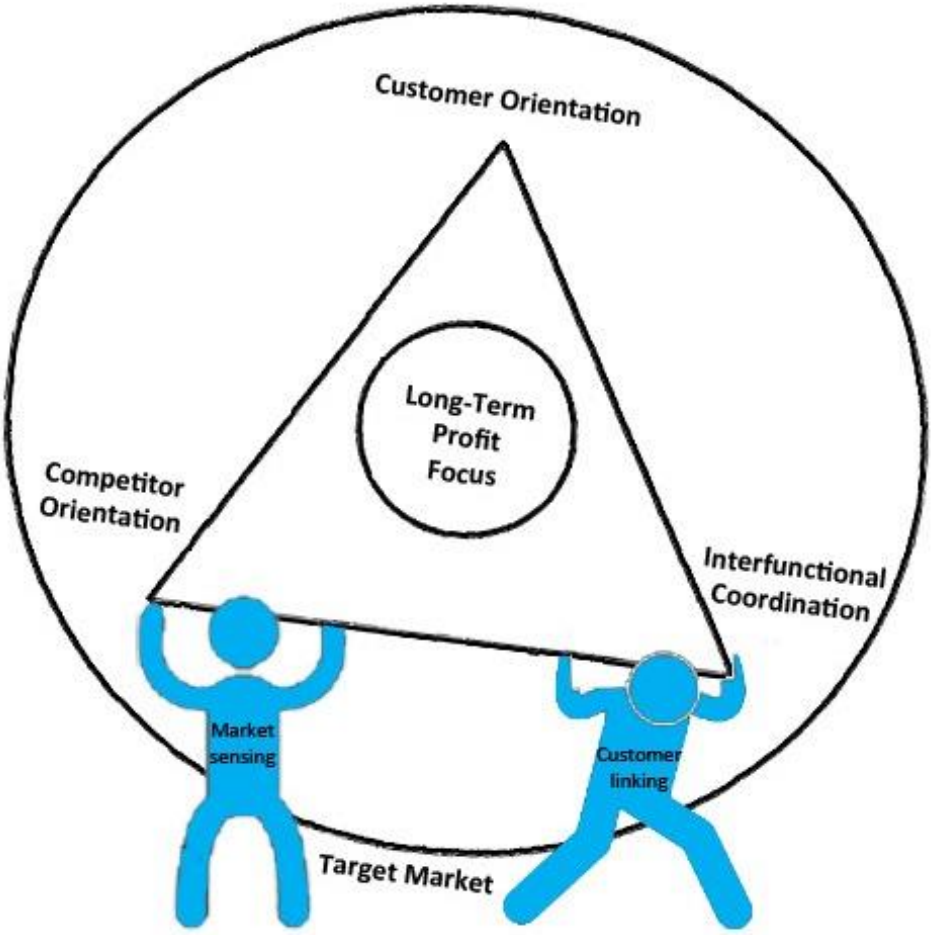
Interfunctional Coordination: Development of the Customer-linking Capability in a Case Study at an Engineering Organization



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Master Thesis BA (2015-Jaar) 2015-194100040
Date: 1 December 2016 - Version: 7

Acknowledgements (in Dutch)
Voor de meeste studenten is het behalen van een diploma niet meer dan een logische stap naar volwassenheid. Voor mij is met het afronden van deze studie een einde gekomen aan een lange reis van meer dan 20 jaar. Deze begon op de zomeravond in 1995 dat mijn mentor van de middelbare school mij belde om mede te delen dat gezien de huidige omstandigheden besloten was om mij terug te plaatsen naar de MAVO. Die avond heb ik mijzelf een belofte gemaakt: “Ooit zal ik weer terugkomen op ditzelfde niveau”. Een lange slingerweg door alle lagen van het onderwijssysteem volgden met veel start en stop momenten. Waarvan de laatste ook bij deze opleiding was, na het overlijden van mijn vader.

Nu jaren later is dan toch het moment gekomen dat ik een universitaire titel aan mijn naam mag toevoegen. Gelukkig heb ik het niet allemaal alleen hoeven te doen. Daarom gaat mijn dank uit naar Henny Huveneers die mij begeleid heeft in mijn puberjaren. Later opgevolgd door Corrie en Piet de Zwart die de ouderlijke rol op zich genomen hebben en mij gebracht hebben waar en vooral ook wie ik nu ben. Binnen de Universiteit Twente naar Charlotte Röring die altijd in mij is blijven geloven en uiteraard ook naar de supervisors voor de begeleiding van deze masterthesis. Naar Gert-Jan Snelting die mij keer op keer kansen heeft geboden en collega’s van Eureka bij wie ik mij thuis mocht voelen. Familie, vrienden en kennissen maar bovenal mijn vrouw Marlies die het meest heeft moeten ontberen zowel in alle stressmomenten als onze financiële beperkingen. Maar die ook intens blij kon zijn als ik voor een tentamen een voldoende haalde en die vast nog het meest blij is als dit eindelijk afgelopen is. Voor mij zal het even wennen zijn om afscheid te nemen van de status student maar ook ik ga vol verwachting de volwassen toekomst tegemoet.

Abstract
Value creation for customers was and still is a subject of interest in the literature. This thesis focuses on value creation through internal organizational processes. On the basis of interfunctional coordination as the coordinated utilization of company resources we have studied the development of the customer-linking capability or in other words the skills, abilities, and processes of an organization. Therefore we have performed a case study in a Dutch engineering company who sought insight in its capabilities. To provide insight we have mapped the capabilities with the Business Model Canvas in two workshops which resulted in the identification of its current capabilities and future needs for capabilities. After this we describe how this company has built these future needed capabilities by “filling the holes” within its business model. Central in this thesis are the efforts of organizational actors in how they developed their customer-linking capability by focusing on their capabilities. What can serve as an example for the literature of how to create value for customers.

Keywords: Interfunctional coordination, Customer-linking capability

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1. Introduction

Market orientation was a trending topic those days and a lot of scholars formed a definition of market orientation (Deshpandé, Farley, & Webster Jr, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Shapiro, 1988) or performed a study (Horng & Chen, 1998; Jaworski & Kohli, 1996; Webster Jr, 1992). Over the years, many research followed accepting this concept and or creating additions (Harris & Ogbonna, 2001; Roersen, Kraaijenbrink, & Groen, 2013; Spillan & Parnell, 2006). Although *market orientation* consist of three components: customer orientation, competitor orientation and interfunctional coordination (Narver & Slater, 1990) the latter received less attention in the literature or is even claimed to be less important (Greenley, 1995; Siguaw & Diamantopoulos, 1995). Clearly, this was not supported among all scholars so those performed a research by proving the importance of interfunctional coordination (Slater & Narver, 1994; Spillan & Parnell, 2006). *Interfunctional coordination* can be defined as "coordinated utilization of company resources in creating superior value for target customers" (Narver & Slater, 1990, p. 22). In this thesis we also consider interfunctional coordination as an important pillar of market orientation and we will study how interfunctional coordination can be enhanced by coordinating company resources in creating value for target customers or in one word customer-linking capability.

On practical side, even though this concept is created many years ago, we consider that value creating for customers is still a present and future point of interest for businesses. Also that the question of how to coordinate company resources and organizational processes still remains. Just as scholars stated in the past that interfunctional coordination and organizational processes are closely related (Day, 1994a; Kohli & Jaworski, 1990; Narver & Slater, 1990). Therefore we will study in this thesis how interfunctional coordination can be enhanced by exploring how organizational actors identify their distinctive capabilities and cope with building of the customer-linking capability by following the work of Day (1994a).

As a suitable example we will study an organization located in The Netherlands. This twenty years long-established company has its origin from the engineering of dredgers. In the past years the company operated by a "we can do all" principle with a diversity of applications. Nowadays the engineering organization will go back to its roots and position itself as "a specialist for dredger engineering and equipment". In order to enhance its market orientation several solutions which can be related to theoretical concepts have passed. For example, selling of customized products (Shankar, Berry, & Dotzel, 2007, 2009), modularization of products (Baldwin & Clark, 2003; Sanchez & Mahoney, 1996), and a hybrid offering (Ulaga & Reinartz, 2011) with in case of the studied company the offering of products e.g. dredger equipment and services e.g. technical calculations. Despite the efforts, none of these possibilities were a suitable solution for this organization. As an internal investigation has showed there was a lack of interfunctional coordination in terms of assigning activities and resources to the needs of prospective customers. This case study is suitable to answer the research question as this organization is seeking to enhance its ability to better cope with these problems in the future.

Literature

Harris and Ogbonna (2001) stated that the majority in literature based their market orientation definition on the work of Kohli and Jaworski (1990) and Narver and Slater (1990). Kohli and Jaworski (1990) consider market orientation as a *set of behaviors* by focusing on the actions of a firm (Roersen et al., 2013) and define market orientation as "organization wide generation of market intelligence

pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization wide responsiveness to it" (p. 6). Narver and Slater (1990) consider market orientation as a *culture* by focusing on the mindset of people (Roersen et al., 2013) and define market orientation as "the organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business" (p. 21).

