

CO-CREATION OF VALUE: CRITICAL ASPECTS OF ACTIVITIES

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ABSTRACT: Nowadays, companies increasingly have to collaborate with other parties to deliver and create customer value but there is little systematic research on the organizing competences of companies to collaborate effectively, especially SME's (Small-Medium Size companies). A qualitative research has been conducted in order to discover the critical elements of co-creation of value. This research was structured by using the joint problem-solving model in order to discover critical elements during the activities of co-creation of value of SMEs. Data was gathered from suppliers and customers and the empirical results were created for this theoretical problem. Focus on the critical elements of the activities during the process of joint problem solving revealed that the element of network could attribute to the process but is missing in the joint problem-solving model. Besides this, research shows that the model especially applicable to collaboration in the KIBS industries. Furthermore, The critical elements of dialogue, structure, and knowledge were discovered and confirmed by the joint problem-solving model through existence in several resources.

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Keywords:

Co creation of value, customer value, joint problem solving, value-in-use, business-to-business, and dialogue

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1. INTRODUCTION

The creation of value through interaction between the supplier and the customer is essential in business-to-business marketing (Lingren et al., 2009; Moller, 2006). Value creation is the core business and central process of economic change (Vargo et al., 2008) whereas the customer perceived value is a key to company advantage (Slater & Narver, 2004; Woodruff 1997). Especially the marketing literature has created awareness of the importance of co-creation of value including the processes that support it. Despite the importance, there's little systemic research on the organizing competences of companies to collaborate effectively. Research to investigate these mutual interaction processes from the value co-creation perspective has been scant (Lindgreen & Wynstra, 2005). Although recent research emphasizes the benefits which can emerge from mutual interaction processes between customers and suppliers and not only through the use of the service or good (Ballantyne & Varey, 2006; Grönroos, 2008, 2011; Payne et al., 2008). The interaction process between the parties affords them opportunities to facilitate the creation of value for and with each other (Grönroos, 2008, 2011; Payne et al., 2008; Aarikka-Stenroos & Jaakkola, 2011).

A supplier must not concentrate on the core product to differentiate a market offering, but has to take the various practises of the customers in account (MacMillan & McGrath, 1997). A supplier should ask it self, for example, the following questions; how are the goods and services used? How are they paid for? Where and how are the goods stored? What are customers really using the products for? A transition from business logic or also known as goods logics to service dominant logic should take place. Business logic is where resources are provided to a given usage process for the customers use in order to support that particular process in value creating (Grönroos, 2006). According to service dominant logic, the supplier supports the customer practices with an extended offering, including, for example, a range of extra service activities or goods components, which enables the customer to create value out of the core process (Grönroos, 2010).

Services dominant logic discusses value creation rather theoretical, by arguing that the supplier contributes by making a value proposition whereas the customer should actualize the value by using the resource that is offered to them (Lindgreen & Wynstra, 2005). Although service-dominant logic view emphasizes the collaborative nature of value creation, also specific empirical research investigating what those joint activities are remains absent (Grönroos, 2011; Payne et al., 2008; Vargo et al., 2008). Aarikka-Stenroos and Jaakkola (2011) research tried to identify what those joint activities for collaborative problem solving are and has been one of the first empirical studies that have adopted a dyadic view on analysing value-creation in business-to-business service context.

The research constructed an empirically grounded framework that presents a problem solving process through which value co-creation occurs. The study demonstrates that five key activities need to be considered to fully collaborate in problem solving namely: diagnosing needs, designing and producing the solution, organizing the process and resources, managing value conflicts, and implementing the solution (Aarikka-Stenroos & Jaakkola, 2011). Despite the fact, that this research was done among firms in the knowledge intensive business service industries, the findings are in all probability generalizable to any industry with knowledge intensive,

customized offerings involving unstructured decision and production processes, taking cultural differences and firm size in account (Aarikka-Stenroos & Jaakkola, 2011).

This research considers the applicability of the framework of Aarikka-Stenroos and Jaakkola (2011) to small medium sized enterprises (SME's). Although SME's are the main contribution too economic growth, such companies often lack aspects as professionalism, knowledge, time and other relevant resources to organize their inter-organizational marketing relationships with other parties successfully. Given this problem, we need further insights in the level of "co-creation" competences at SME's and how they can be improved to thrive in marketing relationships successfully. The question we address in this study is therefore: *What is critical for developing collaborative activities in joint problem solving to create value for SME's?*

The paper is organized as follows. First, we provide an overview of research on the subject co-creation. Second, we explore the joint problem-solving model of Aarikka-Stenroos and Jaakkola (2011) and the DART model of Prahalad & Ramaswamy (2004) and explain how these can be integrated into a new conceptive framework. Third, we use a field-based research to illustrate the application of the framework. Finally, we present the conclusion and discuss the limitations of the study and some areas for further research.

2. THEORETICAL FRAMEWORK

In the literature on value creation and co-creation, value is mostly discussed and considered on a philosophical level (Grönroos, 2010). In the most frequently approach; the relationship between what one benefits and what one sacrifices is value (Sachez-Fernandez & Iniesta-Bonilla, 2007). Topic related and as an working definition, value for customers can be described in the following way: value for customers means that they, after having been assisted by the provision of resources or interactive processes, are or feel better of than before (Grönroos, 2008). Traditionally, in on-going markets, suppliers produce goods and service and customers purchase goods and services but this has changed. This traditional view has increasingly been challenged by the view that value emerges through the use of the offering in customer's value generating processes, as "value in use" (Grönroos, 2008; Kothandaraman & Wilson, 2001; Normann & Ramierz, 1993, Prahalad & Ramaswamy, 2000; Vargo & Lusch, 2008).

