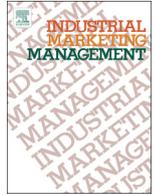




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Solution business models: Transformation along four continua[☆]Kaj Storbacka^{a,*}, Charlotta Windahl^{a,1}, Suvi Nenonen^{b,2}, Anna Salonen^{c,3}^a University of Auckland Business School, Department of Marketing, Private Bag 92019, Auckland, New Zealand^b Hanken School of Economics, Department of Marketing, University of Auckland Business School, Graduate School of Management, P.O. Box 479, FIN-00101 Helsinki, Finland^c Aalto University School of Business, Department of Information and Service Economy, P.O. Box 21210, FI-00076 Aalto, Finland

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ABSTRACT

Using a business model perspective, we identify four continua that are of specific relevance for industrial firms transforming toward solution business models: customer embeddedness, offering integratedness, operational adaptiveness, and organizational networkedness. Using these continua, we explore the opportunities and challenges related to solution business model development in two different business logics that are of particular importance in an industrial context: ‘installed-base’ (IB) and ‘input-to-process’ (I2P). The paper draws on eight independent research projects, spanning an eleven-year period, involving a total of 52 multinational enterprises. The findings show that the nature and importance of the continua differ between the I2P and IB business logics. IB firms can almost naturally transition toward solutions, usually through increasing customer embeddedness and offering integratedness, and then by addressing issues around the other continua. For I2P firms, the changes needed are less transitional. Rather, they have to completely change their mental models and address the development needs on all continua simultaneously.

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1. Introduction

Servitize, move forward in the value chain, and transform your product business model into a solution business model! Industrial firms are urged to consider that “the product is dead” (Phillips, Ochs, & Schrock, 1999, p. 51) and they need to “manage the transition from products to services” (Oliva & Kallenberg, 2003, p.160), and “make solutions the answer” (Foote, Galbraith, Hope, & Miller, 2001, p.1), because “however difficult the transition, manufacturers can’t afford to ignore the opportunities that lie downstream” (Wise & Baumgartner, 1999, p.141).

When companies take so called ‘servitization’ (Vandermerwe & Rada, 1988) steps toward solutions, they concurrently change their earning logic, move their position in the value network, and need to use and develop capabilities in a different way – inherently making fundamental business model changes. Nevertheless, though many scholars implicitly encourage a change of business models, few explicitly address challenges in developing and implementing solution business models (Baines, Lightfoot, Benedettini, & Kay, 2009).

In this paper, we argue that using a business model lens when analyzing solution business is important for two reasons. First, it highlights the challenges associated with the transformation toward solution business model (c.f. Demil & Lecocq, 2010). Few firms actually make a complete transformation from a product business to a solution business – they have part of their activities focused on solution business, whilst building on their existing product business. Many of them will end up having parallel business models (Markides & Charitou, 2004). This implies that solution business models are not static and that the transformation needs to be seen in terms of degrees of change. Even though previous research highlights the importance of developing new solution business models (c.f., Storbacka, 2011), there is lack of research related to the transformational needs in various business model dimensions (Kapletia & Probert, 2010).

Second, a business model approach facilitates a comparison across different business contexts. This is relevant as solution business is predisposed by particular industry conditions (Pisano, 2006; Storbacka, 2011), commonly accepted dominant designs (Baldwin & Clark, 2006; Srinivasan, Lilien, & Rangaswamy, 2006), or industry recipes (Spender, 1989). There are, however, few specific guidelines and tools for developing solution business in different industrial or business contexts (Baines et al., 2009). Rather, existing research tends to treat solution providers as a homogenous group, which has led to calls for further research that go beyond recommending broad reaching solution strategies and capabilities for solution suppliers (Kapletia & Probert, 2010).

This paper addresses the above identified gaps by focusing on the following two research questions: (1) how do business models need to change when firms transform toward solution business, and (2) how do the opportunities and challenges for implementing

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solution business models differ between industrial contexts? More specifically, the paper focuses on the two generic business logics (Nenonen & Storbacka, 2010) of particular importance in a business-to-business, industrial context: ‘installed-base’ (IB) and ‘input-to-process’ (I2P). Firms operating with IB logic provide investment goods, thus creating an installed base at the customers. IB logic is common among firms representing machinery and equipment industries. The I2P logic is relevant for firms that provide goods that are utilized as inputs in the customers’ process. The good is transformed during the customer’s process in such a way that it ceases to exist as a separate entity. I2P firms are found in industries such as metal, pulp and paper, and utilities.

We address the two research questions with an abductive research process, drawing simultaneously on the emerging body of business model research, on literature in the solution business area, as well as on empirical research.

2. A synthesizing research process

This paper draws on data collected from eight independent research projects spanning an eleven-year period (2001–2011) and involving a total of 52 multinational enterprises from various industries. Most of the firms are headquartered in Finland, the Netherlands, or Sweden. The industries represented include adhesion and surfacing solutions, cargo handling systems, chemicals, construction, compressors, construction materials, copper tubes, elevator and escalators, energy, digital printing, electronic manufacturing services, fluid handling and separation, forklift trucks, industrial machinery, information technology services, metals, mining and construction equipment, mobile software solutions, network infrastructure, oil refining, pumps, pulp and paper, real estate, shipbuilding, and telecommunications.

