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Business models in servitization

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Abstract

This book chapter sheds light on the different business models of manufacturing companies that have servitized their business operations. This article presents four distinctive yet simultaneously pursued business models for servitized manufacturers: 1) the product business model, 2) the service-agreement business model 3) the process-oriented business model, and 4) the performance-oriented business model. Depending on the direction taken, dedicated customer needs targeted, value propositions adopted, and services and solutions provided, a servitized manufacturer should decide which business model(s) the firm will adopt with different customers.

Introduction

To escape the commoditization trap, globalization and price erosion and take advantage of the new emerging and digitized technologies, manufacturers have to reinvent their business models to sustain their advantages. Hence, manufacturers have implemented services, service contracts, operational services, and performance services to increase their customer value, customer engagement, downstream movements, financial value, revenue stability, and profits. Despite the seemingly evident motivation to generate the service business model and move from pure products

to customer solutions, manufacturers have struggled to adopt the right business model for dedicated customers and service-products.

For researchers and practitioners, the question of the appropriate service business model is far from simple since the potential business model of a manufacturer can consist of various configurations that can each lead to optimal outcomes. In strategy research, this phenomenon is called ‘equifinality’ (Sjödín et al., 2016). Thus, understanding the possible service-oriented business models for a manufacturer is complex and context-dependent. Context influences on the success-potential of any business model and the relationship between a service business model and success is far from linear. In fact, the relationship between the business model configuration and success may be non-linear, with many variables intervening, mediating or moderating the relationship. The current servitization literature falls short with respect to the discussion of business models, and it leaves options to study many viable configurations. This book chapter intends to address the gap and understand the key elements of the alternative business models in servitization.

This article suggests that servitized manufacturers can successfully and simultaneously apply multiple business logics, since it is rare that any empirical configurations are pure. Instead, in theory, we can define ideal types that then take different forms when companies apply them. Even more importantly, companies may apply different business models for different customers or customer segments. Hence, in many cases, companies are not utilizing just one business model but are using multiple simultaneous business models or configurations. In this article, following the similar logic of organizational ambidexterity, we propose that the suggested business models are complementary rather than contradictory, and they help manufacturers address different customer needs and business concerns.

Theory

The servitization literature has acknowledged that manufacturers should configure service strategies to meet business objectives (Gebauer, Gustafsson & Witell, 2011), realign resources and capabilities (Huikkola, Kohtamäki & Rabetino, 2016), align product-service offerings (Kowalkowski & Ulaga, 2017), and decide on a pricing model. This allows them to establish their business model for creating, delivering, and capturing value (Storbacka et al. 2013). The extant literature has used many dimensions to represent different service offerings (e.g., Mathieu, 2001) and strategies (Oliva & Kallenberg, 2003). For instance, Ulaga and Reinartz (2011) have categorized four service offerings based on their value propositions and service orientation. The nature of the value proposition in each of these services is whether they are input-based or output-based, and the service orientation is linked whether we are addressing the supplier's good or the customer's process. They have categorized these offerings into 1) product life-cycle services, 2) asset efficiency services, 3) process support services, and 4) process delegation services. However, much of the discussion in the servitization literature has conceptualized service-product strategies or overall service business strategies, neglecting the importance of business models. Therefore, this article sheds light on how a firm can create, deliver, and capture value through alternative service business models.

The business model approach well fits the intention to understand appropriate configurations of building blocks to reach high performance. Osterwalder & Pigneur (2010) have established *the business model canvas*, which has been widely adopted by practitioners and academics to understand, define, and select a firm's key partners, activities, resources, value propositions,

customer relationships and segments, channels, cost structures, and revenue streams.

Furthermore, Johnson, Christensen and Kagermann (2008) identified four intertwined elements that help firms to create and deliver value. These elements are: 1) superior value propositions to their clients (the most important element), 2) the profit formula (includes revenue model, cost structure, margin model, and resource velocity), 3) key resources (includes tangible and intangible resources) and 4) key processes (includes rules, metrics, and norms) required when designing a business model.

