a product-led approach. The organisation was in private ownership and was quick and flexible in decision making with respect to responding to customer needs. Thus, it developed a flat, entrepreneurial culture, where services were developed incrementally over time to facilitate product sales on a customer-by-customer basis; however, services were often given away free in the hope of making product sales. Customer feedback led to recognition that services had become an increasingly important offering within its portfolio and the organisation began to develop a strategy for servitization, investing in services infrastructure from around 2011 onwards. Between 2013 and 2016 ChemCo was bought out by a larger company. The buyout company saw value in strategically re-orientating the business to become both a product **and** service provider. A new head of services (HS) was appointed to direct a new service SBU, leading the servitization transformation: *"The main driver to move towards servitization is because we are a profit-orientated organisation. So that's obviously why the division was set up and the new HS was brought in"* (PMM). However, the product offering remains core to its business, thus the organisation now offers customers a portfolio of product and service offerings. While the organisation is undergoing a transformation in terms of developing new service capabilities, it is not on a linear transformative path to a service-only state: *"I think the important word here is 'extension'. We already have our (*product*) business and that's a field which is very competitive. We have a mother company who is ambitious and wants to grow by adding a service business. We see the opportunity to facilitate this growth being easier than in the existing (*product*) sales. So what we want to do is to add a 'leg' to the company which is the service group… (Servitization) is often spoken about as a journey from a product sales to a service business. We really want to add this service business to our existing product business, so we try to go 'both ways' and have the salesforce 'schizophrenic' by doing both the service business and the product sales"* (HS). **Thus, with respect to RQ1**: *ChemCo demonstrates a non-linear, complex servitization transformation approach.*

Table 1, below, highlights the servitization challenges and potential solutions identified in the literature and whether these have been recognised (RQ2) and responded to (RQ3) at ChemCo. (**Key: ? = not recognised, R=recognised, N= not actioned, P=partly actioned, A=actioned).**

**Table 1: Recognition and response to servitization challenges and solutions at ChemCo, by year.**

| | Challenge (Ch) | '13 | '16 | Solution | '13 | '16 |
|---|---|---|---|---|---|---|
| 1 | Product heritage may mean that senior manager commitment to services limited (Alghisi and Saccani 2015; Windahl 2015) | R | R | Appoint leaders who can manage the transition to a more service-focussed business (Raddats et al. 2014). | N | A |
| 2 | Greater risks associated with developing advanced services than base or intermediate services (Benedettini et al. 2015; Josephson et al. 2015) | R | R | Improved knowledge of in-service product performance and be able to commercially design and operationally deliver availability- or performance-based contracts (Alghisi and Saccani 2015; Datta and Roi 2011) | P | P |
| 3 | Struggle to transform their organisational culture to become more service-focused (Barnett et al. 2013; Reinartz and Ulaga 2008) | ? | R | Radical (not incremental) change may be required to 'kick start' introduction of a service culture (Barnett et al. 2013; Brax 2005). Might include independent service SBU, with service-focused personnel and targets (Davies et al. 2006; Oliva et al. 2012) | N | P |
| 4 | Servitization is an internally focused transformation: but also need to support customer requirements (Alghisi and Saccani 2015) | R | R | Ensure customers 'culturally ready' - to understand the value advanced services bring (Alghisi and Saccani 2015; Saccani et al. 2015). Correct interfaces/ processes needed so advanced services can be integrated into customers' existing processes (Alghisi and Saccani 2015) | A | A |
| 5 | Direct competition with other network actors needs to be minimised (Lofberg et al. 2015) | R | R | Work with other network actors to integrate resources and capabilities to develop new service offerings (Gebauer et al. 2013; Lofberg et al. 2015) Servicing other OEMs' products potentially a win-win situation for both OEM and focal manufacturer (Raddats and Easingwood 2010) | A | A |
| 6 | Lacking requisite service-focused capabilities/ processes, e.g. developing/ launching new services; salesforce capabilities (Kindström and Kowalkowski 2014; Ulaga and Loveland 2014) | R | R | Invest in developing/ launching new services, with, potentially, the need for specific NSD processes to take account of the differences between NSD and NPD (Bettencourt and Brown 2013; Spring and Araujo 2013). | N | P |
| | | | | Recruit sales people or 'service champions' (or retrain existing staff) that can sell advanced services (Bettencourt and Brown 2013; Ulaga and Loveland 2014) | N | A |
| 7 | Failure to scale servitization efforts to reach critical mass so that services are profitable (Fang, Palmatier and Steenkamp 2008) | R | R | Ensure that service offerings can be replicated for multiple customers, so a degree of standardisation is required to ensure that every implementation is not unique (Ulaga and Reinartz 2011) | P | A |

| 8 | Challenge of internationalisation, and how services can be delivered in other countries (Neto et al. 2015) | R | R | Need to be aware of differing international market environments, including local regulations, new competitors and varying customer demands. Therefore, need to develop country-specific implementation plans to take account of these variations (Neto et al. 2015) | N | P |
|---|---|---|---|---|---|---|