Six of the research projects were consortium-based, i.e., they involved groups of seven to twelve firms in a six to nine month process, where the focus was on investigating various aspects of solution business models: e.g., business model innovation, solution sales, industrialization of solutions, and growth through solution business. Two of the research projects focused on a limited number of firms and on longitudinal aspects of solution transformation.

Altogether, the projects included 216 in-depth interviews, and 15 one-day workshops within the consortia groups. The workshops involved a total of 151 managers with an extensive experience of, and interest in solution business. Synthesizing the findings from these projects provides opportunities to better understand the complex phenomenon of solution business model development as applied across different empirical contexts.

Detailed methodologies of the individual research projects have been reported in nine previously published studies (Salonen, 2011; Salonen, Gabrielsson, & Al-Obaidi, 2006; Storbacka, 2011; Storbacka & Nenonen, 2009; Storbacka, Polsa, & Sääksjärvi, 2011; Storbacka, Ryals, Davies, & Nenonen, 2009; Windahl, 2007; Windahl & Lakemond, 2006, 2010). Thus, we do not discuss them in detail in this paper, but rather provide an overview of how the empirical data was synthesized in the process leading to this paper.

The synthesizing research process focused on interpretation and reflection rather than on the collection and processing of data (Alvesson & Skoldberg, 2005). The nature of the research process was abductive, combining induction and deduction (Locke, 2010). Thus, it can be characterized as a non-linear, non-sequential, iterative process of systematic and constant movement between the empirical data, the model and the literature, during which the analytical frameworks were reoriented as directed by empirical findings (Dubois & Gadde, 2002). In a reflective process such as this, the aim is to combine elements in order to establish emergent patterns, and refine the constructs used to portray reality (Eisenhardt, 1989).

The process of synthesizing was governed by a set of principles that the researchers adhered to using criteria from interpretive research and

grounded theory (see also Flint, Woodruff, & Fisher Gardial, 2002). Drawing on Lincoln and Guba (1985), Miles and Huberman (1994), Spiggle (1994), Strauss and Corbin (1990), and Wallendorf and Belk (1989), conformability, integrity, pre-understanding and dependability were defined as the main governing principles.

In order to reduce researcher bias (*conformability or objectivity*) and ensure that the results are acceptable representation of the data (*integrity or authenticity*), the research process was based on a three-stage series of interactions between the researchers.

The first stage focused on articulating the researchers’ *pre-understanding* (Normann, 1977) built on the previous research reports and the fact that all researchers have had a long term (5–15 years) research interest in the solution business area. Additionally, two of the researchers also have 10+ years of experience from consulting in this area. This confirmed that there are differences between diverse business logics, and identified that the business model transformations, which firms moving into solutions were engaging in, could be analyzed using four continua.

During the second stage the researchers substantiated and described business model transformations using the four continua as a lens. In order to secure *dependability, reliability, or auditability*, the research process utilized triangulation (Creswell & Miller, 2000; Denzin, 1978; Stake, 1995). Triangulation was a natural starting point as none of the researchers had participated in all the nine research projects. Furthermore, the four researchers had not worked in a joint research process before. Three forms of triangulation were used: (1) data triangulation (the empirical data in the underlying studies was collected through several sampling strategies, data was collected at different times and social situations, as well as on a variety of firms and contexts), (2) methodological triangulation (more than one method was used for gathering data: interviews, interactive workshops with practitioners, and observations), and (3) investigator triangulation (more than one researcher interpreted the data). As a result the process produced consistency of explanations between researchers and research contexts.

During the third stage the focus was on synthesizing and validating the findings, a process that continued throughout the writing of the paper. This was done by a continued interaction between the empirical data and literature. In doing so it was noted that more literature support could be found for the business model continua, whereas the business logics characteristics pre-dominantly emerged from the empirical material. During the entire process all researchers were active participants and knowledge was constructed collaboratively as interpretations were altered, expanded and refined.

Due to the unusually large amount of data and the explicit aim to synthesize, we do not report findings for individual case firms, nor do we report intermediary results or direct quotes by the firm representatives. Instead, our narrative focuses on important similarities within and differences across the empirical contexts.

3. Transforming toward solution business models along four continua

In this section we propose that a deeper understanding of the preconditions to success in solution business can be gained by using a business model lens. We address our first research question (“how do business models need to change when firms transform toward solution business”), by identifying four generic business model continua that can be used to describe the transformation toward solution business models.

3.1. Applying a business model lens on solution business

Given the wide range of solution literature streams (Baines et al., 2009; Fisher, Gebauer, & Fleish, 2012; Lay, Schroeter, & Biege, 2009; Windahl & Lakemond, 2010), it becomes difficult to arrive at a fixed definition for the term solution (Evanschitzky, von Wangenheim, & Woisetschlager, 2011). The definitions that do exist vary depending

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