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The customer as enabler of value (co)-creation in the solution business

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ABSTRACT

Through 31 in-depth interviews with customers and providers of knowledge-intensive business service solutions, this article explores their view on customers' contribution to value (co)-creation. First, the study defines five internal factors that prompt customers to engage with providers for value (co)-creation and discusses unique factors that influence how customers define their needs before engaging a solution provider. In addition, the study suggests extending the known solution process by proposing the problem and need definition phase to reflect the customer's early activities. The results support the theory that customers define their typical needs not only to aid them in selecting the right provider but also to use their awareness of possible issues to guide the solution process. Providers benefit from this definition in that they gain a better understanding of their roles and responsibilities in the process. Second, the study identifies eight variables that typically enable value (co)-creation. The findings show that customers should focus their activities on those variables and providers should identify possible customer shortcomings so that they can compensate for them.

1. Introduction

The customer has never been more important. Service research, particularly solution business literature, emphasizes the customer's importance in the value (co)-creation process (e.g. Aarikka-Stenroos & Jaakkola, 2012; Tuli, Kohli, & Bharadwaj, 2007; Vargo & Lusch, 2006). Thus, marketing research attention has evolved from the goods-dominant paradigm to the now-prevalent service-dominant (S-D) logic (Vargo & Lusch, 2004, 2008). Although scholars do not consider S-D logic a paradigm yet, it has influenced their research, resulting in important conceptual and empirical work that enhances understanding of service marketing and the solution business (e.g. Heinonen et al., 2010; Payne, Storbacka, & Frow, 2008).

However, extant research typically does not focus on the customer; scholars mostly address the solution provider, defining it as a firm that customizes products and/or services to satisfy customers' needs (Stremersch, Wuyts, & Frambach, 2001). Hence, Tuli et al. (2007, p. 1) challenge the established understanding of the term "solution": "there is little evidence to suggest that this view reflects or is informed by how customers think about solutions." The statement "value is defined by and cocreated with the consumer" (Vargo & Lusch, 2004, p. 6) becomes precariously vague, in that value (co)-creation without a comprehensive understanding of the customer is difficult to achieve (Heinonen et al., 2010; Zerbini, Golfetto, & Gibbert, 2007). Extending this viewpoint, Heinonen et al. (2010) argue that a customer-dominant logic is needed. Consequently, solution business researchers have called for future empirical studies that emphasize the previously neglected customer (e.g. Brax & Jonsson, 2009; Payne et al., 2008; Töllner, Blut, & Holzmüller, 2011; Tuli et al., 2007). Reports of solution business providers' negative or, more commonly, moderate profitability support the need for further research (Hancock, John, & Wojcik, 2005; Johansson, Krishnamurthy, & Schlissberg, 2003).

In line with Payne et al. (2008), we propose that for a provider to increase its competiveness, it must understand and adapt methods of supporting the customer in the solution development process, which implies that customers' conditions can vary (Brax & Jonsson, 2009). Thus, we argue that it is important for providers to understand the initial needs the customer has identified and seeks to compensate for by hiring a solution provider. Therefore, the first research question of our study is: What are the typical customer needs that prompt them to engage with providers to create solutions? Clarifying the need not only has significant impact on the customer's provider selection criteria but also determines the customer and provider's roles in the subsequent solution process. Herein lies the first main contribution of this research.

Although scholars agree that customers are important in the solution development process (Grönroos, 2008; Heinonen et al., 2010; Tuli et al., 2007; Vargo & Lusch, 2004), they are vague with regard to how the customer contributes (Aarikka-Stenroos & Jaakkola, 2012; Payne et al., 2008). Thus, the second research question of this study is: How does the customer typically enable value (co)-creation in the context of solution business? The current research enhances the ongoing academic discussion regarding the customer's role and contributions during the (co)-creation of solutions. In addition, practitioners will benefit from a better understanding of customer practices and activities when entering into the solution creation process.

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2. Theoretical background

2.1. The customer in the solution business

As early as Ansoff and Stewart (1967), scholars have discussed the solution business. However, a literature review shows several variations of its definition (e.g. Nordin & Kowalkowski, 2010; Töllner et al., 2011; Tuli et al., 2007). Varying characteristics include the degree of customization and integration with the customer (e.g. Galbraith, 2002; Johansson et al., 2003; Sawhney, 2006) and the bundling of products and services (e.g. Brady, Davies, & Gann, 2005). Other researchers follow a results-oriented perspective by suggesting that it is a "comprehensive bundle of products and/or services, that fully satisfies the needs and wants of a customer related to a specific event or problem" (Stremersch et al., 2001, p. 2). We agree with the latter definition in that it acknowledges the customer's unique problem and therefore indirectly includes other characteristics such as the bundling of products and services as needed. The numerous definitions of the solution business are also reflected through the variety of industries that offer solutions, including technology (e.g. Ceci & Masini, 2011; Zerbini et al., 2007), professional services (e.g. Aarikka-Stenroos & Jaakkola, 2012; Jacob, Kleipaß, & Pohl, 2014), and manufacturing (Biggemann, Kowalkowski, Maley, & Brege, 2013; Brax & Jonsson, 2009).

Literature focusing on the customer in the solution business identifies sequential processes that describe the creation and implementation of solutions. According to Tuli et al.'s (2007) relational solution process of the provider and the customer, the sequence begins with the joint definition of requirements for the solution, followed by customization and integration of the solution, and ending with deployment and post-deployment support. Töllner et al. (2011) enhance the process with a sequence of signaling activities toward the customer before the requirement definition begins and introduce the element of inter-process management. Aarikka-Stenroos and Jaakkola (2012) find comparable steps to Tuli et al. (2007) but view them as iterative and include value conflict management between firms as well as organizing the solution process and resources. Despite these differences, the proposed solution processes basically agree that a solution is developed through co-creation with the customer.