ChemCo recognised in both time periods that it has a dominant product heritage (Ch 1): *"The whole idea of our service business, our service offering, is to sell our product"* (PMM, 2013), which could restrict to some degree, its development of service offerings: *"There was probably a lack of focus, because the selling of (*the product*) has taken more priority over working in the service sector"* (PMM, 2016). Evidence to counter this was limited in 2013, however, by 2016, recognising that it needed a different perspective on business structure, ChemCo had appointed its new HS to lead the services SBU, and he recognises the nature of the task: *"Well, PMM did a good job previously by 'brainwashing' everybody on products. And that's now what I need to fight against…Every growth number you put on it looks bad because you have this big existing business already next to it"* (HS).

The second challenge (risks associated with advanced services) was recognised in the interviews in 2013 and 2016. The key outstanding issues for ChemCo are training staff to develop capabilities (still a problem-c.f. challenges 3 and 6) and developing its service infrastructure, which it is now doing post takeover (c.f. challenge 7 and 8). It has developed strengths in safety and compliance. Also, its culture has historically been one of adopting a customer solution focus, thus it has incrementally developed service-focused solutions in response to customer requirements, and it was this that led ChemCo to its servitization journey - suggesting that it already possessed an 'entrepreneurial' risk taking culture, potentially important in facilitating further development of advanced services: "*Every site we attend and work on, we innovate. We find a way of changing our process and the way that we do things to suit what's required on that site. And that's all documented. We have a method statement, risk assessment… Where we normally go then is we try to optimise the process. Maybe, they've (the customer) entered into a fixed price contract for a period of time, our job then, is then to drive down cost of the operation, optimise that profit"* (PMM, 2013).

Transformation of organisational culture to become more service-focused (Ch 3) was less obvious. 2013 respondents recognised services offered value and that they already added value for customers via services attached to selling products, but there was limited discussion of the need to change aspects of organisational culture to achieve a cultural shift towards services and little actual action to achieve this. By 2016 it was recognised as a priority: *"The major question mark is how I get my internal salesforce into a 'value selling' mode… Technical questions are fairly easy to address, but cultural changes to go from a product sale to a service sale, that's much more difficult… Intellectually people know what is requested from them and how they should do things. But their 'comfort zone' and their way of working for years has been in the product side, so this is something that's in their system and we need to help and facilitate them to take a different approach… What we do is to bring people that feel confident in service to make as many sales tools they can use, to ask the right questions, and move in the right direction, build up success stories where we show how we have done things, and just provide them with all the tools they need to become successful. And then after that, the only thing you can do is communicate time after time what you expect"* (HS). Two other significant transformational markers were: (1) an amendment of accounting processes (to now depreciate capital equipment related to service delivery and adoption of Activity Based Costing (ABC): *"Service…requires activity-based costing. So you need to know what a job is costing and we are currently making that setup in our ERP system"* (HS); and (2) that ChemCo keeps all its salespersons together in one team, to avoid value being destroyed through internal competition, with two distinct targets: *"Sales reps, or sales managers will work to a product sales target and a*

*service sales target.  So they will have targets for both of the business units but it will be done with the same teams…If they want to have that full bonus, they need to fulfil both"* (HS).

An area that ChemCo found to be more straightforward in its servitization journey is challenge 4, because it was already relatively advanced in recognising that while servitization is an internally-focused transformation, it needs to strategically align the organisation to deliver customer value (Ch 4). Before it started to servitize in a formal sense, ChemCo had evolved a service focus to provide added value for customers, initially: *"To differentiate ourselves from the competition"* (Head of Sales EMEA, 2013) in order to get customers to buy product, but this customer solution focus was very helpful for servitization efforts.

With regards to Ch 5, ChemCo has also long recognised the need to work closely with network actors to create its services: *"Sometimes an extra supplier can be the most important one… you need to have (collaborators) certified to a certain standard …. So you need to integrate them into the development of your services"* (Executive Vice President of Operations [EVPO], 2013). It also recognises that this brings risks of direct competition with key network actors that can be part of its value chain; that is, customers and potentially, competitors. ChemCo risks damaging its relationships where it: *"May be moving into, or partly moving into, their sphere of activity, so that has to be managed"* (PMM, 2016) and *"We made a decision not to enter the XXXX market because we would compete with too many customers"* (PMM, 2013). Whether an actor is seen as a competitor depends on how far activities overlap: *"It's a very mixed picture with our competitors; some have the full range of services to offer and there are some that only offer part of the service.  So these (latter ones) are people we have to 'pick our way around'. For people who offer the full service or all the elements of the service that we offer, they're a competitor. Those that don't, we just see them as being a collaborator"* (PMM). This is significant where ChemCo is not a big player in a larger value chain: *"When our offering is just a very minor part in the whole value chain, then we should be 'smart' and see if we can line up with companies that offer a much larger part of that value chain* (HS)."

