Mastering the Transition to Product-Service Provision
Insights into Business Models, Learning Activities, and Capabilities

Results of a large-scale survey suggest that a thorough and comprehensive organizational transformation is required to support the transition to servitization.

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OVERVIEW: Traditional manufacturing companies are increasingly offering industrial services in order to secure their position in the globally competitive environment. However, little is known about the extent and effect of this transition. Based on a large-scale survey of Finnish manufacturing companies, this study offers descriptive statistics for current industrial service offerings. Merely adding on simple services to a current product offering is shown to be negatively associated with financial performance. Rather, our statistical analysis suggests a thorough and comprehensive organizational transformation is required to generate significant financial value. In addition, qualitative data from globally recognized Swedish and Finnish frontrunner manufacturing companies offer insights into how these market leaders have successfully navigated the organizational challenges of such a transformation to offer successful industrial product-service systems. Based on the data, we outline four distinctive capabilities and associated key learning activities required to facilitate a successful transition toward becoming a high-value industrial product-service provider.

KEYWORDS: Product-service systems, Servitization, Business models, Capabilities, Manufacturing industry

In the last decade, as a response to increasing global competition, manufacturing companies have increasingly shifted from manufacturing products to offering industrial product-services. As researchers have increasingly noted, this servitization movement has advanced beyond offering simple add-on services, such as technical user training or product demonstrations, to more complex, high-value-added services, such as product optimization or maintenance (Gebauer, Friedli, and Fleisch 2006; Baines et al. 2009). In many frontrunner manufacturing companies, add-on services are increasingly being complemented by high value-adding services, with some companies even operating the product sold to the customer.

Several factors have motivated this shift. First, offering product-services can lead to financial benefits, in the form of financial performance. Rather, our statistical analysis suggests a thorough and comprehensive organizational transformation is required to support the transition to servitization.

Insights into Business Models, Learning Activities, and Capabilities

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higher profit margins and more stable income. Companies such as GE, IBM, and Siemens secure a steady flow of revenue, even during economic downturns, by locking customers into long-term service agreements (Sawhney, Balasubramanian, and Krishnan 2003; Kohtamäki et al. 2013). For example, GE aviation offers OnPoint Solutions, which enables customers to create a customized combination of products and services to meet their particular needs, including flexible financing options and service agreements to reduce financial and operational uncertainty. Second, adding service components to physical products offers strategic benefits in the form of increased inimitability. Industrial services enable manufacturing companies to achieve product differentiation by customizing product-service offerings to meet diverse customer needs (Gebauer and Fleisch 2007). Finally, adding service components has been found to increase the market attractiveness of the product component, leading to increased sales growth (Kohtamäki et al. 2013). In this way, industrial product-services offer manufacturing companies a strategic opportunity to secure long-term competitive advantage.

However, the shift to a product-service approach, as opposed to a pure product-oriented manufacturing model, does not come without challenges, a reality reflected by the findings of a 2004 survey study. Only 21 percent of companies surveyed achieved financial success with an industrial service strategy and most participating companies abandoned their service strategy after a few years (Baveja, Gilbert, and Ledingham 2004). The company seeking to make such a shift must engage in an organizational transformation in the way it creates, delivers, and captures value. This requires the development of new processes, routines, and capabilities. In particular, this revised approach, with its reliance on customized solutions, requires an increased focus on co-creating value with service delivery partners (such as dealers or distributors) and customers.

Although the number of studies on servitization has increased, most work continues to be conceptual or based on case studies. Little is known about the magnitude of the transition from manufacturer to industrial product-service provider or the types of industrial services that are offered by those who make the transition successfully. Consequently, the current literature lacks illuminating details on how product-service combinations are packaged and sold through different business models and how different product-service/business model combinations impact performance.

This study seeks to fill that gap by providing descriptive statistics to capture the extent to which manufacturing companies have developed into industrial product-service providers. Mapping the types of product-services offered and how different service combinations are linked to business models, we explore the effect of these business models on financial performance. Case studies with front-runner companies that offer high-value industrial product-services offer deeper insight into the distinctive capabilities required for the organizational transition to servitization.

**The Study**

To explore what kinds of product-services companies are offering, and how they are using creative business models to generate value from those product-service systems, we conducted a mixed-methods study, eliciting quantitative and qualitative data via a web-based survey and subsequent detailed case studies.