While it has been stated that the business model is something between the firm's detailed business plan and overall strategy, it has been acknowledged that a single firm or business unit may adopt multiple simultaneous business models (Bertini & Tavassoni, 2015), and they can be dynamic and systemic by nature (Storbacka et al. 2013). By utilizing the concept of equifinality, typological research suggests that multiple logics may lead to optimal outcomes and that firm should find the configuration of building blocks that fits their purposes when operating with different customers. In theoretical models, researchers can specify pure models (called Weberian ideal types), but empirical configurations are rarely if ever pure. Instead, in an empirical world, companies mix elements from different business model configurations, especially when operating with different customers or customer segments. Because of strong customer-orientations in services, firms can utilize different business models with different customer segments, which may even lead to a customized business model for each key customer. For a firm, it is a challenge to define and understand the models it utilizes and on what grounds. The application of multiple logics makes the organization more difficult to manage.

Framework

Based on hundreds of executive interviews, company consultancy work, studying the action research method applied in companies, company observations and numerous servitization workshops during the last eight years, we have compiled a comprehensive understanding of manufacturers that have servitized their businesses. We have identified and classified four distinct business models for manufacturers: 1) the product business model, 2) the service-agreement business model, 3) the process-oriented business model, and 4) the performance-oriented business model. The first two business models focus on products, while the two latter models focus on the customer's process development. In the product and service-agreement business models, the customer owns the process or product, while in the process-oriented and performance-oriented business models the supplier owns the process or product on the customer's behalf.

Product business model

The product-business model builds on the manufacturing, selling and delivering a product and the add-on services. Selling and delivering a tire is an example of the product business model. For instance, the Finnish tire manufacturing company Nokian Tires Plc sells highly innovative and differentiated tires with premium prices to dedicated customers (car drivers, SUV drivers, truck and van drivers) in dedicated market areas (Nordic countries, Russia, Middle-Europe, and North America). The corporation's separate service unit (and directly owned sales channel) Vianor supports the company in selling more tires and tire-related services directly to the customers, and helps the company to better understand its end-users' needs through its direct contact with consumers.

The product business model serves B2B customers or purchasers who are mainly technologists and require services that typically support product development, procurement, usage, delivery, functioning, or disposal. The key service products provided in this business model include various R&D services, documentation services, maintenance services, instructions, repairs and spare parts for certain supplier's products, warranties, financial services, or technical backup services.

The product business model is transaction-based and mostly focused on the product itself, its development, sales, delivery, repair, or disposal. This is also its strength because it is less complex than others are. It is suitable for customers or purchasers whose earnings logic is based on exceeding their fixed costs. Once they have covered their fixed costs, they are able to generate high profit margins from every additional transaction made. Particularly, traditional customers in traditional industries appreciate the simplicity related to this business model. The disadvantage for manufacturers is related to the customer's potential use of an arm's length mechanism, price erosion, and the lack of true differentiation. Key sales arguments and value propositions are related to emphasizing product features, delivery times, and product superiority. The profit formula is based on low product margins but relatively big yet infrequent deals. Key performance indicators (KPIs) are the fill rate and repayment period for the customer. A firm's overall profits are based on the traditional manufacturing logic and exceeding fixed costs. Inventory turnover is high in this business model.

The key resources are the firm's distribution channels (such as dealers) and production facilities (e.g., factories and production lines). The key processes are related to research and development (R&D), and its strategic orientation is technology-oriented rather than customer-focused. Thus, the approach in development activities is inside-out. This business model initially attempts to

profit from new breakthrough products (black-box types of development) or scale advantages (low costs). The services provided in this business model are initially meant to support product sales, development, delivery, use, and (to a lesser extent) functionality. This business model is probably the most popular among current manufacturers.

Service-agreement business model

The second alternative model focuses on service agreements. For instance, the Finnish forest machine manufacturer Ponsse Plc sells two-level service agreements (Ponsse Active Care/Ponsse Active Care+) to contractors. These service agreements enable Ponsse's customers to improve harvesters' reliability and resale value.

The service-agreement business model is meant to serve B2B customers or purchasers who are "fleet managers". "Fleet managers" source services that improve equipment's total productivity, decrease products' total-cost of ownership (TCO), and help them to more efficiently manage their fleets. The services provided in this business model mainly support the use of equipment, product availability, and reliability/functionality. Examples of services provided are fixed-price service contracts, predictive maintenance, extended warranties, customer/user training, modernization services, remote services, and product upgrades.