Day (1994a) stated market orientation "represents superior skills in understanding and satisfying customers" (p. 37) and these skills combined with collective learning, exercised through organizational processes, are defined as *capabilities*. These "superior skills" or distinctive capabilities are market-sensing capability and customer-linking capability. *Market-sensing capability* determines "how well the organization is equipped to continuously sense changes in its market and to anticipate the responses to marketing actions" (Day, 1994a, p. 49). *Customer-linking capability* can be defined as "the skills, abilities, and processes needed to achieve collaborative customer relationships so individual customer needs are quickly apparent to all functions and well-defined procedures are in place for responding to them" (Day, 1994a, p. 49). Although Day (1994a) stresses the importance of both distinctive capabilities this study will not research market changes, thus market environment of the organization, and therefore neglect market-sensing capability. But focuses on organizational environment thus interfunctional coordination and customer-linking capability. With development of the customer-linking capability whereby the interfunctional coordination can be enhanced, but the question in this matter is: How do these fit together? Based on market orientation elements of Narver and Slater (1990) customer and competitor orientation allow for the *generation of market information* (Siguaw & Diamantopoulos, 1995) and can be enhanced by mastering market-sensing capability as described by Day (1994a). The element interfunctional coordination assists the *dissemination of this information* and provides an appropriate response (Siguaw & Diamantopoulos, 1995) and can be enhanced by mastering customer-linking capability as described by Day (1994a). Thus when customer and competitor orientation relates to the gathering of market information, interfunctional coordination relates to actions taken with this market information. As this research is about the efforts of organizational actors, only the latter is subject of this study. By following Day (1994a) who stated "organizations can become more market oriented by identifying and building the special capabilities that set market-driven organizations apart" (p. 38).

Therefore capabilities and future needs of an organization have to be identified and build. As Day (1994a) stated for *identification* current capabilities have to be diagnosed. With diagnosing organizational processes can be mapped to identify handoff points, delays and unnecessary work, and sequences of activities that can be done in parallel. After diagnosing future needs for capabilities have to be determined. Based on these details an organization can *build* the customer-linking capability by anticipating on future needs for capabilities. Anticipation is the choice of where to allocate assets. *Assets* can be defined as "resource endowments the business has accumulated e.g. investments in the scale, scope and efficiency of facilities, brand equity " (Day, 1994a, p. 38).

In summary, this study will develop a customer-linking capability and herewith interfunctional coordination. Therefore organizational capabilities have to be identified by first diagnosing current capabilities and determining future needs after which to build the customer-linking capability by anticipating to future needs for capabilities.

Research gap

Most of the current literature related to market orientation focus on the components customer orientation (Anderson & Narus, 1998; Day & Nedungadi, 1994; Deshpandé et al., 1993) and competitor orientation (Kim, Song, & Koo, 2008; Porter, 1980, 1985; Slater, 1995) but fewer articles are about interfunctional coordination (Roersen et al., 2013). Although interfunctional coordination was considered as a critical marketing component in creating customer value (Slater & Narver, 1994; Spillan & Parnell, 2006). There are also many articles about capabilities (Day, 1994a; Di Benedetto & Song, 2003; Teece, Pisano, & Shuen, 1997) and the development of these capabilities (Harris & Ogbonna, 2001; Ruekert, 1992; Vorhies, Harker, & Rao, 1999). Although the importance of both interfunctional coordination and distinctive capabilities are emphasized in the marketing literature, research so far has neglected how these distinctive capabilities are developed regarding interfunctional coordination.

Purpose of the study

This study researches the market orientation component interfunctional coordination thus the coordinated utilization of company resources which will lead into the creation of customer value. In relation to the distinctive capability customer-linking capability which are the skills, abilities and processes needed to achieve collaborative customer relationships. As both the resources and capabilities contribute to the creation of customer value. Therefore we will study the efforts of organizational actors in the development of the customer-linking capability in order to enhance the interfunctional coordination.

The research question is:
How do actors identify and cope with building of the customer-linking capability in order to enhance the interfunctional coordination?

Method

The studied organization where organizational actors put efforts in identification and building of the customer-linking capability is located in The Netherlands and positions itself as “a specialist for dredger engineering and equipment”. The theoretical positioning is interpretative paradigm (Burrell & Morgan, 1979) with one’s own subjective experience as participant in studying the process at the case organization. The research is based on a case study with a participant-observation research method (Atkinson & Hammersley, 1994; Bradbury & Lichtenstein, 2000). With interpersonal-interior method (Bradbury & Lichtenstein, 2000) based on interior view, what means tacit and non-visible, and interpersonal research-practice which focuses on direct interaction between researcher and research subject. The data collection method is based on brainstorming technique Brainwriting (Thompson, 2003) supplemented by the Nominal Group Technique (Thompson, 2003) for sharing and ranking ideas applied in a workshop. The workshop is attended by key persons of the case organization and the goal is to identify current capabilities and determine future needed capabilities in light of changing customer demands. Identifying of capabilities is done by mapping of relevant organizational processes using a business model (Bonazzi & Zilber, 2014; Osterwalder & Pigneur, 2010; Shahand, Duffelen, & Olabarriaga, 2015). Building of capabilities is discussed in a case study where actors anticipated to these future needed capabilities. Validity and verification as proposed by Bradbury and Lichtenstein (2000) is sought by inviting all participants to an additional workshop facilitated for feedback to discuss the outcome of the brainstorming workshop.

Outline

The remaining part of this thesis is structured as follows. The next section focuses on capabilities literature with especially customer-linking capability and development of it. The third section introduces the case organization and describes processes of workshops for data collection and validity and verification. The fourth section discusses the case study results. The following section contains the data analysis. In the sixth section are discussion and implications. The last section discusses the conclusion and limitations supplemented by future research.

2. Literature

If an organization wants to enhance its market orientation it can focus on interfunctional coordination, because interfunctional coordination is the core element of market orientation (Spillan & Parnell, 2006). Interfunctional coordination can be enhanced by development of the customer-linking capability. This study will follow Day (1994a) his capabilities approach by focusing on the customer-linking capability which includes cross-functional coordination and information sharing. Development of the customer-linking capability includes identification and building whereby identification at the diagnostic stage reveals a portfolio of capabilities and building includes guiding of internal processes to anticipate on needed capabilities that emphasize creating customer value.

Interfunctional coordination

Published articles about interfunctional coordination are Slater and Narver (1994) who has stated that market orientation involves creating and sustaining an organizational culture and building of critical processes committed to superior customer value. Spillan and Parnell (2006) who has stated market orientation is the characteristic of an organization's culture that encourage employees throughout the organization and who has performed a study what examines the link between seven marketing resources and performance among SMEs. They found evidence that firms who exhibit a higher degree of market orientation are likely to pursue more emphasis on interfunctional coordination as a critical component of its marketing efforts. Or the resource-based view of Barney (1991) which stresses the importance of capabilities but neglects the importance of customer and competitor orientation.

The opposite of previous authors who not stresses the importance of interfunctional coordination is the work of Siguaw and Diamantopoulos (1995) who has stated that only customer and competitor orientation emerge as distinct dimension. Supported by Greenley (1995) who demonstrated that removal of the interfunctional coordination factor has only a minimally influence and Roersen et al. (2013) who has omit interfunctional coordination in their measurement of market orientation in high-tech Russian firms by applying the MKTOR Scale of Narver and Slater (1990).

Capabilities

Day (1994a) defined capabilities as a complex bundle of skills and collective learning what can be exercised through organizational processes to ensure superior coordination of functional activities. Furthermore capabilities are the glue that brings assets together and enables them to be deployed advantageously.

Comparable studies about capabilities are Teece et al. (1997) who developed a dynamic capabilities approach to analyze sources of wealth creation and capture by firms. Based on three existing paradigms: competitive forces approach based on the competitive strategy framework of Porter (1980, 1985), strategic conflict approach based on the game theory of Shapiro (1989), and efficiency-based approach from the resource-based perspective of Barney (1991). Another study is of Juga (1999) who developed a framework for analysis of generic capabilities. In this framework the author proposed a bridge between strategy (Ansoff, 1957; Porter, 1980, 1985) and production and service process capabilities as the key to an integrative analysis of generic capabilities that combine positional and resource based advantages. Finally, Di Benedetto and Song (2003) who have studied the relationship between strategic type (Miles, Snow, Meyer, & Coleman, 1978) and firm capabilities (Day, 1994a; Day & Wensley, 1988) in Chinese firms and later on also in a cross-national study at

firms across the United States, China and Japan (Song, Nason, & Di Benedetto, 2008). They found evidence that prospectors are strongest in inside-out and information technology capabilities, while defenders are strongest in marketing and outside-in capabilities.

Development of capabilities

The objective to develop capabilities is to demonstrate a commitment to a set of processes, beliefs, and values. The key to develop capabilities according to Day (1994a) is to tailor programs to the culture, environment and competitive position of a business. Who has based his program on the superior capabilities of Jaworski and Kohli (1993). Later on Day (1994b) published an article in which he provides evidence that market-driven business units developed higher levels of marketing capabilities than their less market-driven rivals and Day (1999) also published an article in which he elaborate a change program to become market driven.

Additional studies in the development of capabilities are Vorhies et al. (1999) who have defined marketing capabilities as integrative processes designed to apply collective knowledge, skills, and resources of a firm to market related needs of a business. These authors supported the theoretical work of Day (1994a) and studied capabilities and performance advantages in four hundred large manufacturing and service firms with Australian operations and provides evidence that market-driven business units developed higher levels of marketing capabilities then their less market-driven rivals. Also Harris and Ogbonna (2001) supported the work of Day (1994a) by stating that it provides the most comprehensive discussion of development and maintenance of market orientation. Studying the role of top management leadership style in influencing process of market orientation development with a multi-industry sample of thousand registered UK firms. Ruekert (1992) who has stated that it is the shift in managements attitudes toward the market that many organizations have embarked on formal programs to improve quality in production, enhance the responsiveness of services offered, and to foster a renewed commitment to serving the customer. Lastly, Theoharakis, Sajtos, and Hooley (2009) found support for development of relational capabilities in 485 business-to-business companies on process and performance outcomes. Whereby development of strong relationships contributes to an improved service response, in contrast to strategic partners who only contributes to innovativeness.