Summarizing the traditional literature on the customer's perception in the solution process, Grönroos and Voima (2012) find that this research often describes the provider as the leader in the value creation process. In extreme cases, "customers truly are viewed as partial employees" (Bitner, Faranda, Hubbert, & Zeithaml, 1997, p. 197), relegating the customer to a subordinate role. However, more recent research on the customer perspective has changed this notion such that the customer and the provider are described as equal contributors through co-creation, implying that it is more than the transfer of activities from one firm to the other (e.g. Jaakkola & Hakanen, 2013; Sheth & Uslay, 2007). Thus, co-creation can be understood as the "benefit realized from integration of resources through activities and interactions with collaborators in the customer's service network" (McColl-Kennedy, Vargo, Dagger, Sweeney, & Kasteren, 2012, p. 7). This definition represents a balanced approach that acknowledges the contributions of the customer and the provider through collaboration.

2.2. Value (co)-creation through the customer

The value literature that addresses solutions evolved from the general suggestion that the integration of pieces into a solution results in more value than the individual pieces would alone (Brax & Jonsson, 2009) to literature examining the locus of customer value when co-creating a solution with a provider (Grönroos & Voima, 2012; Heinonen et al., 2010) or investigating value creation in multiple-actor solution networks (Butler & Batt, 2014; Jaakkola & Hakanen, 2013; Windahl & Lakemond, 2006). For example, applying the value-in-use logic (Macdonald, Wilson, Martinez, & Toossi, 2011; Vargo & Lusch, 2004), value does not exist until the customer uses or experiences goods and services (Grönroos, 2008). In this sense, value is "determined by the beneficiary" (Vargo & Lusch, 2008, p. 9).

Following this literature stream, the provider's initial role is to facilitate goods and services to create potential value (Gummesson, 2007). The potential value is embedded in the provider's value proposition with the objective of achieving the best possible trade-off between the customer's value-in-use and the required sacrifices (e.g. Lindgreen, Hingley, Grant, & Morgan, 2012; Woodruff, 1997; Zeithaml, Berry, & Parasuraman, 1988). However, providers are not restricted to the facilitator role only. They can integrate themselves through intensive interaction and engagement in the customer's daily practices to become part of the value creation process through co-creation and help fulfill the value proposition (Grönroos, 2008). To become a co-creator of value, the provider must deeply understand the customer firm to meet its needs (Grönroos & Voima, 2012; Payne et al., 2008). Hence, we see our first research question on typical customer needs that prompt them to engage with providers to create solutions strongly justified. This concept becomes even more relevant as several scholars have suggested that co-creation with the provider is important to achieve the best solution (e.g. Jaakkola & Hakanen, 2013; Lehrer, Ordanini, DeFillippi, & Miozzo, 2012; Payne et al., 2008; Tuli et al., 2007), which links our research questions to not only co-creation but also the impact of solutions in general.

Extending this viewpoint, the provider can be a facilitator and co-creator but not a direct creator of value from the customer perspective, because it cannot experience value-in-use (Grönroos, 2011). The customer, in contrast, can create value independently or decide to co-create value through direct interaction with the provider (Grönroos & Voima, 2012). Thus, extant research indicates that the customer determines value (Vargo & Lusch, 2008) and decides whether to engage in co-creation with the provider (Grönroos & Voima, 2012). However, the customer's concrete contribution is still underrepresented in the literature. Thus, the second research question aims to investigate how the customer typically enables value (co)-creation in the context of solution business.

3. Methodology

3.1. Research design and sample selection

Because little research addresses customers' needs and contributions in the value (co)-creation process in the context of business solutions, we use an explorative approach (e.g. Glaser & Strauss, 2006; Lehrer et al., 2012; Tuli et al., 2007). We applied a purposeful sampling approach to recruit managers with relevant experience as customers or solution providers (e.g. Töllner et al., 2011; Tuli et al., 2007), accessing several professional network platforms and personal contacts. We conducted 31 in-depth interviews within a nine-month period.

The customer sample is composed of in-depth interviews with 12 managers from four firms operating in different industries (see Table 1). We selected large customer firms because they typically purchase and develop solutions more often than small firms. The interviewees have significant experience in purchasing, developing, and using solutions and most often held top or senior management positions in their organizations (e.g. chief financial officer, vice president).

We used a provider firm that created solutions for the same industries (i.e. pharmaceuticals, agro-chemicals, life sciences, and technology) to ensure a common basis of solutions and comparability to identify overarching themes. Due to the dilutive usage of the term "solution provider", we selected a firm that offers knowledge-intensive business services, a solution widely accepted in literature (e.g. Aarikka-Stenroos & Jaakkola, 2012; Lehrer et al., 2012; Tuli et al., 2007). This firm has more than 100,000 employees, and we conducted

Table 1
Sample characteristics of customer interviewees.

Firm characteristics				Interviewee characteristics			
Firm	Industry	Revenue in USD	Size (employees)	Interviewees	Functional expertise	Average working experience (years)	Average amount of solution projects
Firm A	Pharmaceuticals	>20 bn.	>60,000	5	Finance (3), IT, R&D	20	23
Firm B	Agro-chemicals	>10 bn.	>20,000	2	HR, strategy	33	20
Firm C	Life sciences	>50 bn.	>100,000	2	Accounting, finance	22	23
Firm D	Technology	>1 bn.	>5000	3	Operations, finance, IT	20	48

in-depth interviews with 19 managers (mostly upper-level [e.g. partner] or middle-level [e.g. senior project manager] managers) with extensive work experience (Table 2). Both solution providers and customers had worked on solution projects worldwide.