Today, relationships are key and can offer advantages. In on-going business relationships a mutual interaction between the supplier and customer takes place where the actors make value propositions; "*reciprocal promises of value, operating to and from suppliers and customers seeking an equitable exchange*" (Ballentyne & Varey, 2006, pp. 334-335). The success of a supplier is not only dependent on how well it manages to deliver, for example, an ICT system or production machine to the customer. Whether or not this is value for the customer depends also on how well by-products and services are delivered, for example: timetables, timing of deliveries, handling quality problems, maintenance, service failures and specific-customer features (Grönroos, 2010). Value for a business customer does not emerge from one resource, the core product, only but from the whole spectrum of supplier-customer interactions that support a successful use of this core resource (Grönroos, 2010).

Even from the start of the relationship co-creation can occur. Customers can engage in dialogue with suppliers during each stage of product design and product delivery. This form of

dialogue should be seen as an interactive process of learning together (Ballantyne, 2004). Where in the past, customer perceived value is commonly defined as trade-off between the benefits and sacrifices as perceived by the customer (Zeithaml, 1988; Ravald & Grönroos, 1996; Lindgreen & Wynstra, 2005) nowadays the experience counts too. Holbrook (1996) defines consumer value as an “*interactive relativistic preference experience*” explained by the argument that experience defines what is valuable to a customer. The value of an offering depends relative to an individual's customer subjective perceptions and experiences (Eggert & Ulaga, 2002): “*early experimenters are moving away from the old industry model that sees value created from goods and services to a new model where value is created by experiences*” (Prahalad, 2004. p. 172).

The literature on co-creation value broadly assumes that suppliers make a value proposition, and customers actualize value by using what is offered to them (Gummesson, 2008; Vargo et al., 2008). Understand that supplier cannot create value. Their role is in beginning that of a value facilitator providing customers with interactive processes and supporting resources that produce the customers value creation (Grönroos, 2010). So the value co-creation process involves the supplier creating superior value propositions while the customers determine the value when a good or service is consumed (Payne et al., 2006). Although, in addition of being only a value facilitator a supplier can get opportunities. During interactions with their customers, supplier can get involved in joint value creation processes and become value co-creators as well (Grönroos, 2010).

Co-creation fundamentally challenges the traditional roles of the supplier and customer but is a desirable goal as it can assist firms in highlighting the customer's or consumer's point of view and improving the front-end process of identifying customers needs and wants (Lusch & Vargo 2006). In order to study the collaborative process of co-creation, the joint problem-solving model of Aarikka-Stenroos and Jaakkola (2011) is analysed.

2.2 Joint Problem Solving Model.

Aarikka-Stenroos & Jaakkola (2011) conceptualized value co creation as joint problem solving, which involves supplier and customer resources integrated in a collaborative interaction process. Suppliers apply their specialized professional skills, judgement and methods, while customers contribute resources such as information, in order to create optimal value-in-use, i.e. the best possible balance between the value-in-use to be

achieved and the required sacrifices. (Aarikka-Stenroos & Jaakkola, 2011). The model (figure 1) of Aarikka-Stenroos and Jaakkola (2011) contains 5 activities, in case of right execution, should create optimal value-in-use. The following activities are mentioned and explained afterwards: diagnosing needs, designing and producing the solution, implementing the solution, managing value conflicts and organizing process and resources. Due the importance of the related concept ‘value-in-use’ a in depth description is given as well. In contrast to some earlier conceptualizations (e.g. Tuli et al., 2007), the findings of Aarikka-Stenroos and Jaakkola (2011) indicate that the joint problem solving process is not necessarily a linear process, activities may occur in diverse order and in parallel. Also, it can be iterative, as some activities may re-launch activities already attend to and if disagreements occur the whole collaborative process may cease.

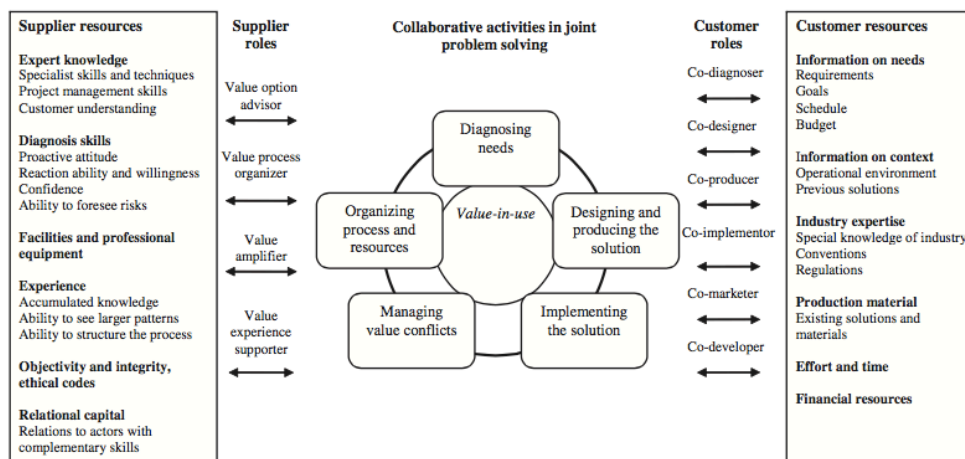
2.2.1 Diagnosing needs

Similarly to the previous literature (e.g. Tuli et al., 2007) on problem solving phases, the model indicates that co-creation starts with the identification of the needs and the goals of the exchange. Suppliers and customers agreed upon that it's typically the responsibility of the professional to use their specialist experience and knowledge to identify what the customer really wants and needs. Customers have limited understanding of their needs (Lapierre, 1997; Mitchell, 1994), which creates dependency on the supplier to diagnose the real problem (Tuli et al., 2007). In other words, the supplier needs to assist the customer in articulating their problem (Aarikka-Stenroos & Jaakkola, 2011). Therefore, dialogue is necessary to choose the path that stimulates the optimal value. The research of Aarikka-Stenroos and Jaakkola indicates this not always the case. The suppliers and customers' lack of clarity in their perceptions of each other's resources and goals might complicate this activity. As a reason, information asymmetry can occur due the lack of knowledge, The suppliers high degree of specialization may create a disequilibrium of experience and expertise between the parties (Lowendahl, 2005), but the customer needs to provide basic information. Suppliers felt that it is impossible even to start a process without information on the customer's needs, usage, schedule, business context and budget (Aarikka-Stenroos & Jaakkola, 2011)