The service-agreement business model's strengths are related to the predictability and stability of income for the manufacturer. The demand for services among customers is constant since services are typically needed with respect to the usage of equipment. The service-agreement business model is suitable for customers and purchasers who appreciate the product's availability and reliability. The business model's disadvantage is the potential commoditization of spare parts or threats of new substitutes or emerging technologies, such as 3D-printing. For instance,

traditional car manufacturers' established after-sales business markets may decay as the number of electric cars increases. For instance, the Chevrolet Bolt, an electric car manufactured by General Motors, has only 24 moving parts while the traditional Volkswagen Golf has 149 moving parts. Tesla's maintenance interval for batteries, the engine and the gearbox are 1.6 million kilometers compared to 15 000-30 000 kilometers for traditional cars. The key sales arguments and value propositions in the service agreement business model are related to the product's availability (e.g., short response time/time-to-fix rate) and reliability for the customer. The profit formula is based on high service margins. Instead of highlighting the customer's repayment period, the supplier often emphasizes increased return on investment (ROI) to the customer in order to justify possible higher prices. Manufacturer's overall profits in this model are based on exceeding the variable costs (typically every transaction requires increased labor or materials) or premium pricing. Higher product prices can be achieved through the identification, communication, and verification of product's life-cycle costs and increased returns for the customer's tied equity. The inventory turn in this service business model is low.

The key resources are the firm's installed base of products and existing service contracts, service-aware salespeople, field personnel (such as technicians), service depots and spare part centers. The key processes are related to fleet management developmental activities. The approach in the developmental activities is both inside-out and outside-in. On the other hand, manufacturers should be able to calculate its customers' overall costs and productivity, lock-in the customers, and improve its internal productivity (gray-box type of development). Services are typically organized under profit-and-loss responsibilities and separate service units that have their own management team, workforce, and business targets. This business model is typically

well adopted in manufacturing companies who have reported large profits from service businesses.

Process-oriented business model

Sales outsourcing, operations management, equipment upkeep, remote diagnostics, project management, and equipment rental services are a few examples of service-products provided in the process-oriented business model. For instance, Konecranes Plc, a Finnish crane manufacturer, offers broad-scope maintenance outsourcing services to its industrial customers (e.g., Commitment maintenance program). The key idea behind outsourcing services is to decrease the customer's overall costs or increase customer's overall productivity through new ways of organizing the work. Hence, the customers' top managers are typically responsible for sourcing such services, and suppliers' representatives should be more interested in the customer's business-oriented issues (e.g., profit formula, revenue model, or balance sheet benefits) than technical details.

The strength of the process-oriented business model is the movement towards more value-added operations in the industry's value system. However, this business model requires the ability to discuss operational services' monetary value with customers' top managers. This is typically difficult for the old product sales and after-sales sales forces since the needed capabilities in these businesses remarkably differ from each other. The process-oriented business model is suitable for customers who are planning to outsource part of their production or business processes. Customers typically outsource part of the operations to generate cost-savings, transfer fixed-costs to variable costs, increase its productivity and flexibility, achieve better key performance indicators (KPI), or reallocate resources to new business areas. Suppliers can

benefit through scale advantages, learning benefits or an improved production utilization rate. The manufacturer's disadvantage in this business model is the potential threat of becoming a subcontractor and not a partner. Then, customers can use the price-based governance mechanism every time the contract is renewed. The customers' disadvantages are related to realized cost-savings (that may be lower than thought), lack of control and trust, or difficult-to-measure transaction costs. Therefore, customers should always evaluate the opportunity costs regarding the outsourcing decision and its alternatives. The key sales arguments and value propositions in this business model are fact-based numbers such as increased productivity/sales or decreased costs. This typically requires open-book principles and trust from both parties.

The key resources are manufacturer's existing customer relationships, customer references for such projects, project teams, and a dedicated and direct sales force to sell more comprehensive operational services. The key processes are related to risk and project management issues. Typically, the sales teams responsible for selling services under the process-oriented business model are separated from traditional product and service sales, and consists of senior-level managers and experienced salespeople. The sales cycles for such services are high since the decision-making process is relatively lengthy as customer's top managers are typically involved in the sourcing process. This business model is currently adopted by manufacturers who for example offer maintenance outsourcing services to their current customers.