3.2. Data collection and analysis

We conducted semistructured interviews in one-on-one sessions with the objective of discovering individual solution experiences (Miles, Huberman, & Saldana, 2014; Töllner et al., 2011). The semistructured setup gave participants the opportunity to enrich the research by adding new ideas as well as directions of interest (Mason, 2006). We used a set of stable questions to guide the interview and stimulate individual responses (see the Appendix). The interviews lasted between 30 and 72 min and were audiotaped and transcribed.

Applying the qualitative content analysis approach for inductive category formation suggested by Mayring (2000, 2014), we analyzed the data by carefully unitizing and coding each sentence to identify similar meanings for developing distinct categories. The process involves revising those categories after approximately 50% of the content analysis to define the main categories (Krippendorff, 2013; Mayring, 2000). We used the online software QCAmap to manage the data and apply the analysis process. A second independent coder repeated the procedure separately. Using Krippendorff's Alpha reliability test via SPSS 22, we found a high degree of reliability of 90.6% (Hayes & Krippendorff, 2007; Lombard, Snyder-Duch, & Bracken, 2002).

Following Tuli et al. (2007), we then selected categories for discussion that met certain criteria. First, multiple interviewees must mention the insight. Second, the insight must be applicable to more than just one industry and therefore mentioned by interviewees from different companies or industrial foci. Third, we selected responses that provide new insights in a solution applied context. Hence, we excluded industry-specific as well as unique answers.

For the discussion of our results, we identified quotes that summarize the main idea and illustrate actual interviewee insights. For validation purposes, we contacted the interviewees to ensure that their quotes fully represented the expressed view.

4. Results

4.1. Identifying the needs for engagement

The objective of the first section of our results is to focus on customers by analyzing the needs that prompt them to engage with external solution providers. Those needs also represent the starting point for customers' solution creation process.

This section makes two contributions: (1) We propose to extend the solution process by another phase to reflect the early activities of the customer; to do so, (2) we draw on our analysis to identify five main customer needs that prompt them to engage with solution providers.

In contrast to Töllner et al.'s (2011) enhancement of Tuli et al.'s (2007) solution process, the interviewed customers and providers indicated that the solution process begins even earlier, when the customer defines the reason the provider is needed in the solution process. This finding is consistent with Lapierre (1997), who points out that the creation process begins with the customer's recognition of the problem; however, we go beyond problem definition (Nordin & Kowalkowski, 2010; Sawhney, 2006) by including the customer's determination of need to engage with a provider. A senior manager with a focus on life sciences at the provider firm concluded:

> *The client has to define a clear picture of the solution objectives and its specific need before it enters the joint requirement definition phase. I have seen many customers struggling to do that. Once the customer decided on a provider based on its initial definition, it's good practice to enter a joint requirement definition phase.*

In the words of a finance manager at the pharmaceutical firm:

> *The customer needs to analyze its available internal resources and capabilities as well as clarify and align the deliverables of the project internally before it hires a provider.*

Both customer and provider input indicate the need to integrate this customer-driven aspect as the beginning of the solution process. Thus, we enhance the solution process defined by Tuli et al. (2007) and Töllner et al. (2011) by adding the problem and need definition phase, as shown in Fig. 1. This phase includes the specification of the solution deliverables through problem definition and analysis of the internal factors.

The prerequisite of problem definition is in line with the literature (e.g. Lapierre, 1997; Nordin & Kowalkowski, 2010; Sawhney, 2006) and confirmed through our study. The need definition is a new element and represents the reason the customer engages with a provider instead of creating the solution solely internally. The data analysis revealed that five internal factors are most important (Table 3): (1) capacity, (2) methodological expertise, (3) functional expertise, (4) market insight, and (5) legitimation. Next, we explore these factors in detail.

4.1.1. Capacity

Interviewees noted that customers' lack of workforce capacity is a major factor that prompts them to engage with providers to develop a solution, in line with literature emphasizing the role of capacity in the

Table 2
Sample characteristics of provider interviewees.

Industrial focus	Interviewees	Functional expertise	Average working experience (years)	Average amount of solution projects
Pharmaceuticals	6	HR, marketing & sales (3), operations, R&D	10	27
Agro-chemicals	6	HR (2), marketing & sales (2), operations, R&D	9	25
Life sciences	5	Finance (2), HR (2), operations	8	22
Technology	2	IT, HR	10	22

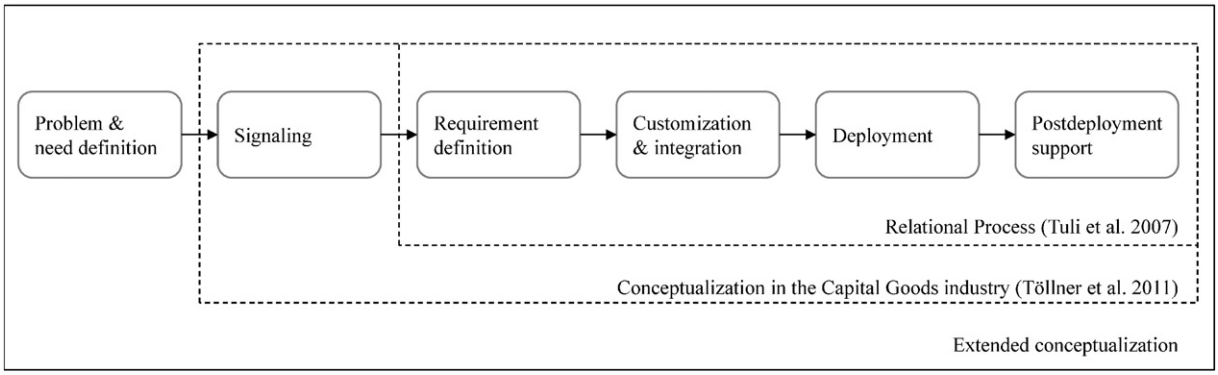

Fig. 1. Extended conceptualization of customer solutions.