2.2.2 designing and producing the solution

The results of Aarikka-Stenroos & Jaakkola (2011) indicate that

Figure 1.



after diagnosing the need, the parties start a negotiation process to specify the problem, consider the value propositions and propose possible solutions. The suppliers deliver several options of solutions with different value-in-use expectations, which the customers elaborate and evaluate. Outcomes frequently show that the parties' ability to communicate the value-in-use expectation and potential related to different solution is a crucial challenge in this process. Also, suppliers dominate in the formation of the solution and customers assumed to delegate most of the process to the experts and to count on their opinions, suggestions and evaluations. Although the data of Aarikka-Stenroos & Jaakkola (2011) indicated that some of customers contribute pro-actively to the process by informing the supplier when new industry specific requirements or practices arise, or offer their existing materials for integration with the suppliers' materials. In this collaborative activity, customers were often considered not followers but equal partners. The variation seems to exist in the co-production of the activities and roles and less in the possessing of critical information of the customers (Aarikka-Stenroos & Jaakkola, 2011)

2.2.3. Organizing process and resources

After, during of before designing and producing the solution, the organization of the process and resources start. How and with which resources can the solution be executed? Project management of the suppliers is a key resource needed in the service process (Aarikka-Stenroos & Jaakkola, 2011). Often suppliers take the role of value process organizer as they often provide the structure the value co-creation process and to identify, collect, activate and integrate relevant resources to make value creation possible. Also, suppliers felt that a part of their work to their expertise was to teach particularly inexperienced customers about the process. Besides this, suppliers felt that customers need to be prompted actively to provide the at least the required resources. However, customers wanted to test the suppliers experience and skills and were keener on providing resources for joint problem solving (Aarikka-Stenroos & Jaakkola, 2011).

2.2.4. Managing value conflicts

The parties need to craft a value proposition together, which develops as a result of negotiation between the two (Ballantyne and Varey, 2006), often taken place during the activities diagnosing needs and designing and producing the solution. During the process the value can be experienced by suppliers or customers as not correct and can create issues. The expectations were not fulfilled which could be caused by several reasons. During the process of creating a value proposition value conflicts can occur. Customers blamed the suppliers by not to appreciate the customers' potentials for contribution, but to rely only on their own evaluation of the optimal value proposal, which creates an arrogant attitude experienced by the customer. (Aarikka-Stenroos & Jaakkola, 2011) However, Supplier commented that customers often have unrealistic expectations by evaluating the nature and extent of the benefits that compared to the chosen level of sacrifices (Aarikka-Stenroos & Jaakkola, 2011).

2.2.5. Implementing the solution

After the solution is designed and the resources are gathered, the implementation of solution can start. Sometimes the customer implements the solution by itself and sometimes the

supplier engaged in the implementation of the solution. A supplier can help the customer utilize the solution in a way that provides greater value-in-use. The results of Aarikka-Stenroos and Jaakkola (2011) show also many cases were no real implementation phase existed. The solution resulting from the problem solving process was put to use or not at all.

2.2.6 Value-in-use

A proper execution of the mentioned five activities should create value-in-use. Lappiere (1997) identified several examples of value-in-use, defined as results from the application of professional services. Examples are cost reductions, productivity, better decision-making and reductions of accidents rates. In the solution context, the result of value from the implementation of the solution is usually described in general terms. Sawhney (2006) explains its as '*solving the end customer's problem*' while '*better or easier life for the customer*' (Miller et al., 2002) is also a common term. The results of Aarikka-Stenroos and Jaakkola's (2011) explain that customers especially perceive sacrifices in the initial phases of the solution process before gaining benefits and experiencing value-in-use. The suppliers pointed out that besides financial goals, customer projects were considered a source of knowledge and market development (Aarikka-Stenroos & Jaakkola, 2011).

2.3 DART-Model

The DART-model highlights some essential points of focus during the process of value co-creation. Prahalad & Ramaswamy (2004) recognized the increase of customers engaging in the processes of both defining and creating value with the result that the co-creation experience of the customer becomes the basis of value. The context of the model is created on a business-to-consumer basis but can also be valuable for business-to-business basis. Although at some points it has to be adapted to business-to-business context. The DART-model considers the aspects of dialogue, access, risk assessment and transparency as critical for the process of value co-creation.

2.3.1 Dialogue

Dialogue means engagement, interactivity and propensity between two parties. Dialogue is more than just listening to customers. It implies communication and shared learning between two equal problem solvers (Pralhad & Ramanswamy, 2004). The suppliers' ability to engage in and create an active dialogue with the customer increases its potential to support the creation of value in use and therefore can improve how the object of exchange is put to use (Grönroos, 2008; Payne et al. 2008). Researchers have increasingly stressed that value creation requires sharing critical information and accomplishing effective dialogic communication rather than one-way promotion (Ballantyne & Varey, 2006; Prahalad & Ramaswamy, 2004).