Customer-linking capability

According to Day (1994a) a customer-linking capability, thus creating and managing of close customer relationships, is important as successful collaboration requires a high level of purposeful cooperation in order to maintain a trading relationship over time. Therefore new skills, abilities and processes have to be mastered to achieve mutually satisfactory collaboration. On the one hand activities that need to be managed are close communications and joint problem solving whereby teams have continuously exchange information about needs, problems and emerging requirements. On the other hand are coordinating activities in terms of new management processes for joint production planning and scheduling, management information system links thus the electronically communications about requirements, status and orders, and mutual commitments to the improvement of quality and reliability. In conclusion cross-functional coordination and information sharing enhances understanding of the strategy and role of the different functions.

Additional studies about customer-linking are Jayachandran, Hewett, and Kaufman (2004) whose work contributes to Day (1994a) his focus on marketing capabilities in organizations. By examining

how customer knowledge process influences customer response capability by highlighting two dimensions of customer response expertise and speed. They studied representatives of 933 retail organizations and concluded that insights in the customer knowledge process enables organizations to provide better responses. Another article is of Weerawardena and O'Cass (2004) who have concluded after studying 1272 manufacturing firms that entrepreneurship is an important factor in sustained competitive advantage by following the capabilities framework of Day (1994a). Furthermore they concluded that market-focused learning capability leads to higher degrees of innovation, while marketing capability enables sustained competitive advantage. Finally, Rapp, Trainor, and Agnihotri (2010) examines how CRM technology and complementary resources are bundled to form capabilities that foster durable customer relationships. By performing a cross-sectional study in 215 firms of U.S. based-industries. They found that customer-linking capability has a positive relationship with customer relationship performance. Especially in environments where customer preferences and technological changes occur rapidly.

Identification of customer-linking capability

According to Day (1994a) each process have to be mapped to reveal where and how each of the activities is located. Mapping identifies disconnects at hand-off points, delays and unnecessary work, and sequences of activities that can be done in parallel. For the mapping a business model can be used. So this diagnostic stage reveal a portfolio of capabilities which can be used to enhance the interfunctional coordination.

Additional studies about identification of customer-linking are Cravens, Greenley, Piercy, and Slater (1997) who have stated that the objective is to identify or develop a unique set of capabilities and to employ market oriented processes in order to enhance organization's distinctive capabilities. By building a framework on how to become a market oriented and learning organization by discussing which capabilities should be emphasized. Another study is of Hooley, Greenley, Cadogan, and Fahy (2005) which draws on literature from both marketing and strategic management disciplines. These authors empirically test a framework based on the work of Day (1994a) for categorizing marketing resources and explaining their impact on firm performance. At the end they advise managers to use these findings to identify their own company's strengths and weaknesses across their resources. Lastly, Berghman, Matthyssens, and Vandenbempt (2006) explore the competences suppliers need to develop to be able to continuously create customer value. By studying nearly 3000 Dutch industrial companies. They concluded that development of marketing practices and network competences are necessary to become a market driving supplier.

Building of customer-linking capability

According to Day (1994a) resources have to be allocated as dedicated by the market, centrality of capability to the strategy, and opportunity cost of not taking remedial action. Arguments for investing in market-driven capabilities are for example: upset of competitive balance, growing power of customers, or lowering of mobility barriers that warrant new capabilities (Porter, 1980, 1985). Furthermore Day (1994a) also stated that failure to anticipate a change in competitive forces or customer requirements could result from inadequate links to key customers. Strategies for building of the customer-linking capability are proposed by Treacy and Wiersema (1993). These are superior strategies based on delivering customer value by accomplishing operational excellence, customer intimacy or product leadership. In conclusion strategies that emphasize creating customer value

depends on the building of the customer-linking capabilities and the use of these capabilities to guide internal organizational processes.

Additional studies about building of customer-linking are Guenzi and Troilo (2006) who have explored the contribution of Marketing-Sales integration to the development of marketing capabilities for the creation of superior value for the customer. By interviewing executives of companies operating in different industries. They concluded that Marketing-Sales integration contributes to development of market-based organizational learning, market sensing and customer linking. Or the study of Merrilees, Rundle-Thiele, and Lye (2011) who have developed a structural model linking marketing capabilities and marketing performance. In a study of 367 SME Australian firms they reveal that branding and innovation are two key marketing capabilities which have major contributions to the performance of a firm. They also found that market orientation and management capability act as enabling mechanisms for building marketing capabilities.

In summary, capabilities are skills combined with collective learning exercised through organizational processes. These capabilities can be developed by tailoring programs to the culture, environment and competitive position of a business. A distinctive capability is the customer-linking capability which is the creating and managing of close customer relationships. The customer-linking capability can be identified by diagnosing of the current capabilities and determining of the future needed capabilities. When these future needed capabilities are known an organization can start building these needed capabilities by allocation of resources as dictated by the market and strategy of the business. So, whether an organization wants to enhance its interfunctional coordination, the organization could develop the distinctive capability customer-linking capability. Therefore this study researches how organizational actors identifies and copes with the building of the customer-linking capability in order to enhance the internal organizational processes and herewith creates customer value by acting more market oriented. As was stated in the research question as "*How do actors identify and cope with building of the customer-linking capability in order to enhance the interfunctional coordination?* ".

3. Method

The setting of our study has been Eureka which is an engineering company with ten employees located in The Netherlands. Its core business is engineering and supplying of machines, equipment and production installations for the dredging- and drilling industry and technical sector. From start of the company most of the orders, which were customized solutions, came from its existing network. Customized solutions are a combination of services like engineering and supplying of physical products. Recently Eureka received several requests to supply key components for the dredging industry. Key components are e.g. dredge pump, power source or pipeline from dredge installation to mainland. Till now the standard in the market was to deliver a new complete installation. So this request for key components, to install these on existing installations combined with technical expertise to make it operational, are a change in customer's demands. The main reason for this change is the introduction of a submersible dredge pump in the market next to the traditional dredge pump. This submersible dredge pump makes it possible to apply alternative dredge solutions. As these demands for key components are seen as an opportunity the company decided to shift from customized machines to the introduction of standardized modules.

As the introduction of dredger modules affects Eureka's organizational processes in order to meet the change in customers' demands. This Dutch engineering organization is therefore a suitable case to study identification and building of the customer-linking capability. In practice for identification this was the diagnosis of its organizational process by using a business model and determination of which capabilities needed a development. When these future needed capabilities were determined by means of the Business Model Canvas (Osterwalder & Pigneur, 2010) the organization started to build the customer-linking capability by allocating and acquiring assets based on findings and discussions of brainstorm- and feedback workshops.

Theoretical positioning

The chosen research paradigm is rooted in the interpretative paradigm (Burrell & Morgan, 1979). Burrell and Morgan (1979) stated that the social world of interpretative paradigm searches for "explanation within the realm of individual consciousness and subjectivity, within the frame of reference of the participant as opposed to the observer of action" (Burrell & Morgan, 1979, p. 28). So regarding the social world of interpretative paradigm, this research will be performed with one's own subjective experience as participant in studying the process at the case organization.

Research method

Consistent with an interpretative approach, this research is based on a case study with a participant-observation research as method (Atkinson & Hammersley, 1994; Bradbury & Lichtenstein, 2000). According to Atkinson and Hammersley (1994) participant observation "represent a uniquely humanistic, interpretative approach" (p. 249) (p. 249). In addition Bradbury and Lichtenstein (2000) stated "methodologies oriented to relational concerns in organizations allow researchers to study the intersubjective and interdependent nature of organizational life" (p. 551). Further, Bradbury and Lichtenstein (2000) offer a matrix of relationality methods to determine "methodological approaches that flow from a relational perspective on organizational research" (p. 556). Following the matrix a interpersonal-interior method can be applied. This method is based on interior view, what means tacit and non-visible, and interpersonal research-practice which focuses on direct interaction between researcher and research subject. For this study a participant-observation research is chosen

as method because it is possible to act as researcher and as Chief Marketing Officer (CMO) of this Dutch engineering organization at the same time.

In addition, Bradbury and Lichtenstein (2000) stated that "in some measures its success is based on the quality of relationships […] the more trust and closeness that emerges through ongoing interactions, the richer the data and more complex the findings" (p. 558). Therefore it is an advantage that the researcher is employed at the Dutch engineering organization for almost five years.

Data collection

For identification two workshops were organized as data collection. The first workshop consisted of two parts with as first part diagnosing of capabilities and as second part determination of future needs for capabilities. This workshop was attended by key persons of the case organization who are Chief Executive Officer (CEO), Chief Marketing Officer (CMO) and Chief Operating Officer (COO). It should be clear that when all employees participate in this first workshop it would lead to a production down time of the whole organization for at least three hours. Which was against the wish of the CEO.

The goal of the workshop was to identify the customer-linking capability by diagnosing current capabilities and determine future needed capabilities. Identification means that capabilities were mapped by using a business model and that actors diagnosed which capabilities are distinctive and which capabilities needed a development. An business model addresses the relationship of all internal and external organizational components, and shows how these relate (Bonazzi & Zilber, 2014). Therefore the Business Model Canvas of Osterwalder and Pigneur (2010) is used. Which is a template that facilitates mapping, describing, designing, and inventing new business models (Shahand et al., 2015). Whereof Bonazzi and Zilber (2014) claim that it is considered the most complete model in business model theory.

Operationalization of the workshop is based on the Brainstorming technique Brainwriting (Thompson, 2003) with the procedure "group members cease all talking and write down their own ideas silently" (p. 103). Supplemented by the Nominal Group Technique (Thompson, 2003), ideas are "shared by the group in a round-robin fashion and summarized […] group discusses the ideas […] each person rank-orders the ideas" (p. 104). By applying this brainstorming technique individuals feel accountable, members are not influenced by others, everyone can be productive at the same time, improved ideas are encouraged and quantity will be maximized (Thompson, 2003).