In terms of developing requisite service-focused capabilities/processes (Ch 6), ChemCo respondents recognised a need for this in both periods but there was little action by 2013 beyond highlighting that its flat structure and flexible entrepreneurial culture facilitated the development of ad-hoc solutions for customers, but at the same time this meant that they had 'no training culture' (EVPO, 2013). By 2016 a service infrastructure had been developed for the delivery of some services over the preceding 12 months, and ChemCo was in the process of setting up its new system. The HS had also appointed 'service champions' in all countries, hired a consultant from a service business to bring *"'Service blood' into the organisation"* (HS) and now value sales is discussed at all internal presentations.

For ChemCo challenges 7 and 8 were closely interrelated. By developing a mobile service it was better able to scale servitization efforts to reach critical mass, however in 2013 it lacked processing facilities in every country (required due to differing regulations) and this internationalisation challenge was restricting its ability to achieve critical mass. The takeover by a much larger parent company has now provided capital to develop resources in multiple countries, starting with European countries and a central supporting EMEA team, but it is still developing these resources at different rates in other territories. ChemCo also looked for partners to supply additional capabilities and to distribute to smaller customers. It may then acquire the partner at a later stage, as it hopes to bring capabilities in-house as it grows: *"It may be that business grows to an extent where that partner company becomes interesting to acquire or have a closer relationship with"* (HS).

By drawing on marketing literature, which tends to focus on manufacturer growth being service-led, and operations work, that highlights the importance of operations processes, we respond to the call from Kowalkowski et al. (2015) to bring these disparate conversations together to inform our work.  Having explored the journey and key challenges through this case study, it is clear that firms

can stall, while they make necessary cultural changes or gain access to necessary resources. Having a focus on the customer and delivering value has enabled operational challenges to be overcome more easily than previous literature would suggest.

## REFERENCES

Allmendinger, G. and R. Lombreglia. 2005. Four strategies for the age of smart services. Harvard Business Review 83(10):131-145.

Alghisi, A. and N. Saccani. 2015. Internal and external alignment in the servitization journey: Overcoming the challenges. Production Planning and Control 26(14-15) 1219-1232.

Auguste, B., E. Harmon, and V. Pandit. 2006. The right service strategies for product companies. The McKinsey Quarterly 1:40–51.

Baines, T., and H. Lightfoot. 2013. Made to Serve: How Manufacturers Can Compete through Servitization and Product Service Systems. Chichester, UK: John Wiley and Sons, Ltd.

Barnett, N.J., G. Parry, M. Saad, L.B. Newnes, and Y.M. Goh. 2013. Servitization: Is a paradigm shift in the business model and service enterprise required? Strategic Change 22(3/4):145-156.

Benedettini, O., A. Neely, and M. Swink. 2015. Why do servitized firms fail? A risk-based explanation. International Journal of Operations and Production Management, 35(6):946-979.

Bettencourt, L.A. and S.W. Brown. 2013. From goods to great: Service innovation in a product-dominant firm. Business Horizons 56(3):277-283.

Brax, S. 2005. A manufacturer becoming service provider – challenges and a paradox. Managing Service Quality 15(2):142-155.

Bryman, A. 2008. Social Research Methods. 3rd ed. Oxford, UK: Oxford University Press.

Bryman, A. and E. Bell. 2003. Business Research Methods, Oxford, UK: Oxford University Press.

Datta, P.P. and R. Roy. 2011. Operations strategy for the effective delivery of integrated industrial product-service offerings: Two exploratory defence industry case studies. International Journal of Operations & Production Management 31(5):579-603.

Davies, A., T. Brady and M. Hobday. 2006. Charting a path toward integrated solutions. MIT Sloan Management Review 47:39-48.

Fang, E., R.W. Palmatier, and J.E. Steenkamp. 2008. Effect of service transition strategies on firm value. Journal of Marketing 72(5):1-14.

Ferreira, F.H., J.F. Proença, R. Spencer, and B. Cova. 2013. The transition from products to solutions: External business model fit and dynamics. Industrial Marketing Management 42(7):1093-1101.

Gebauer, H., M. Paiola, and N. Saccani. 2013. Characterizing service networks for moving from products to solutions. Industrial Marketing Management 42(1):31-46.

Johnstone, S., A. Dainty, and A. Wilkinson. 2008. In search of 'product-service': Evidence from aerospace, construction, and engineering, The Service Industries Journal 28(6):861-875.