value creation process (e.g. Skjølsvik, Løwendahl, Kvalshaugen, & Fosstenløkken, 2007; Storbacka, Frow, Nenonen, & Payne, 2012). Several provider interviewees noted that the customers' need to reduce fixed costs such as labor drives the need for external capacities. In addition, customers focus more on flexibility and timely availability of the solution provider's capacity than in the past. For example, a senior manager in operations solutions with a focus on life sciences at the provider commented:

> *A main reason why we get hired is that the customer is increasingly lacking its own resources, with the result that more operational tasks formerly covered by the customer are becoming more and more part of our business, as the resources of the customers are reduced because of costs.*

Customer interviewees confirmed the providers' experience, stressing the increasing importance of available external capacity through a solution provider. For example, a finance manager at the pharmaceutical firm said:

> *We should not underestimate the topic of available resources due the pressure to reduce head count. It is often easier to find money in the budget for external providers than to build up own resources, even when you know that you would need them for the next projects as well.*

Both customers and providers raised the issue of decreased capacity due to increasing cost pressure. The preceding provider quote indicates that providers should consider new business models that accommodate customers' need for more operational support in the solution development process, in contrast to the traditional perception of a knowledge-intensive solution. Moreover, it implies that solution providers' existing competences and business models (e.g. Storbacka et al., 2012) should be reviewed and adapted to reflect the need for operational support. Skjølsvik et al. (2007, p. 117) report a similar result: knowledge-intensive business solution firms "are degraded from supplying expert knowledge to providing capacity." This development is also evident in the evolution of companies focusing on core activities only and outsourcing noncore activities (Cova & Salle, 2007).

4.1.2. Methodological expertise

Most customer and provider interviewees noted the need for expertise that the customers lack to develop the solution internally as a reason to engage with an external solution provider. This factor is consistent with the view in value co-creation literature that solution providers can identify and close customers' competence gaps (e.g. Payne et al., 2008; Zerbini et al., 2007).

The interviewees emphasized the need for methodological expertise to apply certain frameworks and structures as well as for supporting tools to develop the solution. As a senior executive manager in accounting of a life science firm pointed out:

> *When there are no internal experts for a problem, then you engage with people who have that expertise and have worked with that kind of problem several times before. External providers are able to provide a methodological competence to develop a better solution and to ensure a certain quality.*

In a similar vein, a project manager for human resources solutions in the agro-chemical industry spoke about customer expectations:

> *The topic of methods is important. Each project is new, so there is a need for the competences to develop structures, apply tools, and derive actions. The customers also frequently request specialized knowledge.*

Building on our analysis, the provider's methodological expertise was also associated with experience by applying proven concepts as well as providing models that help structure a solution project. The latter draws on Töllner et al. (2011), who find that the provider supports the process management of a solution, which leads to customer satisfaction (Jacob et al., 2014).

4.1.3. Functional expertise

Vargo & Lusch (2006, p. 44) propose that "skill(s) and knowledge is the fundamental unit of exchange." Our data support this statement, as providers and customers noted that functional expertise is an important need for which customers seek to compensate through a provider. Functional expertise can be understood as specialized knowledge within a function. For example, a given customer might lack certain software

Table 3
Factors that determine the need for engagement.

Title	Definition
Capacity	*Capacity* refers to the needed workforce of the customer to develop and implement the solution.
Methodological expertise	*Methodological expertise* describes the need for a certain kind of knowledge (e.g. frameworks, tools) to achieve the solution target.
Functional expertise	*Functional expertise* addresses the need of the customer for specialized knowledge within a function (e.g. advisory on certain accounting regulations).
Market insight	*Market insight* refers to the available and required information on the market (e.g. trends, competitors) for the solution.
Legitimation	*Legitimation* addresses the need to engage with external provider to approve the solution internally and externally.

development capabilities within its technology function (Ceci & Masini, 2011). A vice president providing research and development solutions in the pharmaceutical industry commented:

> *It can be that the customer is looking for real expertise. That is when a customer needs someone that has extremely good knowledge within a function.*

4.1.4. Market insight

The provider plays an important role in transferring market knowledge into the customer's organization by integrating those findings into the solution, in line with previous research emphasizing the positive effect of a firm's market orientation on its competitive advantage and innovativeness (e.g. Keskin, 2006; Pelham, 1997). Customers clearly expected providers to bring a new perspective on how to solve their problem by providing input based on former solution projects or research on market trends. This need may be the result of the customer's suspicion that it has become too inwardly focused, as a senior executive accounting manager in the life science firm pointed out:

> *The customer's own internal workforce is often pretty much interlocked in its daily operations. Sometimes you need a new perspective on things to catch up on the latest trends.*

The providers emphasized this need even more by pointing out that customers often request an external perspective to receive information on how to be competitive. A marketing and solutions vice president in the agro-chemical industry noted:

> *The customers often believe that they do not have all market knowledge. Instead, they hope that external providers have a better understanding of the concepts or that they have better solutions available than the competitors.*

4.1.5. Legitimation

Customers also engage with providers for legitimation reasons, which become particularly important when the solution involves strategic and critical decisions affecting the customer's organization. Some external providers may be perceived as engendering more trust in their judgment than that of internal employees. As a marketing and sales solutions manager in the pharmaceutical industry put it:

> *But there is also the topic of justification of the solution. It becomes easier to sell the project internally when the provider ensures that the actions of the customer are right because the provider has the reputation of a certain competence.*

Two customers elaborated on this theme:

> *I had the feeling that we would have come to the same result, as it was pretty much clear the direction it was going, but it had to be confirmed by an external provider.*
>
> [(Customer life sciences, senior manager finance)]

> *Sometimes even if expertise and resources are internally available, you need a neutral party who describes the very obvious facts with its own words to create an internal momentum for acting. It is more like an additional political argument.*
>
> [(Customer life sciences, senior executive manager accounting)]

The quotes indicate not only that a provider increases the customer's chances of receiving organizational backing for the solution project but also that the provider's solution serves as a fallback scenario in case the results of the solution are not satisfying or touch critical issues within the organization where no direct association is intended. This finding is also supported by the well-discussed concepts of legitimation in institutional theory (e.g. Carroll, 1997; Meyer & Rowan, 1977).

4.2. Customer variables enabling value (co)-creation

Analyzing the data from our second research question, we identified eight customer variables that enable value (co)-creation. Through those variables the customer is able to affect value (co)-creation on a wide range of ways. For example, some facilitate the co-creation process with the provider by supporting the degree of his engagement (Grönroos & Voima, 2012), others ensure the commitment of internal stakeholder (Bettencourt, Ostrom, Brown, & Roundtree, 2002) as our data show that those variables interact not only the provider but also the internal stakeholder in the customer organization as part of the value (co)-creation system (see Fig. 2). In the following subsections, we explain in more detail the proposed variables.

4.2.1. Objective and scope

The first variable, objective and scope, has two elements. "Objective" refers to the necessity that customers define the final outcome and the value of the solution. A solution might have one main objective but several subtargets that should be covered as well. Those targets must be prioritized to focus and align the available project resources and actions. This finding confirms previous research that emphasizes the need for a comprehensive definition of solution requirements by integrating it into the relational solution process (e.g. Tuli et al., 2007) or deriving the requirements form the defined customer outcomes (Sawhney, 2006) to co-create value.

The second element, scope, determines the extent to which the objective must be achieved and specific circumstances necessary (e.g. geographical reach, number of functions involved). In addition, specific company guidelines must be incorporated in the solution. In the words of a senior finance manager in the pharmaceutical company:

> *We have to define the nonnegotiables and the must-haves of the solution. And we need to determine the essential parts of the solution and which elements are nice to have and could be incorporated later. We need to provide clarity to the provider about what we want and where we do not want to enter in any discussion with the provider no matter what great ideas they have.*

Both customers and providers noted that it is important for the customer to have a high degree of clarity on this enabling variable before proceeding. However, providers often perceive that the customer is vague regarding the objective and scope of the solution, similar to findings from Simonson (2005) claiming ill-defined preferences of the customer and Aarikka-Stenroos and Jaakkola (2012) introducing role of the "co-diagnoser" the provision of necessary information. A marketing and sales solutions project manager in the pharmaceutical industry elaborated:

> *I experienced it quite often that customers believe that they know what they want but become vague once you speak with them about it, and then they often increase the scope. So my experience is that it really helps when the customer is certain about what it wants. If not, then it is our job to develop and define that.*

The preceding quote also expresses other providers' opinions: customers tend to change the initial scope over time, which can lead to the dilution of the objectives and cause inefficiencies. Addressing the need for a stable solution objective and scope, a marketing and sales solutions senior manager noted:

> *It becomes very difficult and extremely resource intensive for the provider when the direction of the project frequently changes.*

On the other side, customers noted that it is important to ensure that the provider does not extend the project scope or add more features than needed with the intention of developing its own business. Moreover, providers emphasized the importance of being realistic about

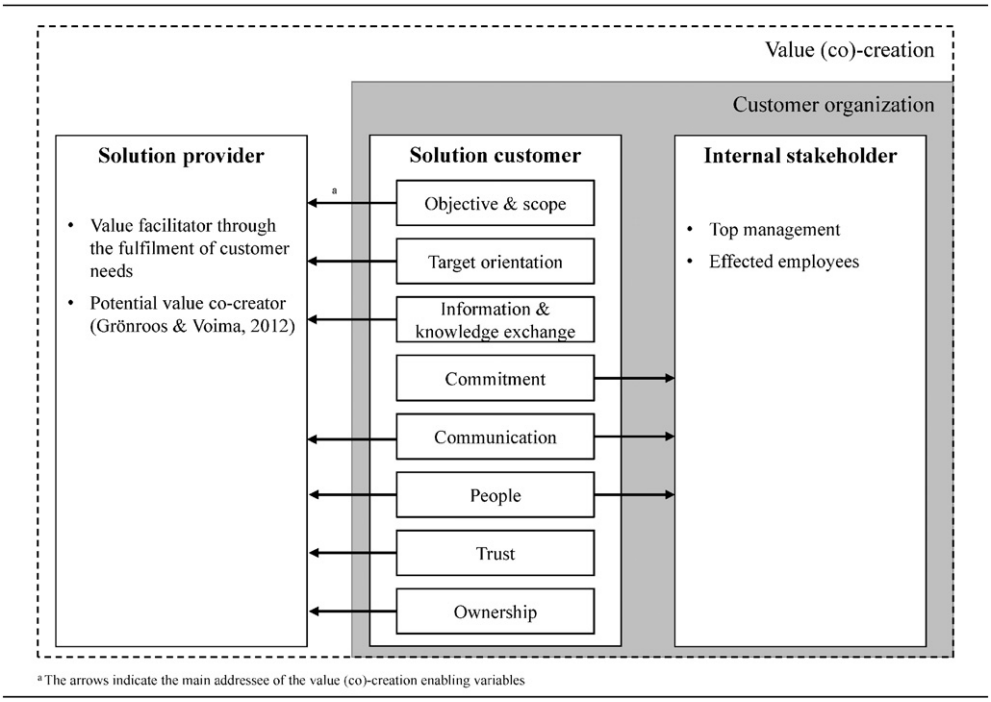

Fig. 2. Customer variables enabling value (co)-creation.