In advance of the workshop the CEO and COO received an invitation email from the CMO with attached an agenda of the workshop, cheat sheet with explanation of concerning concepts[1], research proposal of this study and image of the Business Model Canvas (Osterwalder & Pigneur, 2010). The workshop started with a welcome by the CMO as workshop leader and an explanation of the agenda for the next three hours. He supported the introduction with two short videos of 2-3 minutes each. The first video[2] explained the study and concepts market orientation and capabilities. The second video[3] introduced the Business Model Canvas (Osterwalder & Pigneur, 2010). Then he gave a brief

[1] See Appendix
[2] https://www.youtube.com/watch?v=ZvYfDuQ_Zb8
[3] https://www.youtube.com/watch?v=QoAOzMTLP5s

explanation for the brainstorming method (Thompson, 2003) with an emphasis on "there is no wrong answer" and a request to come up with at least three ideas per building block. Lastly a reminder of the previous business models in comparison with the new business model was presented supported by an overview image. As there were no questions or ambiguities the brainstorming could start.

For brainstorming each building block (Osterwalder & Pigneur, 2010) was introduced with a brief explanation. Then each participant wrote down in silence their ideas on post-it notes. When everyone was done with Brainwriting (Thompson, 2003) of that particular building block the next one was explained briefly and again each participant wrote down their ideas. During Brainwriting the COO stayed within the boundaries of that specific building block whereas the CEO and CMO took back a few times on previous building blocks as new ideas appeared. The order of building blocks was determined according to directions of Business Model Canvas handbook (Osterwalder & Pigneur, 2010). When the Brainwriting of all building blocks was finished after approximately forty-five minutes the ideas of each participant were shared.

The group shared the outcome per building block, discusses and categorizes ideas, and checked ideas for overlaps. Sharing was one by one in clockwise starting with first person next to the workshop leader and ending with the workshop leader. During sharing it became clear that one idea had a better fit within another building block, no ideas were generated based on ideas of other participants, and there was no substantive discussion during sharing although a few times someone asked for more explanation of an idea. Next the group discussed and categorized their ideas and the workshop leader wrote down the summary. After which this procedure was repeated with the next building block. The discussion and summarizing expired structured with a timespan of approximately seventy-five minutes without time consuming accounts in a brisk pace and without rushing.

As second part of the first workshop when all building blocks were handled. The group discussed their future needs in comparison with the current resources and each person ranked these to determine what mattered most. The diagnosing and determination with the Business Model Canvas helped them to expose current resources so they could focuses on assets they need to accumulate and acquire. The discussion for determination of future needs lasted for approximately forty-five minutes including ranking. The workshop ended with a follow up announcement, what means a report with results by the CMO for all participants and an announcement for the next workshop for feedback with all present employees.

The second workshop for feedback had as aim validity and verification as proposed by Bradbury and Lichtenstein (2000) and can be "sought by inviting all participants to a facilitated learning workshop […] to support participants in increasing their capacity to realize their goals" (p. 558). This means that an additional workshop facilitated for feedback was organized for all employees who were present that day to discuss the outcome of workshop for brainstorming.

The workshop for feedback started with a welcome by the CEO and explanation of the goal of this meeting. In the introduction the CEO discussed the efforts to a new vision and strategy of the company. After which the CMO took over to introduce this study supported by a short video[4] and mentioned the workshop for brainstorming held by the CEO, CMO and COO. For discussion each

[4] https://www.youtube.com/watch?v=ZvYfDuQ_Zb8

building block was introduced with a brief explanation supported by showing outcome of previous workshop on screen. Then the CMO asked participants about their ideas of these outcomes and whether they would like to add something. By naming participants in turn employees responded to this concerning building block whereby other participants complemented their colleague. When all building blocks were discussed the CMO asked the employees about their ideas for future needs. The discussion was finalized by the CMO with a brief summary. After which the CEO took over in order to discuss some daily matters and he closed the meeting.

For building of the customer-linking capability the researcher participated and observed other participants (Bradbury & Lichtenstein, 2000) in order to discuss the introduction of dredger modules at this engineering organization. The goal of this study in building the customer linking-capability is to discuss the link of organizational resources to the customers and efforts as organizational actors. This building is done by acquiring and allocation of resources and enhancement of organizational processes and procedures to meet customers' demands in dredging key components.

Data analysis

In order to identify the current capabilities and structuring of the data during the workshop the Business Model Canvas of Osterwalder and Pigneur (2010) will be applied. The Business Model Canvas is emerged from the dissertation of Osterwalder (2004) and later on published as "Business model generation a handbook for visionaries, game changers, and challengers" (2010). The Business Model Canvas consists out of nine building blocks namely: Customer segments, Value propositions, Channels, Customer relationships, Revenue streams, Key resources, Key activities, Key partnerships, and Cost structure.

The *Customer segments* building block defines "the different groups of people or organizations an enterprise aims to reach and serve" (Osterwalder & Pigneur, 2010, p. 20). With this building block customers are grouped in distinct segments with e.g. common needs and common behaviors. Different types of customer segments are: mass market, niche market, segmented, diversified, and multi-sided platforms. Therefore customer segments expose the most important customers.

The *Value propositions* building block describes "the bundle of products and services that create value for a specific Customer Segment" (Osterwalder & Pigneur, 2010, p. 22). This building block discusses the benefits an organization offer to its customers. Elements of value propositions are e.g.: newness, performance, customization, getting the job done, design, brand/status, price, cost reduction, risk reduction, accessibility, and convenience/usability. Hence value is the reason why customers choose one company over another.

The *Channels* building block describes "how a company communicates with and reaches its customer segments to deliver a value proposition" (Osterwalder & Pigneur, 2010, p. 26). With this building block the communication, distribution and sales channels are exposed. Different types of channels are: sales force, web sales, own stores, partner stores, and wholesaler. So channels are the interface to the customers.

The *Customer relationships* building block describes "the types of relationships a company establishes with specific Customer Segments" (Osterwalder & Pigneur, 2010, p. 28). In this building block are types of relationship discussed ranging from personal to automate. Categories of customer relationships are: personal assistance, dedicated personal assistance, self-service, automated

services, communities, and co-creation. Hence customer relationship influences the customer's experience.

The *Revenue streams* building block represents "the cash a company generates from each Customer Segment" (Osterwalder & Pigneur, 2010, p. 30). With this building block revenue streams are grouped in one-time transactions or recurring transactions. Several ways to generate revenue streams are: asset sale, usage fee, subscription fees, lending/renting/leasing, licensing, brokerage fees, and advertising. So the revue stream exposes the value where customers are willing to pay for.

The *Key resources* building block describes "the most important assets required to make a business model work" (Osterwalder & Pigneur, 2010, p. 34). In this building block is discussed what key resources are required for the value proposition, distribution channel, customer relationships and revenue streams. Categories of key resources are: physical, intellectual, human, and financial. Therefore key resources are required for the success of a business model.

The *Key activities* building block describes "the most important things a company must do to make its business model work" (Osterwalder & Pigneur, 2010, p. 36). In this building block is discussed how the organization create and offer value, reach markets, maintain relationships and earn revenues. Key activities can be categorized as: production, problem solving, or platform/network. Thus key activities are the most important actions in order to operate successfully.

The *Key partnerships* building block describes "the network of suppliers and partners that make the business model work" (Osterwalder & Pigneur, 2010, p. 38). In this building block is discussed who the key partners are and which resources the organization acquire from its partners. Motivations for creating partnerships are optimization and economy of scale, reduction of risk and uncertainty, and acquisition of particular resources and activities. So alliances are created to optimize the business model, reduce risks, or acquire resources.

The *Cost structure* building block describes "all costs incurred to operate a business model" (Osterwalder & Pigneur, 2010, p. 40). With this building block the costs of key resources and key activities are discussed. Two classes can be distinguished cost-driven and value-driven with the following characteristics: fixed costs, variable costs, economies of scale, and economies of scope. So cost structure exposes the most important cost.

In order to build the customer linking capability this study follows Treacy and Wiersema (1993) as proposed by Day (1994a) to analyze the strategy of the company. These strategies that emphasize creating customer value are Operational excellence, Customer intimacy, and Product leadership.

Operational excellence means "providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience" (Treacy & Wiersema, 1993, p. 84). Day (1994a) added that this strategy requires business processes with a minimum of overhead and internal transactions cost. Relating to manage close links to customers and channel partners. So a strategy to compete on price with focuses on efficiency and a customer-linking capability in terms of the building blocks Value propositions, Channels, and Customer segments.

Customer intimacy means "segmenting and targeting markets precisely and then tailoring offerings to match exactly the demands of those niches" (Treacy & Wiersema, 1993, p. 84). Day (1994a) added that this strategy needs a highly developed market-sensing capability so that shifting requirements

can be identified. So it is a strategy on niche markets by offering the “perfect” products or services. In terms of the building blocks would this be Key activities, Value propositions, and Customer segments.

Product leadership means “offering customers leading-edge products and services that consistently enhance the customer’s use or application of the product, thereby making rivals’ goods obsolete” (Treacy & Wiersema, 1993, p. 85). Day (1994a) added that a market-sensing capability is a key contributor to the success of the strategy. By recognizing emerging needs, rapidly assessing customer response, and designing rapid market entry strategies. So it is a strategy to compete on offering the highest quality possible for the best performance. In terms of the building blocks would this be Key resources, Value propositions and Customer segments.