Josephson, B.W., J.L. Johnson, B.J. Mariadoss, and J. Cullen. 2015. Service transition strategies in manufacturing implications for firm risk. Journal of Service Research. Available via: doi: 10.1177/1094670515600422 (accessed 07/03/16).

Kindström, D. and C. Kowalkowski. 2014. Service innovation in product-centric firms: A multidimensional business model perspective. Journal of Business and Industrial Marketing 29(2):96–111.

Kowalkowski, C., C. Windahl, D. Kindström, and H. Gebauer. 2015. What service transition? Rethinking established assumptions about manufacturers' service led growth strategies. Industrial Marketing Management 44(2):59–69.

Löfberg, N., L. Witell, and A. Gustafsson. 2010. Service strategies in a supply chain. Journal of Service Management 21(4):427-440.

Mathieu, V. 2001. Service strategies within the manufacturing sector: Benefits, costs and partnership. International Journal of Service Industry Management 12(5):451-475.

Matthyssens, P. and K. Vandenbempt. 2010. Service addition as business market strategy: Identification of transition trajectories. Journal of Service Management 21(5):693-714.

Neely, A. 2014. Society's Grand Challenges: What role for services? In Haynes, K. and I. Grugulis. Eds. Managing Services. Challenges and Innovation. 105-121. Oxford, UK: Oxford University Press.

Neto, G.Z., G.M. Pereira, and M. Borchardt. 2015. What problems manufacturing companies can face when providing services around the world? Journal of Business & Industrial Marketing 30:461-471.

Oliva, R., H. Gebauer, and J.M. Brann. 2012. Separate or integrate? Assessing the impact of separation between product and service business on service performance in product manufacturing firms. Journal of Business-to-Business Marketing 19(4):309-334.

Oliva, R. and R. Kallenberg. 2003. Managing the transition from products to services. International Journal of Service Industry Management 14(2):160-172.

Peillon, S., C. Pellegrin, and P. Burlat. 2015. Exploring the servitization path: A conceptual framework and a case study from the capital goods industry. Production Planning & Control 26:1264-1277.

Penttinen, E., and J. Palmer. 2007. Improving firm positioning through enhanced offerings and buyer–seller relationships. Industrial Marketing Management 36(5):552-564.

Pettigrew, A. 1990. Longitudinal field research on change: Theory and practice. Organizational Science 1(3):267-292.

Raddats, C., J. Burton, and R. Ashman. 2015. Resource configurations for services success in manufacturing companies. Journal of Service Management 26(1):97–116.

Raddats, C. and C. Easingwood. (2010). Services growth options for B2B product-centric businesses. Industrial Marketing Management 39(8):1331–1342.

Raddats, C. and C. Kowalkowski. 2014. A reconceptualization of manufacturers service strategies. Journal of Business-to-Business Marketing 21(1):19–34.

Reinartz, W. and W. Ulaga. 2008. How to sell services more profitably. Harvard Business Review 86:90-96.

Saccani, N., F. Visintin, and M. Rapaccini. 2014. Investigating the linkages between service types and supplier relationships in servitized environments. International Journal of Production Economics 149(March):226-238.

Spring, M. and L. Araujo. 2013. Beyond the service factory: Service innovation in manufacturing supply networks. Industrial Marketing Management 42(1):59-70.

Turunen, T. and M. Finne. 2014. The organisational environment's impact on the servitization of manufacturers. European Management Journal 32(4):603-615.

Ulaga, W. and J.M. Loveland. 2014. Transitioning from product to service-led growth in manufacturing firms: Emergent challenges in selecting and managing the industrial sales force. Industrial Marketing Management, 43(1):113-125.

Ulaga, W. and W.J. Reinartz. 2011. Hybrid offerings: How manufacturing firms combine goods and services successfully. Journal of Marketing 75(6):5-23.

Windahl, C. 2015. Understanding solutions as technology-driven business innovations. Journal of Business & Industrial Marketing 30(3/4):378-393

Wise, R. and P. Baumgartner. 1999. Go downstream. The new profit imperative in manufacturing. Harvard Business Review 77:133-141.

Yin, R. 2009. Case Study Research. Design and methods. 4th ed. Thousand Oakes, CA: Sage.

**AUTHORS**

Dr. Chris Raddats
Management School, University of Liverpool,
Liverpool, England, L69 7ZH
Chrisr@liv.ac.uk

Dr. Vicky Story,  School of Business & Economics,
Loughborough University, Loughborough,
England, LE11 3TU
V.m.story@lboro.ac.uk

Dr. Jamie Burton and Prof. Judy Zolkiewski
Alliance Manchester Business School,
University of Manchester, Manchester,
England, M15 6PB
Jamie.burton@mbs.ac.uk
Judy.zolkiewski@mbs.ac.uk