Performance-oriented business model

Sales operations and maintenance services (O&M), consulting services, turn-key solutions, integrated solutions, and data analytics services are examples of solutions sold under the performance-oriented business model. For instance, Outotec Plc, a Finnish technology company

that provides processing machinery and process engineering solutions to customers operating in the metal and minerals processing sector, offers comprehensive O&M solutions to its customers operating in the mining sector. In these offerings, Outotec is responsible for running the customer's mining operations by guaranteeing and selling *costs per ton* instead of selling pure equipment or traditional projects. In these O&M solutions, customers source comprehensive solutions to run dedicated business operations. Customers buy such solutions to 1) *buy or loan* competencies from external firms or 2) *release* resources for the reallocation of capital or other resources. Typically, companies in developing countries lack the technological capabilities to run businesses, even though they may possess superior financial competencies. Therefore, they want help from external firms to obtain the technical capabilities to run the business or process. On the other hand, established companies in developed countries typically outsource these business operations to external firms to release resources for other purposes. Customers may move to another strategic direction, which requires new resources. This business model involves top executives from both sides since these contracts are the most demanding to sell and buy. For a manufacturer, adopting this business model requires careful consideration as it enters customers' businesses. Therefore, manufacturers need to acquire competencies to run the customer's business. This may mean that some of its existing customers consider manufacturers as their direct rivals.

This business model's strength is that it is the most difficult to replicate by competitors. Moreover, it is also the most demanding business model to accomplish since it requires active involvement in the development of the firm's strategic and operational activities. The performance-oriented business model is suitable for firms whose leading strategic customers are attempting to move ahead in the value system. This requires careful consideration from the

manufacturer's strategists as firm's competitive landscape will be dramatically changed. (Will it start to compete with its other customers? How many customers are scared of this movement?)

For an O&M provider, this usually includes the acquisition of blue-collar workers since running the dedicated business operations requires workers such as builders, cleaners, or technicians. The customer's business logic in this business model is based on the confirmation of the variable costs. Hence, when a customer knows the exact variable costs to produce a certain end result (good or service), it is able to better price the sold outcome and thus evaluate its own margins. The manufacturer's profit formula is based on the traditional partnership-model where profits and losses are mutual and, in this sense, companies are somewhat inter-dependent. In these types of cases, relationships are often built on mutual trust and the existence of a win-win scenario where both parties have to gain from the created benefits.

The key resources include the capabilities and competencies required in the other three business models since the performance-oriented business model is the most systemic and integrative of all the servitized manufacturer's business models. Even though this business model is built on the resources required in the three other business models, manufacturers should focus on developing the capabilities related to contract management and IT infrastructure development. Since the sales processes are the most demanding and firms must rely mainly on external firms' capabilities, it must perform good contracts. Therefore, a firm typically needs to hire lawyers or establish a legal unit in order to facilitate contract management competencies. Additionally, manufacturer typically starts to internalize its IT activities as it needs to know how the end-result is produced and how much producing the outcome has cost. A manufacturer typically wants control over the produced end-result. From the salespeople, this requires consultative sales competencies. Salespeople must identify, quantify, communicate, and verify the customer value

during the business relationship. Business agreements in the performance-oriented business model are relatively long. For instance, the Finnish marine solution provider Wärtsilä announced a 12-year strategic performance-based partnership with its strategic customer the Carnival Corporation (a leisure travel company) in a deal worth almost 1 billion euros. In this agreement, Wärtsilä Plc handles, maintains, and monitors Carnival's 79 vessels. The main target for Wärtsilä and Carnival is to decrease the vessels' overall fuel consumption, increase productivity, and optimize the ships' routes.

Figure 1 visualizes the link between a customer's key needs and a manufacturer's capacity and readiness to run the customer's business process. In the product business model, the customer wants and has the capacity to run the business process himself. In the service agreement business model, the customer wants to own the business process but is ready to outsource some of the non-core activities (e.g., maintenance and personnel/user training) to a specialized company. The customer also has the capacity to operate the business process but may lack or want to buy some specific competencies from external firms. Therefore, the customer should evaluate its opportunity costs regarding the distribution of work. In the process-oriented business model, the customer lacks the readiness to run the business process and is ready to outsource part of its sub-processes to external firms. It may be that the customer has recognized the lack of capabilities to effectively operate the business process, or that the customer wants to release resources for other purposes. In other words, the customer may possess the capability to run the business but wants to redirect its resources to other purposes for other reasons (for instance to acquire other, more urgent, or strategic competencies). In the performance-oriented business model, the customer's willingness to run the business process is low. A customer may also lack the capabilities to independently operate the business process, even though it would like to autonomously operate

the business process. This is the typical situation in developing countries where the customer wants the manufacturer to teach them how to run the business. For example, it may take 5 years for the customer to build the critical competencies necessary to run the business. The opposite situation occurs with established customers or customers in developed countries where the customers possess the capabilities to run the business process, but they want to outsource the operations to an external company for other reasons. In this case, the customer typically wants to release resources to focus on other more important business areas. Therefore, the demand for performance-oriented services comes from both competent and incompetent players in the markets. Thus, Figure 1 is not an all-embracing model but rather an illustration of the link between the business models and customers' key characteristics in operating the business process.