these aspects. An overly ambitious objective might overwhelm the customer's organization, similar to customer confusion due to perceived complexity (e.g. Dellaert & Stremersch, 2005; Huffman & Kahn, 1998). Conversely, providers might set unrealistic objectives by overselling their capabilities. An operations solutions senior manager with a focus on life sciences asserted:

> *I know it very well from external providers who promise more during the request-for-proposal phase than they can really deliver. The customer has a big idea, but the provider has an even bigger proposal, because [the salesperson] wants to differentiate [the firm] from its competitors. If the customer is not able to see that through, it will quickly be on the wrong track.*

The preceding examples demonstrate the pitfalls of conflicting goals and emphasize the need for the customer and provider to collaborate in challenging the value proposition of the solution. We discuss this issue next.

4.2.2. Target orientation

The variable target orientation refers to the actions and governance a customer must initiate to focus on the solution's objectives. Customer interviewees emphasized the need to define intermediate targets and performance measures to monitor progress. This variable is particularly important in the solution business as not all parts are created together and the final result cannot be foreseen (e.g. Brady et al., 2005; Grönroos & Voima, 2012; Jacob & Kleinaltenkamp, 2004). They also noted that continuously integrating during the development process enables them to challenge the interim results of the work and readjust when necessary.

Researchers also recommend that the customer should be involved in the project governance to ensure that cost and timing are on track (Bettencourt et al., 2002). In our context, it is crucial for the customer to be in a position to ensure that the solution is in line with the initial value proposition at the agreed date and cost. Consider the experience of an accounting senior executive manager in the life sciences firm:

> *We defined from the very beginning our interim targets. You should not focus on the final result only, as it is often too far away, but rather validate the interim results to find out whether you are going in the right direction or not.*

Provider data confirm customer statements such as the preceding and stress the importance of target orientation. Notably, our data also reveal that most providers would welcome the customer to engage more in the (co)-creation process by challenging the results extensively and providing feedback. In the words of a marketing and sales solutions senior manager in the pharmaceutical industry:

> *It is a key success factor that the customer knows the details. When the client is not in the details and therefore not able to challenge the provider because he [or she] leads from a high level, there is a high risk, in particular for large projects, that the project will fail.*

Both providers and customers indicated that constantly monitoring progress and challenging interim results is necessary to ensure the overall success of the solution. Furthermore, both sides noted that monitoring the results should not be delegated to the provider.

4.2.3. Information and knowledge exchange

The third variable, information and knowledge exchange, refers to the importance of a customer providing pertinent information to co-create value and transfers the fundamental premise of "operant resources" within the S-D logic into concrete contributions (Vargo & Lusch, 2004, 2008). Furthermore, the variable is similar to Tuli et al.'s (2007) findings, which discuss the meaning of sharing political and operational information with the provider. Other scholars emphasize the need for information management (e.g. Larsson & Bowen, 1989; Prahalad & Ramaswamy, 2004), noting the importance of finding a balance between information received and given between customer and provider (e.g. Brady et al., 2005; Nordin & Kowalkowski, 2010; Vargo & Lusch, 2004). Our variable focuses rather on active or passive information and knowledge exchange through the customer.

Our data analysis revealed that the customer's degree of activity in the information and knowledge exchange process varies. A passive

customer provides access to the requested data only. In contrast, when customers take a more active position, they can foster co-creation by not only providing access to information but also connecting the provider's employees with the right people within the customer's organization as well as contributing to the process through their expertise and knowledge even if not requested by the provider. Thus, providers emphasized the need for knowledge exchange and customer expertise. As two providers pointed out:

The project will fail without the knowledge of the people of the customer.
[(Project manager for operations solutions in the pharmaceutical industry)]

It is important that the customer brings in its specific know-how, because that is something only the customer has and we as providers simply don't.
[(Senior manager for solutions in the area of human resources for the life sciences industry)]

The preceding quotes and our data analysis indicate that the provider cannot close all the customer's competence and knowledge gaps, as suggested in literature (e.g. Payne et al., 2008; Zerbini et al., 2007). Moreover, the results emphasize the importance of the customer in the value (co)-creation process.

4.2.4. Commitment

In the eyes of the provider, establishing organizational commitment to the solution should be the customer's responsibility. Our findings draw on studies confirming that commitment is an important variable of organizational behavior (e.g. Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Mowday, Steers, & Porter, 1979), as well as Bettencourt et al. (2002), who identify the need to "sell" projects internally. Our data analysis revealed it is most important to achieve commitment from two stakeholder groups, for different reasons. First, senior management within the customer's organization ultimately determines the budget, availability of internal employees, and, if necessary, prioritization of various parallel solution initiatives. A project with high visibility to senior management emphasizes the importance of the project and therefore increases the likelihood that the internal project members' motivation is high as well (e.g. Kuusisto, 2008; Larsson & Bowen, 1989), which our respondents suggested to be an important factor for overall project success. In addition, senior management commitment increases the chances of success through positive communication with the affected employees within the organization, which are the second stakeholder group. A vice president for research and development solution in the pharmaceutical industry said:

The senior management has to bring in some commitment and communicate it. With that, you are avoiding a situation in which you as a provider are trying to approach an employee of the customer who does not share your opinion regarding the importance of that project.