Although our data is collected from Finnish and Swedish companies, the results hold implications for global companies intending to move from pure manufacturing to a product-service model.

**The Survey**

In order to acquire an overview of the current state of product-service offerings, we sent a web-based questionnaire to 404 Finnish manufacturing companies; we included all companies registered under standard industrial classification code 28 (manufacturing industry) that employed 20 or more employees. These sampling criteria ensured that our survey included medium and large companies from product-dominant industries that may be influenced by the transition toward servitization.

The survey, which was to be completed by managing directors or directors responsible for service business development, asked about the types and extent of product-services offered by the companies. In the survey, company respondents were asked to indicate whether their companies offered 17 industrial product-services identified in earlier work. This comprehensive list of industrial product-services were identified and compiled from the prior research literature (Antioco et al. 2008; Homberg, Fassnacht, and Guenther 2003; Morris and Davis 1992; Oliva and Kallenberg 2003).

In total, 122 companies responded; seven inadequately completed forms were eliminated from analysis, resulting in a response rate of 28 percent. Respondent companies employed, on average, 115 workers (median of 100 employees) and had average net sales of approximately €30 million (median of €14 million) and an average ROI of about 19 percent (median 19 percent).

**The Case Studies**

To further explore how organizations make the transition from manufacturing to a product-service model, we undertook another data collection effort that involved case studies in 11 Swedish and Finnish manufacturing companies widely recognized as frontrunners in offering diverse industrial
product-service systems. In total, we conducted 30 interviews with various respondents from Volvo Construction Equipment, GKN Aerospace, Ericsson, Sandvik Coromant, Volvo Cars, LKAB, Bosch Rexroth AG, Gestamp Hardtech, Outotec, Metso, and ABB Robotic. These companies were selected because all of them have long experience in offering diverse portfolios of product-services. For example, Volvo Construction Equipment offers total care solutions and diverse service agreements; Sandvik Cormant offers productivity improvement and logistics solutions; Bosch Rexroth AG provides conditions monitoring and mobile replacement services; Gestamp Hardtech offers tool optimization on-site and training; and ABB offers end-of-life, installation, and maintenance services.

The aim of interviewing respondents from such pioneering companies was to explore their opportunities and challenges and to identify the distinctive capabilities they developed to facilitate the transition to a product-service orientation. We analyzed interview data using constant comparison techniques to identify patterns in a large, complex dataset. This technique uses a series of iterations that involve going back and forth between empirical data acquired from multiple respondents across case companies. This approach allowed us to map themes and overarching dimensions that form a theoretically and empirically grounded framework of, in our case, the four distinctive capabilities required for successful engagement in product-service offerings.

**FIGURE 1.** Product-services offered by surveyed companies

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### Industrial Product-Service Business Models

Survey respondents reported engaging in a range of product-service offerings (Figure 1). The most commonly offered service was customer consulting and support by phone, with 75.7 percent of firms offering these services at least to some degree, followed by technical user trainings (70.4 percent), installation services (67 percent), written information (64.3 percent), and prototype design and development services (64.3 percent). In contrast, product-services related to operating customers’ processes (14.8 percent), operating sold products (23.5 percent), and performing feasibility studies (24.3 percent) were the least likely to be offered by our sample firms.

In order to evaluate the business value of the product-service offerings described, we categorized different product-services into groups based on the logic of their underlying business model. We began by looking at Tukker’s (2004) categorization of industrial product-service business models into three types: product-oriented, use-oriented, and results-oriented. This framework distributes industrial product-services across a spectrum, from pure products at one end to pure services at the other end. These categories, however, are highly generalized and sometimes difficult to differentiate. Using factor analysis, we arrived at a more differentiated categorization that included four business model categories (Figure 2):

1. Add-on customer services,
2. Maintenance and product support services,
3. R&D-oriented services, and
4. Functional and operational services.

Referring to Tukker’s scale, the first two models can be regarded as product-oriented; their emphasis is on services related to the sale of a product, which remains the primary focus of the company. The third model, R&D-oriented services, falls under Tukker’s use-oriented category, and the fourth model of functional and operational services links to results-oriented models in Tukker’s framework. Both R&D-oriented services and functional and operational services models have a greater focus on service components.