4. Results

In February 2016 the first workshop for identification of the customer-linking capability was organized with key persons of the organization who are the CEO, CMO and COO to diagnose the capabilities of the organization and to determine which capabilities needed an enhancement.

Workshop 1: Diagnosing of capabilities

Results of the workshop for Customer segments can be accessed from three perspectives: Customer types with producers for cooperation, traders and rental companies, and end-users e.g. mining or waterway cleaning. Customer industries like dredging industry, engineering for technical sectors, and drilling industry. Customers for type of product so the distinction between physical products or digital products. Typical is that each person describes the customer segments from a different focus. The CEO was thinking in types of customers while the CMO used an industry approach and the COO clearly had an inside-out focus. So the group discussed which approach was right using the Nominal Group Technique and concluded that all approaches were right although the focuses were different. Therefore in their summary they included and specified all three approaches of customers segments.

Customer Segments			
CEO	CMO	COO	Summary
Mining companies Contractors Waterway cleaning Rental companies Logistic companies	End-users Traders Dredging Engineering Drilling	Engineering projects with customers' own product Turnkey Dredging projects Knowledge intensive Dredging projects Turnkey Drilling projects Knowledge intensive Drilling projects	Customer types: Producers for cooperation Traders and Rental companies End-users e.g. for mining, waterway cleaning Customer industries: Dredging industry Engineering in technical sector Drilling industry Customers for product types: Physical products Digital products

Table 1: Customer Segments result of first workshop

Results of Brainwriting for Value propositions resulted in a cacophony of phrases. So the application of the Nominal Group Technique proves to be very useful for structuring of the discussion. After a few times of reordering the post-it notes the group came up with unanimous value propositions what can be summarized as knowledge and expertise of products and industries, customization of products, applied quality standards, advisory function, possibilities for low budget solutions thus on price, and accessibility so customers with small dredging projects are also welcome.

Value Propositions			
CEO	CMO	COO	Summary
Quality Advice Design "customer" Knowledge & Knowhow Innovation Calculations of Hydraulics and Strength Budget standard design	Customers who cannot do all by themselves Customization Knowledge Accessibility Modularity so customers own composition	Management from sketch to delivery Expertise so knowledge of the field Customer can participate Price in accordance with market or below	Knowledge and expertise Customization of products Quality standards Advisory function Price / low budget possibilities Accessibility with small dredging projects

Table 2: Value Propositions result of first workshop

Results of the workshop for Channels showed a lot of overlap in subjects although the pronouncement differs per person. So the summary was quite easy and can be stated as communication through sales partners, website, own sales representative, network, acquisition by own sales department, and by cooperation with suppliers.

Channels			
CEO	CMO	COO	Summary
Direct approach to users Suppliers Word of mouth Direct contact users Website Partners & Dealers	Own sales department Website Sales partners	Website Network Agents & Dealers Sales representative Known as good product	Sales partners Website Sales representative Network Acquisition Cooperation with suppliers

Table 3: Channels result of first workshop

Results of the workshop for Customer relationships showed in meaning a lot of overlap as came clear during sharing and can be summarized as direct contact by email and phone, contact via agents/dealers, visits at the customers, through the network, and with marketing actions e.g. newsletter or sponsoring.

Customer Relationships			
CEO	CMO	COO	Summary
On request of customers Network contacts By dealers & agents Newsletter Periodic telephone contact Sponsoring	Self-reliance of the customer by the website Visits Sales partners Contact by email/phone	Satisfied returning customer Visits Agents Interaction with the customer during project	Direct contact email/phone Contact via agents/dealers Visits Network Marketing actions e.g. newsletter, sponsoring

Table 4: Customer Relationships result of first workshop

Results of Brainwriting for Revenue streams resulted in lists of how the company gains its revenues. By using the Nominal Group Technique these statements were checked for overlap and summarized into categories. These are sales of physical products, digital products or services. Licenses and maintenance contracts, received subsidies, and rental of machinery or storage space.

Revenue Streams			
CEO	CMO	COO	Summary
License sales Hour rate work Invoicing for work Rental Wear parts Innovation sales	Sales of products Sales of services Maintenance contracts Support contracts Posting of personnel elsewhere Fixed pricing for product or service Dynamic pricing depending on deal or moment	Invoicing of delivered goods Invoicing of delivered services Sales of concepts and drawing packages Leasing of machinery Rent of storage space Subsidies Sales of outlet products	Sales of physical products Sales of digital products Sales of services Licenses and maintenance contracts Subsidies received Rental of machinery or storage space

Table 5: Revenue Streams result of first workshop

Results of the workshop for Key resources can be summarized as knowledge of products and experience with these products within concerning industries, educated personnel within the organization, physical and digital facilities, and financial resources. During sharing became clear that the CEO had an extensive list of resources while the COO provided only two post-it notes. After asking whether this was difficult, he answered that e.g. computers or people are obvious and not a key resource so not worth to mention. As expected the CEO disagreed and mentioned that these resources had cost the company a lot of money so it is not obvious at all. Finally, the CMO checked

the literature and concluded that computers and people are indeed key resources and have to be included in the Business Model Canvas.

Key Resources			
CEO	CMO	COO	Summary
Library with information Know-how by personnel Store area Assembly area Design software & equipment Online possibilities Dealers & Resellers	Experience with specific products Knowledge Financial resources Highly trained staff Software and computers	Specialist knowledge and experience Wide network of suppliers	Knowledge and experience Educated personnel Facilities physical Facilities digital Financial

Table 6: Key Resources result of first workshop

Results of the workshop for Key activities are summarized as providing of knowledge intensive services for example engineering, supplying of components, and offering of project management, training, and maintenance. During sharing became clear that the CEO provided a list of specific activities while the CMO and COO stated categories. Although there was difference between the latter as the CMO spoke in terms of the future business model while the COO spoke in terms of the past business model.

Key Activities			
CEO	CMO	COO	Summary
Engineering & design Calculation products Check on designs Calculation processes Production support Supply components Training Assembling & Maintenance	Engineering Production management Advice Support Guidance	Supply components Engineering of digital drawings package Turnkey solution Project management	Knowledge intensive services e.g. engineering Supply of components Project management Training Maintenance

Table 7: Key Activities result of first workshop

Results of the workshop for Key partnerships showed a lot of overlap and was summarized as sales partners like agents and dealers, returning customers, producers for cooperation, suppliers of components, partners for transportation, and partners for financial matters and risk reduction.

Key Partnerships			
CEO	CMO	COO	Summary
Satisfied users for reference Personnel for contacts & new prospects Suppliers to add combined delivery or services Dealers for sales	For scale and repeat business For delivery of components For transportation Sales network For production space	Suppliers for specialist product knowledge For financial matters to handle large projects For production of steel parts Agents and dealers for sales Relations with product knowledge for networking	Agents and dealers Returning customer Producers Suppliers of components Transportation Financial and risk reduction

Table 8: Key Partnerships result of first workshop

Results of the workshop for Cost structure are fixed costs as for example facilities, salaries, and insurance, project related cost like provisions, transportation and waste, and setbacks e.g. coast down time and production errors. For this building block the Nominal Group Technique was very useful to categorize all the ideas as the COO concluded after writing an extensive list of cost. As he proclaimed that by categorizing one could easily see which cost could be reduced by paying attention to it.

Cost Structure			
CEO	CMO	COO	Summary
Licenses Insurances Personnel Rental building Suppliers & transport	Fixed costs like facilities, salaries Variable cost, project related Coast down time Project related calculated costs Project related dynamic costs	Purchased products Provisions Purchased services Insurances Salaries Facilities Communication Transportation and car expenses Interest cost Waste Guarantees and production errors	Fixed costs e.g. facilities, salaries, insurance, etc. Project related e.g. provisions, transportation, waste, etc. Setbacks e.g. coast down time, production errors, etc.

Table 9: Cost Structure result of first workshop

Workshop 1: Determination of future needs

Before the company could determine which capabilities needed to be developed, they needed to define their customers. So the first question that the group needed to answer was “who are our customers?” One of the arguments was that although the company serves many types of customers from different industries, the organization needed to focus on one customer segment in order to handle a uniform approach. With main reason that “we cannot do it all anymore” and that they needed to present themselves as technical specialist. Furthermore the company needed to have a recognizable position in the market. So based on the newest development in dredging modules combined with their recently launched slogan “The Dredging Engineers” they decided to focus on the dredging industry.

The group continued with a discussion regarding the new business model in comparison with the previous business model. The main question in this discussion was “what do we have to meet customers’ demands”. Therefore the organizational actors determined their distinctive capabilities as technical knowledge and experience, and supply of components which allows the company to meet a change in customers’ demands. Regarding technical knowledge and experience Eureka has employed high educated engineers who have designed technical solutions for many years. Although the group determined that Eureka needed to advertise a vacancy for candidates with knowledge of electric applications as most of the knowledge in the organization is based on hydraulic applications. Regarding supply of components Eureka is almost twenty years active in the dredging industry and has therefore demonstrated its expertise. This outcome is directly related to the new dredging modules as Eureka is capable to offer the right combination of modules based on their knowledge and experience and to supply these key components.

The actors had determined that customers from the dredging industry were most important for their organization. In order to serve these customers organizational actors determined that a sales network could be used for the sale of standardized dredging modules. So the next discussion at the workshop was regarding its network of sales partners. The group determined that this capability needed a development. In the past most of the customers were end-users who directly approached them for a customized machine. The development of dredging modules creates the opportunity to collaborate with sales partners as the sales of combined modules is less knowledge intensive than a customized machine. However conditions are that a potential sales partner needs to have knowledge, experience and a positive reputation in the dredging industry. The hardest part till now was to choose the right parties but from now on the actors also needed to make efforts to maintain

these relationships. Because when these parties stopped their collaboration with Eureka and use the technical specifications of these modules elsewhere, the company could lose its competitive advantage.