2.3.2 Access

Access starts with information and tools to built a relationship between supplier and customer with involves access to the process all the time. Customers emphasises heavily on the quality of interaction and the service process. Research has identified that, flexibility, reliability, responsiveness and communications skills of the supplier as important value driving benefits perceiving by the customer (Lapierre, 2000; Liu, 2006).

2.3.3 Risk Assessment

Risk here refers to the probability of harm to the customers (Pralhad & Ramaswamy, 2004). If customers are active co-creators should they be responsible for risks as well? The results attained through the problem solving process are difficult to interpret, and sometimes value only unfolds over time (Lindberg & Nordin, 2008; Tuli et al., 2007). Therefore, it's difficult for supplier and especially customers to analyse the risks. So, the risk with regard to the result of their evaluation can be considered as a sacrifice that impacts the perceived value (Ravald & Grönroos, 1996; Grönroos, 2011). It seems very project related on how risk management is managed. However, the greater the information asymmetry between supplier and customer, the more dependent they are on each other in value co-creation (Moller & Torronen, 2003).

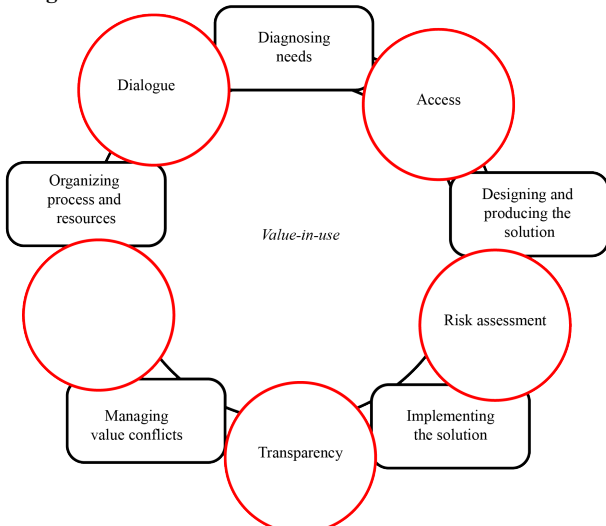
2.3.4 Transparency

Traditionally, companies have benefited from information asymmetry in the context of pricing between the firm and customers. This asymmetry is rapidly disappearing because of bigger access to knowledge through technology (Pralhad & Ramaswamy, 2004). Suppliers should be more transparent about prices and costs and profit margins, otherwise it can backfire on them.

2.4 The tentative framework

In order to discover patterns and observations, which can be conducted in results, a framework is created. This framework defines the area of subjects of value co creation we looked for. The joint-problem solving model of Aarikka-Stenroos and Jaakkola (2011) and the DART-model of Prahalad and Ramaswamy (2004) are combined together in a tentative framework pictured in figure one. This study searches for relationships between the activities (black) and the aspects (red). One box of the aspects is blank because we keep an opening for new discoveries on aspects that are critical in the relationship between suppliers and customers during activities. The following hypotheses are set and to validate during the research of this tentative framework: 1) the model of Aarikka-Stenroos and Jaakkola (2011) is not only applicable in the KIBS industries but as well to SMEs from all industries, 2) The DART-model of Prahalad and Ramaswamy (2004) is not only applicable to business-to-consumers relationships but as well to business-to-business relationships, 3) The critical aspects are related to the activities.

Figure 2. Tentative framework



3. Methodology

In order to study the critical aspects of the collaborative process of value co-creation in the context of SME's a qualitative research design was chosen because of the exploratory nature of the study (Patton, 1989). The goal of the research was to ground our theory. Grounded theory is a method that has been extensively used across different social disciplines. A grounded theory is one that is discovered, developed, and verified through systematic data collection and analysis of data concerning a particular phenomenon (Strauss & Corbin, 1990). In the method conceptual characteristics and categories may be discovered or generated by following a number of guidelines and procedures. We used in this research the practise tool for qualitative data collection and analysis of Lawrence and Tar (2013) and followed their guidelines and procedures. First, a sample description is given. Second, the organization and use of the data collection is provided. Third, the data analysis including coding is done.

3.1 Samples

The purpose of sampling is to collect data to examine the different hypotheses and validate our tentative framework and to discover new possible findings. The number of SMEs that participated in this research was 19. The criteria for inclusion were based on a need for participating SME to conform to the definition of SMEs and the willingness to co-operate to this research including informing us of details of their business. A SME is a firm with less than 250 employees and a smaller turnover than 50 million euros. Besides, the firms' willingness, the availability of an owner or a manager, a key player in the firm, should have been present. The sample considers 19 SMEs, which are active in several industries, and therefore creates variation in the context of industries.

SME	Industry	Size (employees)	Market description
1	Construction	50	Stable
2	Construction	50	Stable
3	Greening Service	14	Stable
4	Physical tools for Advertising	6	Stable
5	Air conditioning	50	Stable
6	Chip technology	190	Stable
7	IT	10	Unstable, turbulent
8	Construction	15	Unstable
9	Construction	75	Stable, movements in the market
10	IT	45	Unstable, turbulent
11	Architect	2	
12	Chip technology	45	Stable
13	Detachment within construction	89	Stable

	industry		
14	Insurances	35	Unstable, turbulent
15	Lawyer	5	Stable
16	Coating	35	Not stable nor instable, movements in the market
17	Work environment facilitation	7	Unstable, many new developments
18	Engineering	20	Stable, slow market
19	Security	10	Unstable, many new developments. Not turbulent.