The commitment of affected employees is important for two reasons. First, their support might be needed by, for example, providing sufficient information or feedback to the provider. Second, the affected employees must adapt to the new requirements when the solution is implemented. As in Tuli et al.'s (2007) deployment phase, the solution transfers from a theoretical concept into the customer's operations through the application of employees.

In contrast to the providers, who elaborated extensively about the need for commitment, customers did not discuss it in detail. Only a few customers noted stakeholder commitment, such as the following:

It is about enabling the provider to work effectively within the organization—for example, that it has access to people and information. Hence, we need to position the provider accordingly in the organization by giving him or her a certain standing.
[(Vice president, human resources, agro-chemical firm)]

4.2.5. Communication

Vargo and Lusch (2008) manifesting customer-provider interaction as central concept in one of the foundational premises within the S-D logic addressing the "process of integrating and transforming resources" to co-create value (Lusch & Vargo, 2006, p. 285). Operationalizing this proposition, most providers noted that communication is an important variable in the solution process, which the customer should coordinate. Our research suggests that this variable includes not only customer–provider communication but also the customer project team's communication with internal stakeholders. Moreover, the customer project team must consider the timing of this communication as well as identify the correct target group. For example, a solution may have significant impact on employees' daily routines. If a project manager waits too long to communicate the impact to the organization, rumors may begin to circulate and give the wrong impression regarding future work. As a result, the best employees leave the organization first, because they have the best chances of finding a new job quickly, as one customer stated. Consider the experience of a research and development solution project manager in the agro-chemical industry:

With regard to communication, it is very important to communicate not only at the right time but also to the right people inside or outside the organization.

4.2.6. People

Clearly, people working on a knowledge-intensive business solution are an important variable throughout the entire process; all enablers are dependent on their actions. Drawing on Schneider and Bowen (1995), who suggest that the participants are the key to (co)-create value, our data show that the majority of customers indicated that they perceive the customer project lead's main duty to be ensuring sufficient and qualified people working for the project throughout all phases. Thus, selecting internal and external people working for the solution project is a crucial step to overall project success (Maurer, 2010). A vice president of human resources for the agro-chemical firm explained:

The staffing process is difficult but very important. You need to bring people together that will potentially work for a long time, often very intensively, with each other. Selecting the right people with a fitting mind-set and skills is therefore complicated. It once took me three weeks to put a suitable team together.

In addition, the proportion of internal to external people working for the project depends on the solution and the identified needs of the customer at the beginning of the project. A senior finance manager in the life science firm explained:

I think that it is most important that the customer also provides resources and does not think that the project will run by itself as soon as it hires an external provider. You need a balanced ratio between both, but the exact ratio depends on the topic of the solution.

Moreover, customers noted that the assignment of employees to the solution project indicates the solution's importance to the whole organization.

4.2.7. Trust

As our research progressed, it became clear that customers in particular view the establishment of trust between the provider and the customer as an essential enabler to (co)-create value. Developing a solution often requires intensive customer–provider interaction, in which customers must share sensitive information with the provider.

Scholars describe trust as a factor that increases knowledge acquisition from other partners (Yli-Renko, Autio, & Sapienza, 2001). Furthermore, to be efficient, the customer must be able to delegate work to the provider and trust the firm to deliver as expected. Thus, customers described trust as an enabler variable that greatly affects the relationship with the provider and therefore influences the overall success of the solution (Maurer, 2010). Consider the experience of an information technology manager at the technology firm:

> *Many [information technology] projects are not successful because the customer fails to establish an honest, open relationship with the provider. That is often the case when there is no trust between the parties.*

The preceding quote also emphasizes trust as a key determinant of success in developing a solution. A human resources vice president in the agro-chemical firm reinforces this impression:

> *I am convinced that a trustful relationship is important to be successful, because the people are more willing to share knowledge and to go the extra mile for each other.*

4.2.8. Ownership

Customers consider taking the lead through the solution process and not delegating as important for value (co)-creation. To conceptualize this sentiment, we identify the variable ownership as reflected in the elements governance and role acceptance. From a governance perspective, the customer organization must not only define clear roles and responsibilities but also empower the project lead with the authority to decide. Research shows that project participants' motivation significantly affects their involvement (e.g. Kuusisto, 2008; Lachman, 2000; Schneider & Bowen, 1995). In our context, role acceptance refers to the project lead's motivation and aspirations to fulfill the requirements attached to his or her role. This finding is similar to Bettencourt et al. (2002), who emphasize personal dedication toward a project as key to achieving the best solution. Moreover, a project lead who is not willing to accept this role could be incentivized to delegate main responsibilities to the provider, which is not optimal. Customers pointed out that this leadership is only possible through continuous engagement in the solution proceedings. Consider the following experience of a senior finance manager in the pharmaceutical firm:

> *The customer needs to be the lead of the project. Thus, you need someone who dedicates 100% of his [or her] time to do that with the right decision-making power and who is also the main contact for the provider. I have experienced projects in which the customer was only leading in theory but in real life the provider was in charge of the project, which was pretty negative, I have to say.*

The preceding quote also emphasizes the importance of the project lead having the authority to make decisions. Customers noted that the project lead must be able to react to changing circumstances. For example, an interviewee mentioned that the skills needed to develop a solution sometimes differ from those needed to perform regular work, meaning that even high-performing employees may struggle on a project team. Hence, a project lead should be empowered through governance and skills to react quickly. Therefore, the variable ownership refers to the customer organization's responsibility to select a project lead with the capabilities and motivation for this role and to facilitate this project lead's authority through governance.

