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A solution business model: Capabilities and management practices for integrated solutions

Kaj Storbacka *

Hanken School of Economics, P.O. Box 479, FIN-00101 Helsinki, Finland

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ABSTRACT

The developed solution business model framework assists firms wishing to design solution business models by categorizing capabilities and management practices necessary for the effective management of such a business model. The developed framework integrates findings from a wide variety of research streams with the empirical data collected in an abductive research process, involving ten firms with multi-national operations. The framework consist of a solution process with four phases (develop solutions, create demand, sell solution, and deliver solution) and three groups of cross-functionality issues (commercialization, industrialization, and solution platform). The framework identifies twelve capability categories, and sixty-four capabilities and management practices pertinent to the effective management of solution business. The research points to the importance of cross-functional alignment within firms. An effective solution business model requires the intricate coordination of resources and business processes across all functions.

1. Introduction

Solution business models are characterized by longitudinal processes of collaboration that involve several functions of both the buying and the selling organizations (Brady, Davies, & Gann, 2005; Davies, 2004; Spekman & Carraway, 2006; Tuli, Kohli, & Bharadwaj, 2007; Ulaga & Eggert, 2006). According to Tuli et al. (2007, p. 14) "selling solutions is a complex exercise that involves the consideration of conflicting requirements of multiple stakeholders in a customer organization and sales cycles lasting up to two years".

Success in solution business requires a firm-wide initiative; solution development and sales cannot be delegated to any single function in the organization. Firms wishing to deliver solutions effectively need to secure support from all functions, including product development, marketing, sales, operations, and finance. The logic of solution business is quite different from the logic of product business: it requires a more collaborative management, business planning needs to involve customers more, and the measures used to control the business have to acknowledge its cross-functional nature. This may require changes in the way that firms manage their business model: the ability to create alignment between the functional objectives and business processes will become an overriding theme.

There are several research streams that investigate solutions: the *servitization* literature (e.g., Baines, Lightfoot, Benedettini, & Kay, 2009; Mathieu, 2001), the *solution marketing and sales* literature (e.g., Anderson, Narus, & van Rossum, 2006; Spekman & Carraway, 2006; Storbacka, Ryals, Davies, & Nenonen, 2009; Tuli et al., 2007), the *solution strategy and management* literature (e.g., Brady et al., 2005; Davies, 2004; Galbraith, 2002), and the *operations management oriented product/service systems* literature (e.g., Meier, Roy, & Seliger, 2010; Tan, Matzen, McAloone, & Evans, 2010). Although many researchers point to the need for cross-functional integration (Nordin & Kowalkowski, 2010), little research has been directed at providing frameworks that help firms understand how they can design inclusive solution business models that illustrate the balance between the need to adapt to individual customers and the need for 'industrialization' of the delivery of the sold solution (Davies, Brady, & Hobday, 2006: Meier et al., 2010).

Solutions are defined in numerous ways (see Lay, Schroeter, & Biege, 2009; Nordin & Kowalkowski, 2010; Windahl & Lakemond, 2010). Evanschitzky, von Wangenheim, and Woisetschläger (2011-this issue) argue that solutions are "individualized offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components". This research focuses on 'integrated solutions', defined as *longitudinal relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer's value-in-use.*

Offering integrated solutions requires organizational and capability changes as firms reposition themselves in the value chain (Galbraith, 2002; Wise & Baumgartner, 1999). Spekman and Carraway (2006) suggest that the transition towards collaborative solution

* Tel.: +358 500446733.
E-mail address: kaj.storbacka@hanken.fi.

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selling requires a better understanding of new capabilities needed "without which any collaboration is apt to run into insurmountable obstacles" (ibid. p. 12). Brady et al. (2005) argue that firms that shift towards becoming providers of integrated solutions develop new capabilities, such as systems integration capabilities, operational service capabilities, business consulting capabilities and financing capabilities. With the exception of Möller and Törrönen (2003), there is little research that details and categorizes the capabilities and management practices pertinent to the effective management of a solution business model.

This paper addresses the above identified gaps in literature by generating a better understanding of the characteristics and determinants of an effective solution business model. More precisely, *the purpose of the research is*: (1) to develop an inclusive solution business model framework that assists firms wishing to design solution business models, and (2) to identify and categorize organizational capabilities and management practices necessary for the effective management of such a business model.

The paper is structured as follows. After this introduction, the research process and the used methods are described. Second, a broad description of the developed solution business framework is provided. Third, the identified capabilities and management practices are illustrated. Lastly the author discusses the implications and contribution of the research, future research opportunities and managerial implications.

2. Research process

The research was carried out between September 2008 and April 2009, and involved a group of ten multi-nationally operating firms from different industries: mining and construction, forklift trucks, copper tubes, cargo handling systems, network infrastructure, electronic manufacturing services, digital printing, industrial machinery, shipbuilding, and mobile software solutions. The participating firms sell solutions, rather than pure goods or services, and have a keen interest in exploring the transformation from product sales to solution sales.