Table 1. Sample characteristics

3.2 Data Collection

The data for this research was collected during two phases. Two data sets were created. The basis of the interviews conducted to create the data was the joint-problem solving model of Aarikka-Stenroos and Jaakkola (2011). Besides this model, the interviews they have used during their research was analysed and gave input for the shaping of our interviews. The first part of the data set considers the suppliers' perspective and consists of 19 semi-structured interviews in order to gain detailed information on the contribution of the process of value co-creation whereas the second part of the data set, 18 semi-structured interviews, took the perspective of the customer. The interviews with the managers/owners of the SME took in the following themes; 1) diagnosing needs, 2) designing and producing the solution, 3) organizing process and resources, 4) managing value conflicts and, 5) implementing the solution. The questions were semi-structured and specific on these themes but there was room to bring up new ideas and thought about the specific activities. The critical aspects of Prahalad and ramaswany (2004); dialogue, access, risk assessment and transparency, were not mentioned during the interviews on purpose. In order to find a possible relationship the aspect should come up by itself.

Overview of empirical data for the study		
Type of Data	Quantity	Utilization in analysis
Data set 1: Face-to-face interviews conducted by the researchers	19 interviews with suppliers	Analysis of how the following activities are performed and experienced: diagnosing needs, designing and producing the solution, organizing process and resources, managing value conflict and implementing the solution from a suppliers perspective

Data set 2: Face-to-face interviews conducted by the researchers	18 interviews with customers	Analysis of how the following activities are performed and experienced: diagnosing needs, designing and producing the solution, organizing process and resources, managing value conflict and implementing the solution from a customers perspective
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Table 2. Overview of empirical data for the study

3.3 Data Analyse

We used in this research the practise tool for qualitative data collection and analysis of Lawrence and Tar (2013) and followed their guidelines and procedures to code and analyse the gathered data. In the process of analysing the data 'selective coding' is used. The aim of selective coding is to refine and to integrate the categories, in this case the activities and aspects, into the theory, which represents the phenomenon being investigated (Darke et al., 1998). Also, it validates the suggested statements and hypotheses of relationships among the concepts, and fills in any categories in need of further refinement (Lawrence & Tar, 2013). Selective coding reduces the data from the interviews into concepts and sets of relational statement that can be used to explain what is going on (Strauss & Corbin, 1998). Besides the use of selective coding, open coding was used in order to find critical aspects that aren't covered in the DART-model (Pralhad & Ramaswany, 2004) and which are not discovered or mentioned yet. Open coding involves an analytic process through which concepts are identified and the existence of their properties and dimensions are discovered in the data (Lawrence & Tar, 2013). Actions and interactions that are found to be conceptually similar or related to an aspect are grouped under more abstract concepts 'aspects or activities'. Two cross case pattern comparisons (Lawrence, 2002) concerning the supplier and customer perspective were executed. Table three and table four show the results.

*TABLES THREE AND FOUR AFTER REFERENCES

4. Findings

The findings of the study illuminate which aspects are critical during the activities of the joint problem solving process as co-creation of value. The findings are presented as follows: each activity is discussed separately about the critical aspects experienced. The activities discussed are: 1) diagnosing needs, 2) designing and producing the solution, 3) organizing process and resources, 4) managing value conflicts, and 5) implementing the solution. During the data analyse, three aspects where mentioned often enough to consider them aspect as well. Besides the aspects: dialogue, access, risk management and transparency, the aspects of structure, knowledge and network are discussed.

4.1 Diagnosing needs

Both suppliers and customers experienced dialogue as the key aspect of the process of diagnosing needs. The data indicates that every collaboration starts with a dialogue between the

supplier and customers about the needs and goals of the customer. Several suppliers mentioned that customers have a hard time diagnosing and explaining their needs.

“The customer is constructing what he really needs and this in a dialogue so much easier. Written can be hard without an actual conversation, so we try a personal approach with an interview where we together with the customers searches for what he really needs.” (Supplier)

Customers expect that suppliers have to knowledge and expertise to help them. The data clearly indicates that the aspect knowledge is found important for customers during the process of diagnosing needs more than for suppliers. Especially when customers and suppliers that address technical issues, one of the parties can fail on knowledge and disruption happens. So customers try to address the right companies for collaboration. Next to the critical aspect of dialogue the data suggested a relationship between the activity diagnosing needs and the existence of a network. Networks consist of existing customers with who a relationship is established. Not only to process of diagnosing needs between the supplier and customer becomes easier, the process of diagnosing market needs can become easier.

“We try to be pro-active in the sectors we are active and in the relationships with our customers and to discover the goal of our clients and therefore future clients. We want to think like a client and to understand them better”. (Supplier)

“During the existing of our company we have created a big network, which is very satisfying and easy. They know my capacities and expertise and I know exactly who they are en what their goals are. We have built a relationship. The makes the process of diagnosing needs faster and easier.” (Supplier)

Good relationships in the market give information about future perspectives and developments that can be anticipated. The aspects of access and risk management and transparency are not often mentioned in the data and therefore no relationships exist. Although the aspects access and transparency have some overlap with the aspect dialogue. Some customers see providing access and transparency as part of dialogue, or created with dialogue.

4.2 designing and producing the solution

During the process of designing and producing suppliers and customers both see dialogue as the key critical aspect. Many suppliers have a basic and standard structure, which is used to design and produce the solution. Sometimes the solution already exists and a standard procedure enters to optimise the solution to the specific customer. Sometimes a new solution has to be designed and a creation-process starts with back and forward feedback between the supplier and customer, often the case in specific and knowledge intensive business industries.

“If the client just want something regular we already developed, the client can just order from the catalogue and we can adjust it to his preferences. If the client wants something aberrant and the account is profitable enough we consider the process of developing it. Than a process of designing starts with the project-, product managers, engineers and customers.” (Supplier)

Customers as well as suppliers see structure as critical. The designing and producing process should be structured well with access and transparency on both sides. Suppliers and customers see access and transparency here separately from dialogue. Both parties should inform about the steps they are considering and ideas they are developing.