The **add-on customer services business model** includes services designed to educate customers about the company’s products. This can include, for example, technical user trainings, customer seminars, telephone...
Add-on services
- Cost-benefit calculations
- Phone support
- Printed material
- User trainings
- Customer seminars
- Product demonstrations

Maintenance and product support services
- Product upgrade services
- Technical product support
- Installation services
- Maintenance services

R&D-oriented services
- Manufacturability analysis
- Prototype design & development
- R&D support
- Problem analysis
- Feasibility studies

Functional and operational services
- Operating customer processes
- Operating sold products

**FIGURE 2.** Industrial product-service business models

Support, and product demonstrations. These types of offerings are usually intended to add marketing value and enhance the usability of products. For example, Sandvik Coromant (a tool manufacturer) provides support material such as user manuals and a training program for users.

The **maintenance and product support services business model** includes maintenance, technical support, and installation services. These services are generally intended to minimize the total cost of ownership and even to provide for a product's end-of-life. The focus in this model continues to be on increasing product sales; bundling maintenance services with the product is intended as a way to enhance its attractiveness. For example, ABB Robotics (a manufacturer of industrial robots and modular manufacturing systems) provides a maintenance service package that includes regular inspections and diagnostics, preventive maintenance, remote condition monitoring, and refurbishing and reconditioning services.

The **R&D-oriented services business model** includes advanced industrial product–related services such as conducting feasibility studies, designing and developing prototypes, and performing problem analysis to identify potential improvements to product concepts. These services can be contracted separately or embedded into the product customization process as part of an integrated solution. For example, LKAB (a manufacturer of iron pellets) offers its customers use of an experimental blast furnace, a tool used to test peripheral blast furnace equipment and the blast furnace process. Having access to LKAB's experimental furnace allows customers to collect early test results without investing in an expensive, highly specialized piece of equipment. LKAB offers this R&D service either as part of an integrated solution or as a separate service, depending on the customer's preference and needs.

The **functional and operational services business model** includes services such as operating customer processes or operating products sold to the customer. The aim of this business model is to sell a result or capability rather than a physical product; the customer buys the functional output of the product. The service provider, therefore, is responsible for ensuring availability of the desired output. As a result, this model tends to be highly service based and requires the provider to assume a high level of risk and responsibility, for which customers pay a premium price. The extreme end of the functional services business model is the offering of a functional result in more abstract terms, so that the provider has total freedom to decide how to deliver the guaranteed result for an agreed-upon price. A well-known example of this type of business model is Rolls Royce’s Power by the Hour program, in which airlines pay for an engine’s operation (that is, hours of operation); maintenance and other services are provided as needed to ensure the specified hours of availability.

Companies participating in our survey study were found to be largely offering the first two business models related to lower value-adding services (Figure 3). This finding is in line with prior research showing that companies tend to adopt a

**FIGURE 3.** Product-service business models used by surveyed companies
servitization strategy gradually, beginning by offering basic services and then moving toward increasingly advanced and high-value-adding services as they gain experience and capabilities (Oliva and Kallenberg 2003; Meier, Roy, and Seliger 2010). It is interesting to note that only 19.2 percent of the surveyed companies actively offer functional and operational services, compared to 56.7 percent for add-on customer services. In particular, our results show that companies often engage in lower value-adding service business models and more advanced models such as functional and operational services at the same time (so that the percentage of business model offerings in our sample adds up to more than 100 percent). This suggests that the different service-related business models can be placed on a continuum, with companies layering on new, complementary services rather than abandoning lower-level offerings as they move up the continuum.

The relationship between industrial services and financial performance is complex. Although some studies have found positive effects (Oliva and Kallenberg 2003; Davies 2004; Gebauer, Edvardsson, and Bjurko 2010), others have suggested a negative or nonlinear effect on financial performance (Fang, Palmatier, and Steenkamp 2008; Neely 2008; Gebauer, Edvardsson, and Bjurko 2010). It is interesting to note that only 19.2 percent of the surveyed companies actively offer functional and operational services, compared to 56.7 percent for add-on customer services. In particular, our results show that companies often engage in lower value-adding service business models and more advanced models such as functional and operational services at the same time (so that the percentage of business model offerings in our sample adds up to more than 100 percent). This suggests that the different service-related business models can be placed on a continuum, with companies layering on new, complementary services rather than abandoning lower-level offerings as they move up the continuum.