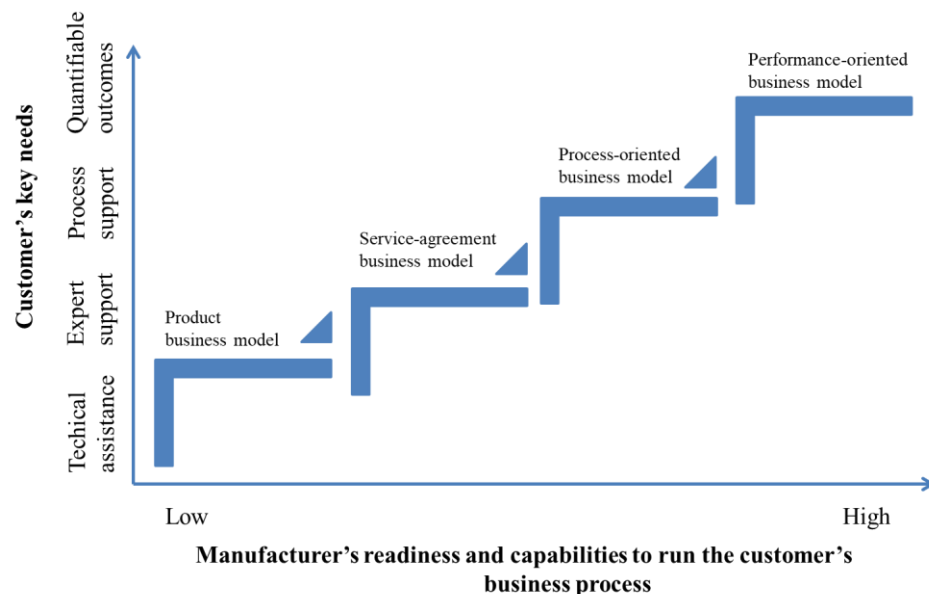


Figure 1. Ideal types of business models.

Table 1 summarizes the above mentioned business models, the rationale behind each business model, examples of the service-products provided by the business model, key targeted customer segments, the supplier's focus areas, process/product ownership (customer vs. supplier), key customer value propositions, profit formulas, key resources and processes that are developed in the business models, examples of the materialization of the business models, and suggestive time frames for business deals.

Table 1. Four service business models for a manufacturer.

	Simple-----Complex			
	Product Business Model	Service-agreement Business Model	Process-oriented Business Model	Performance-oriented Business Model
<i>Process ownership</i>	Customer owns the process		Supplier owns the process	
<i>Product vs. Process</i>	Supplier's focus is on the product		Supplier's focus is on the customer's process	
<i>Customer segments</i>	Technologist	Fleet manager	Outsourcer	Business partner
<i>Examples of services provided to the clients</i>	<ul style="list-style-type: none"> -R&D services -Documentation -Product training -Instruction services -Product maintenance -Repair services and spare parts for own products -Warranty -Technical support/backup -Financial services 	<ul style="list-style-type: none"> -Maintenance and spare parts for competitors' equipment or 3rd party products -Predictive maintenance -Service contracts -Extended warranties -Customer training -Modernization services -Remote services -Product upgrades 	<ul style="list-style-type: none"> -Outsourcing services -Operations services -Comprehensive upkeep of the equipment -Remote diagnostics -Customer projects -Equipment rental/leasing 	<ul style="list-style-type: none"> -Operations and maintenance services (O&M) -Consulting services -Turn-key solutions -Integrated solutions -Data analytics services
<i>Customer value proposition</i>	<ul style="list-style-type: none"> -Technical features -Product superiority -Fill rates -Short repayment periods 	<ul style="list-style-type: none"> -Shorter response times -Better availability -Increased returns on investment (ROIs) 	<ul style="list-style-type: none"> -Increased utilization rate of production -Increased productivity of the process -Decreased transaction costs -Decreased and verified cost savings 	<ul style="list-style-type: none"> -Risk outsourcing (risk evaluation is transferred to the supplier) -Increased overall business performance -Making outcome-related costs planned and predictable
<i>Profit formula</i>	<ul style="list-style-type: none"> -Low margins (few units sold) -Overall profits are based on exceeding fixed costs -High inventory turnover -Infrequent payments 	<ul style="list-style-type: none"> -High service margins (services are sold frequently) -Overall profits are based on exceeding the variable costs -Low inventory turnover -Frequent payments (e.g., monthly or biannually) 	<ul style="list-style-type: none"> -Profits are based on project success -Usage-based pricing 	<ul style="list-style-type: none"> -Profits are based on customer's business performance -Value-based pricing -Pay-per-outcome