“The supplier always has a direct contact to approach if questions arise and by asking several updates during the process of designing I can check if the supplier might live up to my expectations. Sometimes I can adjust already during the process of searching for the solution in my favour.” (Customer)

Another critical aspect of by suppliers and customers revealed by the data is knowledge. Knowledge includes expertise about processes, products and services but also involves experience. Knowledge about how to design and produce the solution is the core activity of the supplier and where the customer is paying for, especially in knowledge intensive business industries.

“In our branch, law, you need a lot of diplomas and licenses to even participate. We are a licences regulated industry; our people all have specific diplomas. We have permanent retraining and schooling, which have to be taken by law. This is as well expected from our customers because they pay us a lot of money.” (Supplier)

4.3 organizing process and resources

Again dialogue is found as critical aspect during the activity of organizing process and resources. All the resources have to be found and to be organized in order to produce the solution. Both suppliers and customers feel that suppliers should lead this process.

“Interaction is key for organizing and developing your idea. Constant interaction between your customer and your suppliers are necessary for a smooth process. As supplier we feel the pressure to organise the process because we have the know-how and often the customers lack of experience. Also, eventual partners who are needed we have to address because we have a network in our industry.” (Supplier)

It's the structure and knowledge, which both suppliers and customers, see as necessary, although this should come more or less from the suppliers. This confirms the fact that suppliers see partners as critical where customers see not. Customers often still concern mostly about the preferable solution and not how it's created. Therefore when the need external expertise rises, suppliers have to arrange the partners. This could be seen as a missed opportunity in the process co-creation of value.

“We expect the supplier to organise the process. If necessary, we will become active and participate but in first instance it's their responsibility.” (Customer)

4.4 managing value conflicts

In the data, risk management is mentioned as a critical aspect of the activity of managing value conflicts. Suppliers as well as customers think about risk management. Where customers think about the fact to have two suppliers for one product or service to minimize risk, suppliers consider the risk of possible value conflicts. To decrease the possible value conflicts many suppliers make project documents between the supplier and customer where results and achievements are described. This happens mostly during the activity of designing and producing the solution.

“During the design of the solution we build a project document where every aspects is mentioned: motive to co-operate, background, steps to solutions, expected results, goals, issues and questions. We try to determine the expectations together so we can always use that if disagreement occurs.” (Supplier)

So we can assume that not only in managing value conflict risk management is a critical aspect but as well in designing and producing the solution because the basis and possible

prevention lies there. Dialogue is also mentioned as a critical aspect, not only in the case if a value conflict happens but mostly to prevent them. Miss-communication was considered to be the biggest source of value conflicts.

“Although we might have set goals including expectations, you always have to adapt these expectations. Sometimes unexpected causes happen without the influences of the customer or us. That is just the risk of business and you spread the costs but communication is necessary for this. During the process expectations change on both sides due to causes expected or unexpected and this needs interaction.” (Supplier)

“When value conflict happens, the collaboration process was insufficient. When a customer is passive and conflicts could be prevented from their side by communicating we think it is their responsibility.” (Supplier)

4.5 implementing the solution

The activity implementing the solution has only the aspect of dialogue as a critical factor. After delivering the service or product it depends on the customer if he needs and wants the supplier to implement the solution. Also, it is very business and industry bound, some products are just delivered while certain services might need extra training for the employees of the customer. Sometimes the maintenance of the service, for example website, is kept by the supplier and a long-term relationship exists.

“In most cases, we just deliver the product including advice, oral or written, how to use and to maintain the product. After a few weeks we reach out to them to question to make sure everything is satisfying, some aftercare. Sometimes the customer wants more or additional services and extra costs are charged.” (Supplier)

“We just want our suppliers to deliver the products on time and with the right specs. They do not even have the knowledge to cooperate in the implementation process.” (Customer)

Notifying is the fact that customers mention the aspect structure only in the data. Customers who ordered a service or product from the knowledge-intensive business industry can lack experience and expertise on how to implement the solution. They need extra aftercare or actual implementation of the product by the supplier.

“For example, during the implementation of our new ICT system, we had to organize a structure of how we could teach all our employees the new system. The supplier of the ICT system helped us training and informing our employees. Without their expertise the implementation would have failed. Otherwise for just products as metal we order implementation of the solution is not really necessary.” (Customer)

Figure 3 presents a model that illustrates all the relationships between critical elements and activities revealed in the data. Figure 3 shows a continuous process of the activities through which value-in-use occurs. Each activity is linked with specific critical aspects, important for that specific activity, that were discovered during this analysis. Notice, that the activities do not have to occur in this logical order but can happen parallel or reverse.