5. Conclusions, implications and limitations

5.1. Conclusions

Our research addresses the research questions (1) what are the typical customer needs that prompt them to engage with providers to create solutions and (2) how does the customer typically enable value (co)-creation in the context of the solution business? We therefore answering the calls of Tuli et al. (2007), Payne et al. (2008), and Heinonen et al.'s (2010) for more research focusing on the customer's contributions to value co-creation.

Our findings regarding the first research question extend the solution process conceptualization of Tuli et al. (2007) and Töllner et al. (2011) by adding the (1) problem and need definition to the process of (2) signaling activities, (3) requirement definition, (4) customization and integration, (5) deployment, and (6) post-deployment support. We discovered five typical needs why customers engage with a provider: (1) capacity (e.g. Skjølsvik et al., 2007; Storbacka et al., 2012), (2) methodological expertise (e.g. Payne et al., 2008; Zerbini et al., 2007), (3) functional expertise (e.g. Ceci & Masini, 2011; Vargo & Lusch, 2006), (4) market insight (e.g. Keskin, 2006; Pelham, 1997), and (5) legitimation (e.g. Carroll, 1997; Meyer & Rowan, 1977). These needs form the basis to analyze the customer's internal needs in the context of its problem in a solution applied environment.

The results from our second research question reveal several customer activities summarized in eight variables that enable value (co)-creation, which draw on and extend the work of several scholars: (1) objective and scope (e.g. Sawhney, 2006; Tuli et al., 2007), (2) target orientation (e.g. Bettencourt et al., 2002) and (3) information and knowledge exchange (e.g. Vargo & Lusch, 2004, 2008). Providers stressed in particular two areas: (4) commitment (e.g. Bettencourt et al., 2002; Meyer et al., 2002; Mowday et al., 1979) and (5) communication (Lusch & Vargo, 2006; Vargo & Lusch, 2008). Customers, in contrast, emphasized the importance of (6) people (e.g. Maurer, 2010; Schneider & Bowen, 1995), (7) trust (e.g. Maurer, 2010; Yli-Renko et al., 2001) and (8) ownership (e.g. Kuusisto, 2008; Lachman, 2000).

5.2. Managerial implications

Our study has several managerial implications. This research suggests that it is important to begin the solution process with the customer's problem and need definition. Our findings indicate that customers' attention should focus on the organization's internal situation before starting any solution project. The results of our research indicate that customers often lack this kind of self-awareness, in line with the literature (e.g. Aarikka-Stenroos & Jaakkola, 2012; Nordin & Kowalkowski, 2010; Tuli et al., 2007). We argue that if a customer has only a rudimentary self-awareness of the problem, this factor can impede value (co)-creation of the solution, even early in the process. The five identified needs of the customer have two main implications for managers.

First, identifying typical needs increases value (co)-creation by enabling the customer to select the solution provider best able to compensate for the customer's identified deficits. For example, if a solution project lead is aware that it is likely the new solution project will lack legitimation in the organization, he or she might consider selecting a well-known solution provider, even if a new solution provider might offer better functional expertise. In addition, it helps the provider understand its role in the solution project and provide the necessary support.

Second, because this knowledge can increase self-awareness, it also supports the customer in the overall solution process in that it guides the customer through the phases and helps the firm prepare appropriate measures to counter possible issues. Following our previous example, the internal project leader could develop communication measures and convince opinion leaders in the organization to influence the degree of legitimation within the organization. Moreover, a standardized set of identified needs helps the customer firm identify general organizational deficits.

Third, we identify eight main variables affecting value (co)-creation of the solution, many of which are closely linked to project leader's

leadership ability. Thus, certain skills and methodological knowledge (e.g. communication, target orientation), motivation and mind-set (e.g. ownership), and networking capabilities (e.g. commitment) might be required. Thus, our variables provide a guideline for senior management when selecting project leaders. In addition, being aware of those variables might help the provider identify the gaps on which to focus as the firm integrates into the co-creation process. The customer's internal project team could also monitor those variables and react if necessary.

The field data reveal that a consensus does not always exist between customer and provider regarding these variables. In our customer interviews, we found that they often focus on activities, which helps them control the project (e.g. objective and scope, target orientation, ownership). However, the provider emphasized the need for communication and commitment within the organization. The customers' inward-oriented activities help ensure smooth project operations with the aim of achieving solution objectives, but they do not take their organization's political perspective into account, which can be just as important for the project. Moreover, customers should recognize that a lack of organizational commitment can not only affect value (co)-creation with the provider but also influence employees' motivation. These findings give managers of both provider and customer firms a new lens through which to consider their actions carefully in solution projects.

5.3. Limitations and future research

This research is based on interviews with providers and customers involved in (co)-creating knowledge-intensive business solutions. Although our sample includes several different industries, further evidence from other solutions areas would allow more generalization of our results. Thus, our results should be limited to this context. Moreover, our research is based on qualitative in-depth interviews. Therefore, further research should test our results using a quantitative approach.

We propose eight enabling variables for value (co)-creation and suggest the importance of the solution project leader's leadership capabilities. Further research could address this specific field and analyze the roles and various leadership styles of effective managers. In addition, researchers could investigate the customer's optimal engagement intensity in different phases of the solution process.

Appendix A. Questions for providers

1. Background information on the interviewee and the organization
2. What are the reasons why a customer engages with an external provider to develop solutions?
3. Do you agree with the defined solution process?
4. How does the customer of solutions enable value (co)-creation with the provider?
5. How does the customer of solutions hinder value (co)-creation with the provider?

Appendix B. Questions for customers

1. Background information on the interviewee and the organization
2. Why does your organization engage with external solution providers to develop solutions?
3. Do you agree with the defined solution process?
4. How does the customer of solutions enable value (co)-creation with the provider?
5. How does the customer of solutions hinder value (co)-creation with the provider?

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