<i>Key resources and processes</i>	-Distribution channel (dealers) -Production plants -R&D -Installed base of products	-Installed base of products and service contracts -Service-aware salespeople -Field personnel (technicians) -Service depots & spare part centers -Fleet management development	-Existing customer relationships -References (reputation) -Project teams -Direct sales force (senior managers) -Risk management -Project management	-Solution sales workforce (includes also executives) -System suppliers -Contract management -IT infrastructure and IoT development -Customer value identification, quantification, communication, and verification processes -Risk management -Network management
<i>Rationale behind the business model</i>	-Easy for everyone to understand -Relatively big deals	-Predictability -Income stability -Customer lock-in	-Customer lock-in -Project-based business logic	-Win/win situation -Partnership -The most difficult BM to copy
<i>Examples of associated products, services, and solutions</i>	-Truck tire and add-on services (remolding services) -Elevators and escalators -Engines and spare parts -Services to support product purchase & delivery	-Tire and wheel contracts -Service agreements for elevator, escalator, and automatic doors (service level depends on contract type) -Engine maintenance contracts -Product life-cycle services	-More extensive tire and wheel contracts -People flow solutions (large projects) and people flow analyses -Engine leasing -Operating services	-Michelin's fleet solutions (kilometers charged) -People flow optimization solutions -Power-by-the-hour solutions -Total solutions
<i>Typical time frame for deals</i>	<1 year	0-4 years	-2-5 years	-5-30 years

Managerial conclusions

The presented framework helps manufacturing managers to consider different configurations of service business models. Initially, no business model is better than another, but rather they are just different by their natures. Additionally, hybrid forms are available for a single company or a business unit. Alternative business models are even recommended since different customers have various business pains and gains. For instance, the Finnish elevator manufacturer KONE Plc may adopt several simultaneous business models. First, KONE may sell only elevators and escalators to a hotel chain. Second, KONE may make a service agreement to cover spare parts and maintenance for the elevators, escalators, and automatic doors in a dedicated business area, country, continent, or hotel branch. Third, the same customer can consult KONE about the optimal number of products and the most effective movement of customers inside the building.

Fourth, KONE can optimize its hotel chain’s customers’ movements inside the buildings. For example, KONE may guarantee and verify how smoothly or conveniently hotel chain’s customers move. KONE may have to pay penalties to the customer if there is an error in the elevator and the elevator users have bad customer experiences due to the broken elevator.

Table 2 exemplifies KONE Corporation’s four distinct business models and the elements related to its value proposition (target customers, jobs that need to be done, and products/services/solutions), profit formula (revenue model, cost structure, margin model, and resource velocity), and resources/processes (tangible and intangible resources, processes, rules & metrics, and norms).

Table 2. KONE Corporation’s different business models.

	Product business model	Service-agreement business model	Process-based business model	Performance-oriented business model
Key customer needs	Technical assistance	Expert support	Process support	Guaranteed and quantified outcomes
<i>Value proposition</i>	Traditional builders (e.g., NCC, YIT, Skanska), architects, consultants	Condominiums, hotel chains, airports (e.g., Heathrow), construction companies, shopping centers (e.g., Stockmann), process industry, hospitals, users, property maintenance companies	Commercial real estate companies, construction companies	Real-estate investment company, airport operators (e.g., Finavia), global hotel chains (e.g., Hilton)
Target customer(s)	Ensuring the delivery, installation, and usage of elevators, escalators, and automatic doors	Ensuring the product's functionality and availability	Ensuring the project's delivery on time and cost-effectively	Ensuring end-user's experience and B2B customer's business performance
Job to be done				