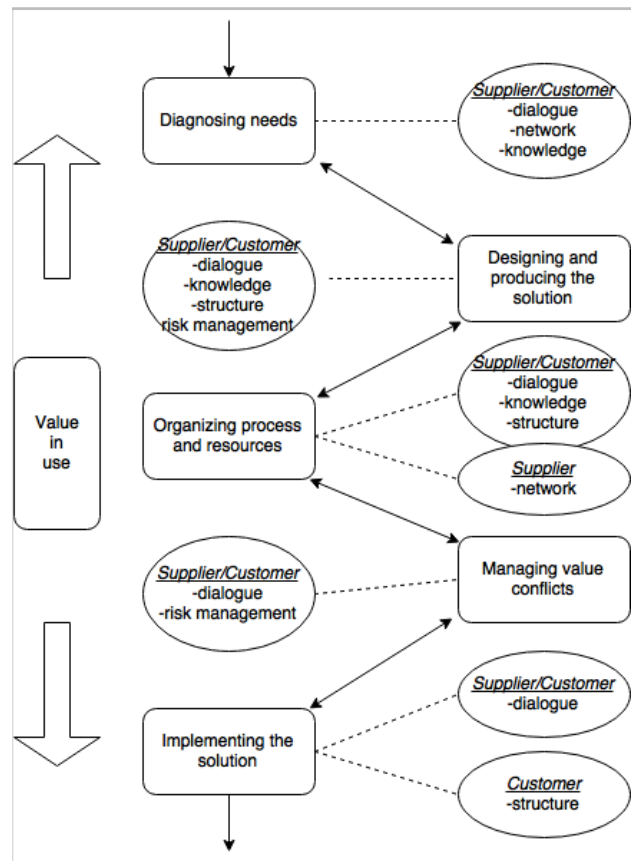


Figure 3. Critical aspects of joint-problem solving

5. Conclusion

In this paper, we make a contribution to the subject of creation of value by reviewing the joint-problem-solving model of Aarikka-Stenroos and Jaakkola (2011). Their research was the first to adopt a dyadic view on analysing value co-creation in business-to-business service and solution contexts. The research was done in knowledge-intensive business industry where we challenged the model by applying it to SMEs of all different industries. Due to the number of similarities between KIBS and solutions (Nordin & Kowalkowski, 2010), the findings of Aarikka-Stenroos and Jaakkola (2011) are in all probability generalizable to the context of solutions as well. This study demonstrates that the model is applicable to SMEs in general as well. Although the model is much more relevant to firms active in the KIBS industry. Those firms exactly use the entire model where firms from for example the simple production industry might only use some part of it.

In similarity to the previous findings (Aarikka-Stenroos & Jaakkola, 2011) diagnosing needs, designing and implementing and managing value conflicts are mentioned as key activities of the joint-problem solving process, which directly influences the value-in-use. The study indicates these activities as crucial because of the highly response to critical elements of these activities. Our study supports earlier findings (Tuli et al., 2007; Aarikka-Stenroos & Jaakkola, 2011) on the activity of organizing process and resources by showing that suppliers often lead this process given their expertise and network. Notifying in general is the assumption that suppliers and customers expect that suppliers take actually in every activity the leading role.

Also, we searched for a possible relationship of the DART-model (Prahalad & Ramaswamy, 2004), critical elements in process of value co-creation in business-to-consumer

relationships, with the activities of the joint-problem solving model (Aarikka-Stenroos & Jaakkola, 2011). We found that the some elements of the DART-model have existence in activities of joint-problem solving model but the model in total is not applicable. This shows according to earlier research (Jackson et al., 1995) that business-to-business relations differ in principle from business-to-customers relationships and need a different approach. B-to-B relationships are more focused on strategic and long-term relationships. Even though similarities were found.

Dialogue was mentioned in every activity as key critical aspect as well as risk management in the activity of managing value conflicts and the activity of designing and producing the solution. The study reveals that suppliers and customers generalize the aspects access and transparency to the aspect dialogue and that no separate acknowledgement is necessary. Also, the study attributes three new critical elements to consider during activities in order to maximize value-in-use. Knowledge, structure and network are considered as crucial during the activities. Knowledge is already integrated in the joint-problem solving model due to the supplier resources; knowledge expertise and experience whereas structure is related to the supplier resources; knowledge expertise and facilities and professional equipment. The earlier mentioned aspect dialogue is covered by the supplier resource of relational capital but network has no existence in the model while this data shows that there is a relationship existing. This study suggests that network could be added as supplier resource as well as customer resource.

We conclude that the joint-problem-solving model of Aarikka-Stenroos and Jaakkola (2011) is applicable to firms of all industries although in some it's more relevant (e.g. KIBS) than others. This study reveals that critical elements are mostly covered in resources mentioned in the model but one, network, needs to be added. Both suppliers and customers see network as a crucial element during the activities that can contribute to value-in-use. Previous research shows that network actors' impact value creation (Lindgreen & Wynstra, 2005) and the absence of network was discussed in the limitations of the study of Aarikka-Stenroos and Jaakkola (2011). This study empirically shows that network should be included as resource or role.

6. Limitations and further research

Despite the acknowledgement of the existence of network, the question arises how network should be implemented in the model: as an actor or supplier or just as a notified critical element. Besides this the data reveals the existence of the critical aspects but no further in depth questions were asked in the interviews with suppliers and customers because it was all activity related. More empirical research on critical elements in business-to-business relationships using the joint-problem solving model is necessary to confirm the suggested aspects because they are now just being notified.

Second, this research examines the model of joint-problem solving in general and not specific. The cause is the range of industries where the participating SMEs are active in; the variety was too large to be real specific. More research could help adjust the model for specific industries where SMEs are active and the applicability will increase.

Appendix

A. Supplier interview

Diagnosing needs:

- How do you identify the customer needs of your customers?

- What are the barriers / obstacles in the process of identifying customer needs?

Designing and producing the solution:

- What's the process after the customer needs of your customers are identified?
- How do you know if the possible solution satisfies the customer?
- What is your role in this process, what does this role involve exactly? What do you expect from your client?

Organizing process and resources:

- How do you facilitate the process to solve the problem / to cooperate?
- How do you find out what resources are relevant to the organization of the process?
- Which resources (people, knowledge, processes, partners?) are used in the organization of the process?
- How the customer participates in the process? (Active/passive, significant/small role)

Managing value conflicts:

- How do you deal with differences in the expected value of the solution between you and the client?
- What is or could be the reason of the difference in the expected value between you and the client?

Implementing the solution

- How do you ensure that the customer can implement the solution successfully?