The nature of the research process was abductive, combining induction and deduction (Dubois & Gadde, 2002). As verification is less important in systematic combining, the collected data is not used solely for triangulation. Instead the focus was on matching; defined by Dubois and Gadde (2002, p. 555) as "going back and forth between framework, data sources, and analysis". The goal of the research was to match theory and reality in a nonlinear, path-dependent process of systematically combining empirical observations and insights from a continuous exposure to literature.

The research process consisted of three phases: (1) framework development, (2) explication of capabilities, and (3) interpretation. During the first phase, the researcher (1) reviewed a wide selection of marketing, sales, management and operations management literature pertinent to solution business; (2) conducted five expert interviews (lasting between 60 and 75 min) with senior managers representing firms that had successfully transformed from product to solution sales (two interviewees from the information technology industry, two from machine manufacturing industries and one from the telecommunications industry); and (3) conducted interviews separately with each of the participating case firms: all in all ten interviews of senior level executives or their direct reports, lasting between 80 and 105 min. The interviewees were senior managers with at least fifteen years of industry experience, and represent three different countries: Finland, Netherlands, and Switzerland.

The interviews followed a purposive sampling approach (e.g., Eisenhardt, 1989; Patton, 2002; Wallendorf & Belk, 1989), where the content of each discussion was built on previous responses. This allowed for a gradual building of the framework as the interviews progress. After each set of interviews the data was categorized according to the data analysis process of Spiggle (1994) and Strauss and Corbin (1990), building on emerging previous categories.

In order to increase the trustworthiness of the research, full-day research workshops were held after each of the first two phases. The workshops, involving 23–32 representatives of the case firms, aimed at getting participants' comments to the framework. Hence, they worked as a form of 'member check' (Lincoln & Guba, 1985; Wallendorf & Belk, 1989), where researchers expose their findings to the scrutiny of informants. As all participants in the research workshops were senior professionals with over ten years of industry experience in the subject area, and can be viewed as reflective practitioners (Schön, 1983), we adopted a style where both the researchers and the informants are active participants in a social encounter, collaboratively constructing new knowledge (Holstein & Gubrium, 1997).

After a briefing, the participants were divided into groups of five or six people and asked to relate their experience to the framework, to comment on the elements and categories, to reflect on the terms used, and to discuss the relationships and causality between the category. During the workshop, the researchers documented the group work results and consequent discussions, and collected written feedback and firm-specific examples of capabilities and management practices.

The trustworthiness of the research is assessed using criteria from interpretive research and grounded theory (Flint, Woodruff, & Gardial Fisher, 2002). Drawing on Lincoln and Guba (1985), Miles and Huberman (1994), Spiggle (1994), Strauss and Corbin (1990), Wallendorf and Belk (1989), focus is given to pre-understanding, credibility, transferability, dependability, conformability, integrity, understanding and utilization. The assessment results are elaborated in Table 1.

3. A solution business model

As a result if the abductive research process three aspects of a solution business model are identified as central: a process point of view, a high degree of cross-functionality, and a need for new capabilities and management practices.

3.1. The solution process

A solution business model can be analyzed from a process point of view. Pawar, Beltagui, and Riedel (2009) suggest that there are, from an operations point of view, three stages in designing solutions: defining value, designing value and delivering value. Kindström and Kowalkowski (2009) suggest a four step process: market sensing, development, sales, and delivery. Tuli et al. (2007) emphasize the role of post-deployment support. Drawing on this and the empirical data the solution process is categorized into four highly interconnected and iterative phases: *develop solutions* (combining customer insight and provider resources in order to create a solution portfolio), *create demand* (communicating about the available solutions in order to identify sales opportunities), *sell solution* (engaging in a process that turns opportunities into orders for customer specific solutions), *deliver solution* (delivering the solution and securing long-term value creation for customer and value capture for provider).

3.2. The cross-functionality of managing solution business

There is, as also many other researchers argue, a major issue of cross-functionality in managing solution business (Arnett & Badrinarayanan, 2005; Homburg, Workman, & Jensen, 2000; Narus & Anderson, 1995; O'Leary-Kelly & Flores, 2002; Olhager, Rudberg, & Wikner, 2001; Singh & Rhoads, 1991; Storbacka, Polsa, & Sääksjärvi, 2011; Weitz & Bradford, 1999). Storbacka et al. (2009) argue that in addition to the classical marketing and sales interface, solution selling has "really important cross-functionalities […] with finance, manufacturing, supply, engineering, and servicing" (ibid., 903). One aspect of the cross-functional view relates to the organizational, managerial and strategic consequences of