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Specifically, we found that the maintenance and product support services business model is strongly related to gains in financial performance, and the R&D-oriented services and functional services business models are also linked to positive financial performance. However, the add-on customer services business model had a negative effect on financial performance in our sample. These results suggest that focusing on lower value-adding (product-centric) services is a necessary stepping-stone to becoming a services-oriented company, but they are not sufficient to drive revenue growth.

Developing Product-Service Capabilities

Competitive pressures may make a shift toward value-adding R&D and operations services critical for differentiating industrial product-services and driving financial performance. As an R&D manager at one of our case companies remarked, “We are not going to be selling machines in the future; we will be selling customer solutions.” Indeed, many established industrial manufacturers have transformed their core business to position themselves as service providers with extensive portfolios of industrial product-services. In several front-runner companies, this transition has manifested itself in strategic goals to generate 50 percent to 60 percent of overall revenues from services in the next three to five years.

However, transitioning from a product-centric to a service-centric business model is not a simple process, and variations in outcomes are inevitable. To explore the underlying factors that differentiate successful providers from those who do not make the transition successfully, we conducted interviews to gain insights into the key challenges companies faced during the transition and the capabilities they developed to mitigate those challenges. Based on our qualitative analysis, we identified four distinctive capabilities common to successful product-service providers, their underlying dimensions, and the key actions or activities to develop those capabilities (Table 1).

Business Model Design

Bundling products and services represents a key challenge for companies making the transition to a service orientation, and all of the front-runner companies we studied highlighted the importance of developing a mechanism for creating and capturing value from product-service offerings. Interviewees agreed that designing attractive product-service business models largely depends on understanding customers’ challenges and communicating a value proposition that meets customers’ needs.

This necessarily changes the way these companies approach and interact with customers. As one senior service manager at a manufacturer of construction equipment explained, “We are not selling a product or a service; we are generating value for our customers through a combined offer. We want to communicate this every time we interact with customers.” Supporting this value focus required companies
to develop a different marketing approach—in particular, recasting informational materials to put equal emphasis on both product and service offerings. According to an aftersales manager, “increased focus has been placed on using marketing as a way to re-create our industrial image.” Another aftersales manager told us, “Our delivery organizations heavily rely on the marketing material that we provide to convince customers about their savings and added value.”

But these communication efforts are not without challenges, among them, managers suggested, the complexity of product-service offerings. Clarifying the benefits of these offerings led front-runner companies to develop new ways to communicate value to potential customers. A manager from a tooling company explained, “In several markets, we use demonstrators or calculators that show how customers can achieve higher savings through buying integrated offers as opposed to standalone products or services. This is a powerful tool for them to communicate financial benefits.” Thus, case study companies introduced several activities to communicate value creation and propositions effectively to customers.

Capturing value requires an increased focus on pricing in a way that reflects the generated value. This can be difficult, especially when the pricing structure is at odds with customer expectations. According to a manager in the aerospace industry, “Our customers sometimes expect certain services to be provided free or at minimum cost; this can be problematic for us [in terms of commercializing services].” A lack of experience with pricing services and the high level of risk associated with service agreements can also lead providers to over- or underestimate the value of product-service offerings. Another service portfolio manager described a further complicating factor: “We can’t speculate in advance how our...
An integrated offering requires that the product and service components be well integrated during the research and development stages.

To ensure such alignment with diverse partners, our case companies introduced processes to build partner knowledge and relational skills. This meant understanding partners’ goals, competencies, and directions for growth. Some companies also initiated joint exploratory projects to identify potential products and services, allowing them to construct offerings that fit partners’ strategic focus and secure partner commitments to assume the higher level of risk and responsibility represented by these offerings.

Several companies felt so strongly about the importance of partner management in product-service offerings that they created specialized “relationship management units” responsible for managing and coordinating relationships with different partners. In this structure, project coordinators were responsible for building professional and personal relationships with partners, holding regular partner meetings with key strategic suppliers, and taking proactive steps to ensure mutually beneficial relationships and product-service offerings were developed.

Integrated Development
For manufacturing companies, product development is typically the core focus, with service development an afterthought managed by the marketing or sales business unit. An integrated offering requires that the product and service components be well integrated during the research and development stages. Our case companies understood this limitation early in their transformation but had to work actively to build the capability for combined product and service development processes. Most of the front-runner companies, however, were motivated to introduce integrated development processes because such processes promised to reduce development costs and produce offerings that enhanced customer value. As a senior manager at a construction equipment manufacturer explained, “If we sell the availability of our machine to customers, we can accordingly design and configure the machine to fulfill higher operational requirements, such as increasing the quality level of certain parts. At the same time, we can design and develop a suitable maintenance workflow, which further reduces the possibility for breakdown.”