The last discussion was that with the introduction of dredging modules the relationship with customers changes from an intensive relation, during the development of customized products where every detail matters, to an offering of "just" the right combination of modules via sales partners. Whereby procedures of technical department changes as the work of an engineer shift to an area with research and development of modules based on market demands instead of designing the highest quality possible. Also the commercial activities changes as marketing has to support sales partners by providing of commercial material and advising in deployment of it instead of actively advertising by itself. Sales activities changes from acquisition and quotation production to the role of mediator between sales partners and internal organization to support sales partners in offering of the right modules combination. Therefore all employees within the organization have to possess a certain level of both technical and commercial competencies to disseminate the information and to provide an appropriated response. Thus it is crucial that all functions need to be willingly and capable to educate their colleagues in a different area of organizational activities by sharing information. So the group determined that the organization had to pay attention to processes, procedures and documentation to share the written information but also to the sharing of knowledge and experience of the running projects. Therefore weekly meetings would be introduced to discuss commercial strategies, running projects and other daily matters.

At the end of the identification stage the group concluded that their distinctive capabilities were their technical knowledge and experience, and supply of components. Whereas the lack of a sales network was the most important problem thus the main capability Eureka needed to develop. Followed by the capability to extend brand awareness by becoming a dealership of a well-known brand. Other capabilities to develop were knowledge of electric applications to meet customers' demand in electric driven installations. So the group concluded that the introduction of dredging modules combined with a sales network not only affects the technical department with development of these modules, it affects the whole organizational process with its procedures and thus relationship with the customer as well.

Determination of future needs			
CEO	CMO	COO	Summary and ranked by the group
Customers from one segment for uniform treatment Processes, procedures and documentation	Selected group of partners with proven experience and existing network	Dealership of well-known brand to ride on their fame Engineering employee for overhead ratio Knowledge of electric application because at the moment is more knowledge about hydraulic applications	1 - Customers from one segment 2 - Selected group of key partners 3 - Dealership of well-known brand 4 - Processes, procedures and documentation 5 - Engineering employee 6 - Knowledge of electric applications

Table 10: Determination of future needs result of first workshop

Workshop 2: Validity and verification

The workshop for validity and verification took place in March 2016. For this workshop all employees were invited by a written announcement on a white board in the canteen supported by an oral announcement during the break. All seven employees, of ten in total, were present at the workshop.

After discussing each building block with all participants the following table[5] could be created with additions from the feedback workshop detailed to input of each participant. As result of discussing for the building block *Customer segments* no additions were pronounced and all participants agreed with the outcome of the previous workshop. The same is true for *Value propositions*. For *Channels* EM was asked if he could provide any additions. He came up with post mail, delivering personally and use of flyers to spread the message. These ideas triggered JT so he added trade fair and advertising to reach the customer.

The next discussed building block was *Customer relationships*. This time RM was asked whether he could think of some additions. He had no clue but MF shared ideas as promotional gifts to strengthen the relationship or to invite existing customers at the company whether or not in combination with open days. For *Revenue streams* PK added ideas as sales of stock to get rid of leftovers from finalized projects. JT spontaneous shared posting of people as a new form of revenue stream and MF named to sale extra features or tools for a machine thus cross selling of products. For *Key resources* GS added an exhibition stand after he was asked if he could bring up to an idea and MF added a network of suppliers as key resource although it was more a channel than a resource.

The *Key activities* building block resulted in trouble shooting and checking of CE-standards proposed by GS and PK added assembling of machines. MF explained that posting of people was missing as sometimes colleagues were posted at client's locations. *Key partnerships* were seen as the building block what needed more attention in the future. So ideas came from several employees. PK added cooperating with competitors, JT added customer as producer referring to engineering orders at steel producers. MF proposed cooperating with customers for development of machines and other engineering companies to provide services at the home country of a customer. GS brought up a partnership with learning institutions or universities and entrepreneurs associations to underline their professionalism. The last discussed building block which was regarding the *Cost structure*. PK mentioned purchase of parts although it can be seen as project related costs and JT added internal training of employees although these can be categorized within personnel costs.

At the end of the workshop the workshop leader asked every participant in turn if they could provide ideas what the company needed in the future to work with the new modular approach. MF named contacts for electric application and software application as these were explicit professions which no one of them could thoroughly handle. RM as sales person discussed the importance of the after sales trajectory. JT underlined that the company needed close relationships with partners and parties who could serve as reference. EM as mechanic had no additions but colleagues stood up for him by mentioning more continuity in orders for the workshop by attracting of assembling projects and better facilities in the workshop as some tools were wear out or outdated. GS and PK as participants in the previous workshop had both no more additions for future needs.

[5] See Table 11: Validity and verification result of second workshop

Customer Segments		Value Propositions	
	No additions		No additions

Channels		Customer Relationships	
EM	By mail	MF	Promotional gifts
EM	Deliver ourselves with complement	MF	Inviting to our company
JT	Trade fair	MF	Open days
EM	Flyers		
JT	Advertising		

Revenue Streams		Key Resources	
PK	Sale of stock	GS	Exhibition stand
JT	Posting of people	MF	Network of suppliers
MF	Cross selling		

Key Activities		Key Partnerships	
GS	Trouble shooting	PK	Cooperation with competitor
PK	Assembling	JT	Customer as producer
GS	Checking of CE-standards	MF	Customer for cooperation and development
MF	Posting of people	MF	Other engineering company for services
		GS	Learning institutions / universities
		GS	Entrepreneurs Association

Cost Structure		Future Needs	
PK	Purchase	MF	Contacts for electric application
JT	Internal training	MF	Contacts for software application
		RM	Detailed discussion of projects after the sale
		JT	Close relation with partners and references
		MF	Continuity in workshop
		RM	Workshop facilities
		JT	Attracting of assembling projects

Table 11: Validity and verification result of second workshop

Building of the customer-linking capability

For building of customer-linking capability actors had to anticipate on their future needs to fill the missing elements of their new business model. At determination they had concluded that agents and dealers were the most important future need. Followed by efficient processes, the right procedures and accessible documents. The last future need was the lack of knowledge of electric applications which could be combined with the recruitment of an engineering employee. Regarding the first future need sales network, the organization contacted several prospective parties to collaborate with. Three of them were agents to serve customers geographically each specialized in different continents. One for North-Europe, one with links to Asia, and one for West- and South-Europe with an extensive network within the dredging industry and a good reputation in the market. Two other parties were producers and suppliers of dredge pumps. One located in Poland and one located in China. As all these parties were also willing to do business with Eureka they all agreed to collaborate. The next future need was regarding the processes, procedures and documents. Therefore actors examined their procedure of storing documents and structure of their documentation mapping. In order to accomplish better information sharing and coordination, weekly meetings were introduced for all present employees. During these meetings discussed subjects were regarding the commercial strategies, running projects and other daily matters. The aim of this meetings was to create a moment to consult, and most important, to help each other by sharing information. The last future needs were regarding an engineering employee and knowledge of electric applications. Therefore vacancies for two engineering employees were advertised with the intention to hire one employee in the summer and one employee at the end of this year.

5. Data analysis

By analyzing the data of both workshops supplemented by the whole process of introducing new dredger modules the analysis is twofold. On the one hand with identification we have diagnosed the capabilities and determined future needs for capabilities. On the other hand this thesis will discuss the efforts of organizational actors and their process in building the customer-linking capability by anticipating on these future needs.

Identification of customer-linking capability

For identification we have collected the data in two workshops and used the Business Model Canvas (Osterwalder & Pigneur, 2010) to map and structure these data. With as result insight in the capabilities of the organization. This insight made it possible for actors to identify their customer-linking capability by linking building blocks. So actors could determine their distinctive capabilities which were technical knowledge and experience, and supply of components. Also with this insight the company could determine their future needed capabilities. Thus actors reflected their operational problems by diagnosing their customer-linking capability after which they determined their needed capabilities for the future.

Regarding to the first future need sales network, actors concluded that Key Partnerships was their weakest building block. As they determined that Key Partnerships like agents and dealers could supplement Eureka with a sales network as in Channels. In order to reach Customers segments and pronounce Eureka's Value propositions like price and low budget opportunities. The end goal for this collaboration had to result in Revenues streams for both parties thus the sales of dredging modules. So the identification of customer linking-capability lies in the linking of the different building blocks what reveals the future needs.

The next future need was regarding their procedures, processes and documentation for information sharing. As the responsible person for contact with the customer often could not exactly determine in which stage the project was. He could not send invoices on the proper moment as these should be linked to the completion of the project, could not inform the customer on time if there was a delay, or arrange transportation for the modules as special cranes and trucks had be to hired. In terms of building blocks this is related to Key resources as digital facilities for information and Key activities as in project management what could be linked to the Customer relationships as in direct contact by phone or email.

The last future need the actors determined was the lack of electrical applications. The reason why this is of importance was experienced in the past. As several projects were delayed by the lack of an intern person to guide electric workers during the connection of wires. A machine contains a complex electric circuit and although the schemes were drawn by computer, the reality is often a big box with close positioned holes where wires have to be connected crossover. So when one wire is connected wrong the machine simply doesn't work and the electric circuit looks just like a plate of spaghetti. By linking to the building blocks this relates to Cost structure as in setbacks due to the difficulty of wire connecting and Key resource as an employee with knowledge of electrical applications to prevent project delays with at the end Customer relationships as the project was whether or not competed on time.