	Products/services/solutions	Escalators, elevators, and automatic doors, access systems, their delivery and installation, spare parts and maintenance services	Service contracts (different levels)	KONE major projects, marine solutions, solutions for process industry and hospitals, turnkey solutions	People flow analysis, 24/7 connections, performance services, integrated solutions
<i>Profit formula</i>	Revenue model	High scale advantages, (high) price x (moderate) volume, negative working capital because of advanced payments	(Low) Price x (high) volume, negative working capital because of advanced payments	(High)price x (low)volume	Dependent on the usage of the equipment, in line with customer's business development
	Cost structure	Relatively high fixed costs, high share of outsourcing to component suppliers	Little investments, relatively high fixed costs because of the high number of service personnel	Variable costs	Variable costs Margins depend on both supplier's and customer's success
	Margin model	Product margins ~10%	Service margins 25-35%	Project margins	
	Resource velocity	High inventory turnover, moderate lead times	Low inventory turnover, short lead times	Moderate lead times	Long lead times
<i>Key resources and processes</i>	Tangible resources	Production plants, agents, dealers, distributors, technology, component suppliers	Service depots, spare part centers, installed base of products	Equipment delivered, local project network	Equipment included in the contract Top managers' competencies, strategic partners, such as IBM's (Watson) know-how, contract management, existing customer-relationships, ICT competencies Customer process development and optimization, understanding end-users' preferences and behaviors Customer value verification, tracking the output (possible root cause analysis of end-result production) Penalties possible if KONE cannot deliver good customer experience (minute-based charging for every time the elevator is broken/not in use)
	Intangible resources	Patents, product personnel know-how, brand	Field personnel's (technicians') know-how, brands, data acquired from the products (IBM Watson)	Project managers and personnel, project handbooks	
	Processes	Product development, manufacturing, sourcing, after-sales development	Service process development, fleet management, operational productivity, service factory	Project management development and optimization, project data collected, project reviews, project auditing	
	Rules and metrics	Delivery times, production efficiency	Customer retention rates (90-95%), response times, time-to-fix rates, product availability, tracking service	Project-related metrics, tracking the project's costs and development regularly	
	Norms	No product tailoring, products in different price categories (typically premium pricing)	Service level determines the response times, standardized service levels and agreements, in-house service-personnel	Standardized project protocols	

To conclude, a manufacturer can successfully adopt multiple concurrent service business models, and it is even desirable. Therefore, we ask how a manufacturer can know the appropriate business model(s) in each case. It depends on the initially defined customer's problems, needs, gains, and pains that the manufacturer has already identified and the value propositions that have been proactively designed to meet those requirements. After this, the company must choose the right business model that best addresses the customer's concerns. Finally, the firm must organize the work, obtain the resources to perform the job, follow-up on the business case, and learn from the cases. Eventually, the firm may need to change its business model when customer needs and capabilities evolve.

References

Allmendinger, G., & Lombreglia, R. (2005). Four strategies for the age of smart services.

Harvard Business Review 83(10): 131–145.

Bertini, M. & Tavassoni, N. (2015). Case Study: Can One Business Unit Have 2 Revenue Models? *Harvard Business Review* 93(3): 121-123.

Gebauer, H., Gustafsson, A. & Witell, L. (2011). Competitive advantage through service differentiation by manufacturing companies. *Journal of Business Research* 64(12): 1270–1280.

Huikkola, T., Kohtamäki, M. & Rabetino, R. (2016). Resource realignment in servitization. *Research-Technology Management* 59(4): 30-39.

Johnson, M.W., Christensen, C.M. & Kagermann, H. (2008). Reinventing Your Business Model. *Harvard Business Review* 86(12): 50-59.

Kowalkowski, C. & Ulaga, W. (2017). *Service Strategy in Action: A Practical Guide for Growing Your B2B Service and Solution Business*. Publisher: Service Strategy Press.

Mathieu, V. (2001). Product services: from a service supporting the product to a service supporting the client. *Journal of Business & Industrial Marketing* 16(1): 39-61.

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

Osterwalder, A. & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.

Storbacka, K., Windahl, C., Nenonen, S. & Salonen, A. (2013). Solution business models: Transformation along four continua. *Industrial Marketing Management* 42(5): 705-716.

Ulaga, W. & Reinartz, W.J. (2011). Hybrid Offerings: How Manufacturing Firms Combine Goods and Services Successfully. *Journal of Marketing* 75(6):5-23.

Wise, R. & Baumgartner, P. (1999). Go Downstream: The New Profit Imperative in Manufacturing. *Harvard Business Review* 77(5): 133-141.