B. Customer interview

Diagnosing Needs:

- How are your customer needs identified by your supplier?
- What are the barriers / obstacles in identifying your customer needs by your supplier?

Designing and producing the solution:

- What is the intern process for you after your supplier identifies your customer need?
- How do you know whether the possible solution that your supplier provides satisfies your customers' need?
- What is your role in this process, what does this role involve you think? What do you expect from your supplier?

Organizing process and resources:

- How is the process facilitated in order to solve the problem / to cooperate?
- How do you know which resources are relevant to the intern organization of the process?
- Which resources (people, processes, knowledge, partners) are important?
- How does the supplier participate in this process?

Managing value conflicts:

- How do you deal with the difference in expectations of value between you and the supplier?
- What is or could be the reason that there's a difference in expectations in value between you and the supplier?

Implementing the solution:

- How do you make sure that you as customer, the solution can be implemented successfully in your organization

References

- Aarikka-Stenroos, L., & Jaakkola, E. (2012). Value co-creation in knowledge intensive business services: A dyadic perspective on the joint problem solving process. *Industrial Marketing Management*, 41(1), 15-26.
- Ballantyne, D., & Varey, R. J. (2006). Introducing a dialogical orientation to the service-dominant logic of marketing. *The service-dominant logic of marketing: Dialog, debate, and directions*, 224-35.

- Eggert, A., & Ulaga, W. (2002). Customer perceived value: a substitute for satisfaction in business markets?. *Journal of Business & industrial marketing*, 17(2/3), 107-118.
- Grönroos, C. (2006). Adopting a service logic for marketing. *Marketing theory*, 6(3), 317-333.
- Grönroos, C. (2008). Service logic revisited: who creates value? And who co-creates?. *European business review*, 20(4), 298-314.
- Grönroos, C. (2011). A service perspective on business relationships: The value creation, interaction and marketing interface. *Industrial marketing management*, 40(2), 240-247.
- Gummesson, E. (2008). Extending the service-dominant logic: from customer centrality to balanced centrality. *Journal of the Academy of Marketing Science*, 36(1), 15-17.
- Jackson, R. W., Neidell, L. A., & Lunsford, D. A. (1995). An empirical investigation of the differences in goods and services as perceived by organizational buyers. *Industrial Marketing Management*, 24(2), 99-108.
- Lapierre, J. (1997). What does value mean in business-to-business professional services?. *International Journal of Service Industry Management*, 8(5), 377-397.
- Lindberg, N., & Nordin, F. (2008). From products to services and back again: Towards a new service procurement logic. *Industrial Marketing Management*, 37(3), 292-300.
- Lindgreen, A., & Wynstra, F. (2005). Value in business markets: What do we know? Where are we going?. *Industrial Marketing Management*, 34(7), 732-748.
- Liu, A. H. (2006). Customer value and switching costs in business services: Developing exit barriers through strategic value management. *The Journal of Business and Industrial Marketing*, 21(1), 30-37.
- Løwendahl, B. (2005). *Strategic management of professional service firms*. Copenhagen Business School Press DK.
- Lusch, R. F., & Vargo, S. L. (2006). Service-dominant logic: reactions, reflections and refinements. *Marketing theory*, 6(3), 281-288.
- MacMillan, I. C., & McGrath, R. G. (1997). Discovering new points of differentiation. *Harvard business review*, 75, 133-145.
- Miller, D., Hope, Q., Eisenstat, R., Foote, N., & Galbraith, J. (2002). The problem of solutions: balancing clients and capabilities. *Business Horizons*, 45(2), 3-12.
- Mitchell, V. W. (1994). Problems and risks in the purchasing of consultancy services. *Service Industries Journal*, 14(3), 315-339.
- Möller, K. (2006). Role of competences in creating customer value: A value-creation logic approach. *Industrial marketing management*, 35(8), 913-924.
- Möller, K. K., & Törrönen, P. (2003). Business suppliers' value creation potential: A capability-based analysis. *Industrial Marketing Management*, 32(2), 109-118.
- Normann, R., & Ramirez, R. (1993). From value chain to value constellation: Designing interactive strategy. *Harvard Business Review*, 71(4), 65-77.
- Payne, A. F., Storbacka, K., & Frow, P. (2008). Managing the co-creation of value. *Journal of the academy of marketing science*, 36(1), 83-96.
- Prahalad, C. K. (2004). The blinders of dominant logic. *Long Range Planning*, 37(2), 171-179.
- Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of interactive marketing*, 18(3), 5-14.
- Prahalad, C. K., & Ramaswamy, V. (2000). Co-opting customer competence. *Harvard business review*, 78(1), 79-90.
- Ravald, A., & Grönroos, C. (1996). The value concept and relationship marketing. *European journal of marketing*, 30(2), 19-30.
- Sánchez-Fernández, R., & Iniesta-Bonillo, M. Á. (2007). The concept of perceived value: a systematic review of the research. *Marketing theory*, 7(4), 427-451.
- Sawhney, M. (2006). Going beyond the product. *The service-dominant logic of marketing: Dialogue, debate, and directions*, 365-380.
- Slater, S. F., & Narver, J. C. (1994). Market orientation, customer value, and superior performance. *Business horizons*, 37(2), 22-28.
- Tuli, K. R., Kohli, A. K., & Bharadwaj, S. G. (2007). Rethinking customer solutions: from product bundles to relational processes. *Journal of Marketing*, 71(3), 1-17.
- Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European management journal*, 26(3), 145-152.
- Woodruff, R. B. (1997). Customer value: the next source for competitive advantage. *Journal of the academy of marketing science*, 25(2), 139-153.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *The Journal of marketing*, 2-22.