In addition during discussion of the building blocks in the first workshop became clear that each participant had a different approach. This approach was directly related to their own profession as CEO, CMO or COO. The CEO thought in terms of business opportunities, overall of the organization and costs as gatekeeper of financial matters. The CMO thought in terms of categories and markets with a focus on the introduction of modular offerings. The COO approached from a project perspective as engineer, planner and project related challenges e.g. budget and project time. Although these approaches differs actors complemented each other instead of defending opposite interests. At the end the actors were able to categorize and summarize the input of both workshops to create a business model based on the Business Model Canvas[6].

<table>
<tr>
<td rowspan="2">Key Partnerships
Agents and dealers
Returning customers
Producers
Suppliers of components
Transporters
Partners for financial and risk reduction
Learning institutions</td>
<td>Key Activities
Knowledge intensive services e.g. engineering
Supply of components
Project management
Training
Maintenance
Posting of employees</td>
<td rowspan="2">Value Propositions
Professional advise
Customization of products
Quality standards
Price / low budget possibilities
Accessibility with small dredging projects</td>
<td>Customer Relationships
Direct contact email/phone
Visits
Marketing actions e.g. newsletter, sponsoring
Acquisition
Invitations</td>
<td rowspan="2">Customer Segments
Customer types:
Producers for cooperation
Traders and Rental companies
End-users e.g. for mining, waterway cleaning

Customer industries:
Dredging industry
Engineering in technical sector
Drilling industry

Customers for product types:
Physical products
Digital products</td>
</tr>
<tr>
<td>Key Resources
Technical knowledge and experience
Educated personnel
Facilities physical & digital
Financial resources</td>
<td>Channels
Website
Sales department
Network</td>
</tr>
<tr>
<td colspan="3">Cost Structure
Fixed costs e.g. facilities, salaries, insurance, etc.
Project related e.g. provisions, transportation, waste, etc.
Setbacks e.g. coast down time, production errors, etc.</td>
<td colspan="3">Revenue Streams
Sales of physical products
Sales of digital products
Sales of services
Licenses and maintenance contracts
Subsidies received
Rental of machines or storage space</td>
</tr>
</table>

Table 12: Business Model Canvas of Eureka

Building of customer-linking capability

In order to build the customer-linking capability the actors first had to decide which strategy suited best for their company. They concluded that Operational excellence (Treacy & Wiersema, 1993) was the strategy they emphasized most. As this strategy requires business processes with a minimum of overhead and internal transactions cost. Thus the efficiency with their dredging modules offered to customers with deployment of a sales network instead of designing the machine over and over again. Regarding Osterwalder and Pigneur (2010) their proposed building blocks this would be in terms of Value Propositions as in accessibility with small dredging projects, Channels through their sales network, and Customer Segments as end-users to offer a combination of physical and digital products.

[6] See Table 12: Business Model Canvas of Eureka

For building of the customer-linking capability the actors anticipated on the desired future needs for capabilities. So for building the actors determined which building blocks needed an enhancement and how they could connect these weak links by “filling the holes” within these building blocks.

The first future need was a lack of a proper sales network. This future need relates most to the building blocks Key partnerships, Channels and Revenue streams. Therefore actors focused on these building blocks by expanding their network by searching for agents and dealers who could contribute Eureka. With this sales network Eureka was able to serve a larger geographical market. Although it was a challenge to select and contract suitable parties as these parties needed also to consider the pros and cons of these relationship and recognize the benefits of this collaboration. So building of the customer-linking capability could be considered as network expansion within the building block Key partnerships, to form a sales network of the building block Channels, and revenues with this sales network within the building block Revenue streams.

The next future need was information sharing in terms of procedures, processes and documentation. This future need relates most to building block Key Activities in terms of work processes and Key Resources with specifically digital facilities. To build this future need several computer folders were specified in procedures about what to save in which folder and what these folders needed to contain at least. During sharing in the weekly meetings became clear whether the employee has followed the right procedures and if he has stored the documentation well. Otherwise he was not able to show and discuss his work efficiently. Also a detailed planning of the project had to provide insight in the process of the project so all departments were able to explore the data and use it for their own tasks. It was a challenge to rearrange the work processes as the role of employees’ changes with the introduction of a sales network. Thus the role of sales men changes into a technical expert supporting sales partners and engineers had to understand the commercial process. So building of this customer-linking capability could thus be considered as a change of work processes and enhancement of their project management as in Key Activities to result in better digital facilities as in Key Resources.

The last future need was the wish for an employee with knowledge of electrical applications. The missing knowledge of electrical applications relates to a Key Resource which had a major influence to setbacks of a project thus its Cost Structure. In order to accomplish these future needs, efforts were combined in a vacancy for candidates with knowledge of electric applications. So building of the customer-linking capability could thus be considered as the hiring of an employee with knowledge of electrical application as Key Resources to result in reduced setbacks in Cost Structure.

In conclusion, it should be clear that the goal of building these capabilities is to satisfy customers. Whether it is in terms of serving them by local sales parties, a proper project management by Eureka or project delivery on time. It is all about the customer-linking capability to create value for the customer.

6. Discussion & Implications

In this study we have followed the capabilities approach of Day (1994a) and as the researcher was also CMO of this company a participant-observation (Atkinson & Hammersley, 1994) research method was applied. By identifying the capabilities of the organization we used the Business Model Canvas (Osterwalder & Pigneur, 2010) to map and structure the data. As Day (1994a) proposed that mapping would reveal where and how each of the activities is located. We agreed with such insight but did not find disconnects and hands-off points with this business model what Day (1994a) also proposed. The Business Model Canvas was indeed a helpful tool to identify capabilities, determine future needs and thus analyzing the customer-linking capability.

After identification we have built the customer-linking capability by anticipating on the desired future needs. With some examples we have explained that customer-linking capabilities could be built by linking building blocks and "filling the holes" within these building blocks. Day (1994a) proposed that anticipating enhanced the choice of where to allocate resources. We found that it was often a lack of resources instead of resources located or divided into the wrong place within the organization. A plausible explanation could be the size of the researched organization. The studied organization is very small and we can imagine that at large organizations resources are already present and divided across departments.

The data was collected in two workshops applying the brainstorm technique Brainwriting (Thompson, 2003) supplemented by the Nominal Group Technique (Thompson, 2003) for sharing, discussing and ranking the ideas of the brainstorm. Actors mapped their capabilities in a workshop for brainstorming at the diagnosing stage and determined capabilities they needed to develop to meet the change in customers' demands in dredging key components. Comparing the Brainwriting technique with our workshop we performed a similar process as proposed by Thompson (2003). Although the Nominal Group Technique also enhances the ranking of the ideas, this was only applied to the future needs and not to all subjects within the building blocks as not the ranking but the complete set of capabilities was important.

The analysis was formed by reflecting on the building blocks of the Business Model Canvas (Osterwalder & Pigneur, 2010) to the identification and building of the customer-linking capability (Day, 1994a) in order to create value for the customer. In our study the value creating for customers was to meet demands for alternative dredging solutions with the introduction of dredging modules. The development of customer-linking capability was the acquiring of several resources according to the new business model but as this study is only one example the context will differ in other studies.

Theoretical implications

To perform this research we have chosen for an internal organization approach. As we had the possibility to act as researcher with insight knowledge as employee. We also had access to the research organization for a longer period and could therefore study a large part of this organizational process. From the first idea of modularization to changes of the internal organization and beyond. Although we had insight in the whole process of the development of these dredging modules we decided to focus only to the customer-linking part of this event. So the diagnosing and determination of the capabilities and anticipating on the future needed capabilities.

In addition we had could have chosen for a business versus modularity approach (Baldwin & Clark, 2003; Sanchez & Mahoney, 1996) by studying the development of the dredging modules. Or the offering of the combination of products and services (Shankar et al., 2007, 2009; Ulaga & Reinartz, 2011) and research what the strength of this combination was. We also could have chosen to stick to the Business Model Canvas (Osterwalder, 2004; Osterwalder & Pigneur, 2010) and study business models (Bonazzi & Zilber, 2014; Shahand et al., 2015). But we have gone further in this research by not only defining the existent business model but also by using this business model to study its strengths and weaknesses and to anticipate on these weaknesses. With a focus on the link between internal organization matters to value creation for the customer. In this case study are therefore efforts of organizational actors discussed to illustrate an example of how to develop a customer-linking capability.

Practical implications

The added value for managers in practice is a description of the course of events to provide insight when managers would like to enhance interfunctional coordination at their own organization. First, organizations have to make clear their capabilities and needs with identification so that an organization can focuses on these particular needs. In this case study a business model is used to identify capabilities by mapping of organizational resources. These particular needs are called future needs for capabilities and an organization has to make efforts for anticipation to build these needs. Next step is to put efforts of organizational actors throughout organizational processes. Whereby actors have to realize themselves that enhancement of interfunctional coordination is a long time ongoing process with redefining and adjustments what needs regularly attention. Moreover companies have to realize that actors have to share their information with their colleagues and have to provide access to this information in all departments. Also they have to manage this project well and monitor the progress of their efforts. Although the content of concerning customer-linking capabilities differs per organization and depends per situation and there is no perfect way of how to enhance interfunctional coordination, there are illustrations and examples of organizations that have experienced comparable efforts; just like this study.

7. Conclusion & Limitations

The research question of this study was: *How do actors identify and cope with building of the customer-linking capability in order to enhance the interfunctional coordination?* To answer this research question a case study at an Dutch engineering organization was discussed with a participant observation method (Bradbury & Lichtenstein, 2000). The goal of this study was to enhance the interfunctional coordination by identification and building of the customer-linking capability (Day, 1994a). The thesis discusses the efforts of organizational actors to introduce new dredging modules. This study explored how actors identified current capabilities and determined future needed capabilities, in order to build these future needs by acquiring of resources. Identification was done by diagnosing in a workshop for brainstorming participated by keypersons of the organization with Brainwriting (Thompson, 2003) as method. Supplemented by the Nominal Group Technique (Thompson, 2003) where relevant processes were mapped with the Business Model Canvas (Osterwalder & Pigneur, 2010). Determination of distinctive capabilities and capabilities which needed to be developed was done at the end of the workshop when mapping was completed. So after the workshop when current and future needed capabilities were identified, actors were able to build the customer-linking capability by anticipation to future needs for capabilities in order to coordinate utilization of company resources in creating superior value for target customers, thus interfunctional coordination (Narver & Slater, 1990).