An important condition for an integrated product-service development process is the integration of customers’ inputs early in the ideation phase. Most managers agreed that commercializing successful product-service solutions required truly understanding customers’ needs and building offerings accordingly. The companies addressed this issue by introducing streamlined customer information management routines, which increased their ability to access, organize, evaluate, and use customer input.

In addition, high-end product-service offerings offered opportunities to capture information about the product in use. This approach provided critical input for product modifications and redesign and information regarding the scope of service developments needed to meet customers’ future needs. Some companies used their technological competencies to develop advanced monitoring systems that were...
deployed as part of most products. These systems provided for remote diagnostics, but they also allowed companies to gather operational information that could have strategic value. As one respondent emphasized, “We have never had so much information about our customers’ product usage; we are still trying to understand how we can strategically use such massive information.”

**Service Delivery Network Management**

The service delivery network includes dealers, distributors, service partners, and branches that take an active role in linking forward to customers and users and backward to the provider. The role of the service delivery network is significantly different under a product-service strategy. And the service delivery network becomes even more important in the context of high-value-adding product-services due to the increased focus on value co-creation. According to a regional manager, “Capturing service market without our delivery organizations’ support is not possible. Therefore, their involvement is essential as they know our market/customers and have prior relations with them.”

A common challenge for case companies was the lack of qualified service delivery partners in global markets; product-oriented dealers frequently lacked the resources and skill sets needed to successfully market and deliver product-service offerings. According to a portfolio manager, “We offer products in many countries and have the ambition to sell services globally, but we are constantly challenged because we do not have competent dealers or service partners to support service sales globally.” To mitigate this challenge, we observed that a systematic process was introduced by several companies to attract and retain the best distributors based on the distributors’ perceived ability to offer product-services and an evaluation of the attractiveness of their customer segments for product-service offerings. This was an ongoing process; new distributors were added over time as the product-service offerings matured and more distributors understood the business value of product-services. As a regional manager explained, “Success sells. Once we could show good examples of how our dealers could increase their revenue through selling services, we faced limited internal resistance.”

At several case companies, new routines were introduced to build the service delivery competence of the sales representatives at the service delivery network organizations. According to an after-sales manager, “Our sales staff is skilled in selling machinery; however, bundling services to machines is not their core competence.” Dealers or distributors were given the opportunity to send staff to training sessions to learn how to package services with existing products. Competency gaps also existed on the technical service delivery side; offering integrated product-services often means interacting with customers and resolving technical or engineering problems on-site. This gap was closed largely by recruiting new engineers with specialized engineering and marketing skills.

Moreover, as a research manager from a telecom equipment company stated, “As a provider we also have to take greater responsibility by providing support services for delivery organizations’ engineers and technicians so they can provide more value to our customers.” Such support services for service delivery organizations could include documentation, promotional materials, software packages to remotely monitor customers’ machines and inform technical staff about potential breakdowns, or diagnostic tools for use in detecting problems on site and performing initial repairs.

**Conclusion**

The manufacturing industry is increasingly being servitized as companies seek to differentiate themselves by offering a wide range of product-services, ranging from simple add-on services (such as phone assistance) to complex value-adding services (such as operating the product for the customer). Simple add-on services offer a limited financial impact on company revenues, but more advanced services, such as maintenance, R&D support, and functional services, are significantly associated with positive financial performance. Although basic services are necessary—and may be a required first step in venturing into product-service offerings—they are not revenue generators. Therefore, companies must develop a diverse portfolio of product-services to promote a successful transition and secure future revenue generation.

The move toward servitization is not without obstacles. The front-runner companies we studied all faced a challenging path in their transformation into successful product-service providers. Their development of key capabilities—in business model design, partner network management, integrated development process, and service delivery network management—was integral to their success. Companies seeking to follow in these leaders’ footsteps to offer high-value industrial product-service systems must find ways to develop these key capabilities in their own organizations. Overall, our results suggest manufacturing companies that neglect to invest resources in managing the transition toward a product-service orientation risk long-term market competitiveness.

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