Limitations

The most important limitation of this study was the time span. As enhancement of interfunctional coordination is time consuming and deserves regularly attention, it is advisable to research the development of capabilities that lead to solid and dynamic interfunctional coordination mechanisms over the long term. A second limitation is the nature of the organization. In this research an engineering organization was studied. As this is a technical organization research at commercial businesses may provide other results in terms of brand experience or services. Lastly, as this research is only one case study, for future research a multiple case study could be performed where several organizations could be studied and compared in order to create a complete picture. Interesting research questions could be: “What are differences and similarities in the development of capabilities?” or “What causes the differences in the development of capabilities?”.

8. Appendix

Workshop for Brainstorming

Date: Monday 22 February 2016

Attended by: Chief Executive Officer (CEO) ing. G.J. Snelting
Chief Operating Officer (COO) ing. P.J.T. Klein
Chief Marketing Officer (CMO) A.W. Grootveld, B Com

Agenda

- Welcome at the workshop for master thesis project "Interfunctional coordination: development of the Customer-linking capability in a case study at an Engineering Organization".
- Introduction
    - Market Orientation – Interfunctional Coordination (Narver and Slater, 1990)
    - Distinctive Capabilities – Customer-linking capability (Day, 1994a, p. 49) https://www.youtube.com/watch?v=ZvYfDuQ_Zb8
    - Business Model – Business Model Canvas (Osterwalder & Pigneur, 2010) https://www.youtube.com/watch?v=QoAOzMTLP5s (Strategyzer, 2011)
- Brainstorming
    - Brainwriting (Thompson, 2003)
        - Group members cease all talking and write down their own ideas silently, at least three for each building block
    - Nominal group technique (Thompson, 2003)
        - Ideas are shared by the group in a round-robin fashion
        - Ideas are summarized using the Business Model Canvas
        - The group discusses the current capabilities in comparison with future needed capabilities
        - Each person rank-orders the future needed capabilities
- Follow-up
    - Internal report with results
    - Workshop for feedback with all present employees
- Thank you

Cheat sheet with Concepts

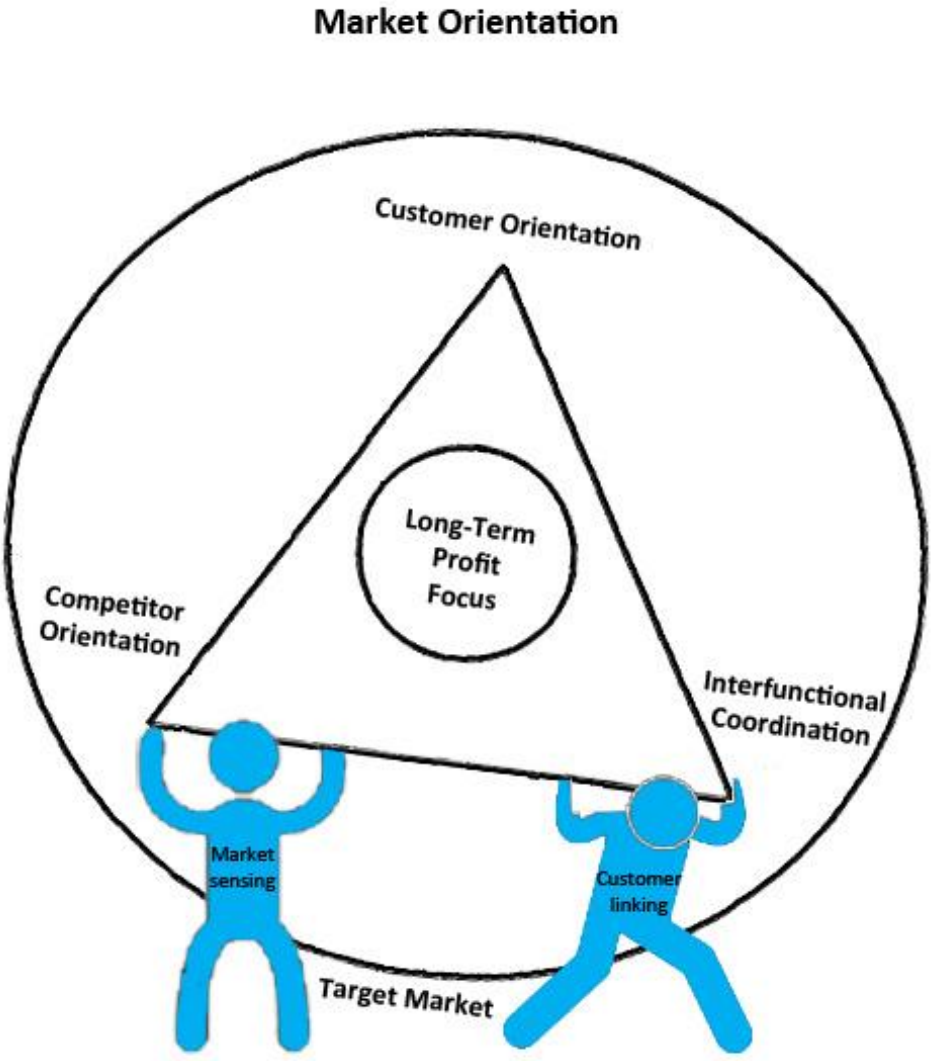
Market Orientation: "The organization wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization wide responsiveness to it" (Kohli and Jaworski, 1990, p.6).

Interfunctional Coordination: "The coordinated utilization of company resources in creating superior value for target customers" (Narver & Slater, 1990, p. 22).

Customer-linking capability: "The skills, abilities, and processes needed to achieve collaborative customer relationships so individual customer needs are quickly apparent to all functions and well-defined procedures are in place for responding to them" (Day, 1994a, p. 49).

Business Model Canvas: "A business model describes the rationale of how an organization creates, delivers, and captures value" (Osterwalder & Pigneur, 2010, p.14)

Visual Presentation of Master Thesis Project



Building Blocks of the Business Model Canvas (BMC):

The Customer Segments building block defines "the different groups of people or organizations an enterprise aims to reach and serve" (Osterwalder & Pigneur, 2010, p. 20). With this building block customers are grouped in distinct segments with e.g. common needs and common behaviors. Different types of customer segments are: mass market, niche market, segmented, diversified, and multi-sided platforms. Therefore customer segments expose the most important customers.

The Value Propositions building block describes "the bundle of products and services that create value for a specific Customer Segment" (Osterwalder & Pigneur, 2010, p. 22). This building block discusses the benefits an organization offer to its customers. Elements of value propositions are e.g.: newness, performance, customization, getting the job done, design, brand/status, price, cost reduction, risk reduction, accessibility, and convenience/usability. Hence the value is the reason why customers choose one company over another.

The Channels building block describes “how a company communicates with and reaches its customer segments to deliver a value proposition” (Osterwalder & Pigneur, 2010, p. 26). With this building block the communication, distribution and sales channels are exposed. Different types of channels are: sales force, web sales, own stores, partner stores, and wholesaler. So channels are the interface to the customers.

The Customer Relationships building block describes “the types of relationships a company establishes with specific Customer Segments” (Osterwalder & Pigneur, 2010, p. 28). In this building block are the types of relationship discussed ranging from personal to automate. Categories of customer relationships are: personal assistance, dedicated personal assistance, self-service, automated services, communities, and co-creation. Hence the customer relationship influences the customer experience.

The Revenue Streams building block represents “the cash a company generates from each Customer Segment” (Osterwalder & Pigneur, 2010, p. 30). With this building block revenue streams are grouped in one-time transactions or recurring transactions. Several ways to generate revenue streams are: asset sale, usage fee, subscription fees, lending/renting/leasing, licensing, brokerage fees, and advertising. So the revue stream exposes the value where customers are willing to pay for.

The Key Resources building block describes “the most important assets required to make a business model work” (Osterwalder & Pigneur, 2010, p. 34). In this building block is discussed what key resources are required for the value proposition, distribution channel, customer relationships and revenue streams. Categories of key resources are: physical, intellectual, human, and financial. Therefore key resources are required for the success of a business model.

The Key Activities building block describes “the most important things a company must do to make its business model work” (Osterwalder & Pigneur, 2010, p. 36). In this building block is discussed how the organization create and offer value, reach markets, maintain relationships and earn revenues. Key activities can be categorized as: production, problem solving, or platform/network. Thus key activities are the most important actions in order to operate successfully.

The Key Partnerships building block describes “the network of suppliers and partners that make the business model work” (Osterwalder & Pigneur, 2010, p. 38). In this building block is discussed who the key partners are and which resources the organization acquire from its partners. Motivations for creating partnerships are: optimization and economy of scale, reduction of risk and uncertainty, and acquisition of particular resources and activities. So alliances are created to optimize the business model, reduce risks, or acquire resources.

The Cost Structure describes “all costs incurred to operate a business model” (Osterwalder & Pigneur, 2010, p. 40). With this building block the costs of the key resources and key activities are discussed. Two classes cost-driven and value-driven can be distinguished with the following characteristics: fixed costs, variable costs, economies of scale, and economies of scope. So the cost structure exposes the most important cost.

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