

**Customer knowledge creation in strategic business networks
Towards an analytical framework**

Full competitive paper
to be submitted to the 25th IMP Conference, Marseille 3.–5.9.2009

by

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Abstract

This paper focuses on customer knowledge creation in strategic business networks. We suggest that different knowledge creation processes require different types of interaction between companies. Based on this idea and drawing on literature from organizational learning, strategic networks and the IMP industrial network approach we propose an analytical framework for describing customer knowledge creation within a strategic business network. The framework takes into account the levels of knowledge creation (community of interaction, business relationship and network), the processes of knowledge creation (combination, internalization, externalization and socialization) and the qualities of business relationships (initiation, encounter, intimacy) required to create customer knowledge in strategic business networks. The framework can be used in analysing knowledge creation as an inter-firm activity in strategic business networks. The paper contributes to the theory of strategic business networks but also more generally to industrial network thinking.

Key words: customer knowledge creation, inter-firm networks, strategic business networks

Nature of the paper: conceptual paper

1. Introduction

Knowing customers is a much debated area among practitioners and scholars alike. In a rapidly changing world, where customer-centric innovations are regarded as a means of achieving competitive advantage (Prahalad and Krishnan, 2008), companies share customer knowledge with each other in order to jointly improve their understanding of customers. Examples of inter-firm networks that continuously

strive to find novel ways of developing customer knowledge can be found (e.g. the Vaisala network). Knowledge about customers and a network's ability to develop it can be considered strategic assets and, thus, of key importance for strategic inter-firm networks. However, little is known about how an inter-firm network develops customer knowledge.

Knowledge development and learning¹ in networks has received increasing attention from scholars over the past few years. There is an ongoing debate among them about whether or not a network is able to know or learn. We believe that a network can know and learn, but that this is only possible through the individuals that represent business firms. We further argue that the key question is, not whether a network can or cannot know and learn but, how is a network viewed, as this is what affects the selected view of network learning.

Several studies focusing on learning in networks have emerged. For example, the studies concern the facilitating role of different type of networks in creating and integrating knowledge (Van Wijk and Van Den Bosch, 2003), the nature of learning in and through network relationships (Beeby and Booth, 2000), and network features related to network learning (Lane, 2001). Furthermore, within the IMP literature on industrial networks the role of learning has been recognized as an important issue. Researchers have highlighted both the learning aspects and learning effects of business networks and examined the significance of relationship context for learning (Håkansson and Johanson, 2001; Håkansson, Havila and Pedersen, 1999). The IMP studies emphasize tacit knowledge and they take an experiential perspective on learning, which argues that companies learn from other companies while working through daily experiences and routines.

The few studies available on strategic networks have particularly pointed out the creation and the evolution of knowledge sharing networks, problems related to knowledge sharing (Dyer and Nobeoka, 2000) and the influence of customer scope on supplier learning and performance (Nobeoka, Dyer and Madhok, 2002). Möller and Svahn (2006) analyze the role of learning in different types of strategic nets, rather similar with the IMP studies, by making use of the learning approach emphasizing the role of past experience, focused on developing and or modifying routines. Moreover, recent literature on knowledge management, and its practically oriented section in particular, examines the role of IT support in knowledge development and in the management of knowledge flows in networks (for a brief review see de Man, 2008). *Although the different branches of business network study have provided new insights into knowledge development and learning within networks, customer knowledge and the process of customer knowledge creation in such a setting has not been studied.*

Knowing the customer and the market is the cornerstone of the marketing concept. Over the past 50 years discussion on this basic tenet has evolved around various concepts ranging from market and customer orientation to customer knowledge and marketing knowledge management. In all this literature, knowledge development has been viewed as an intra-organizational phenomenon; it is the company that develops the knowledge and it is the organization that learns about markets and customers. In particular, what seems to be missing is the study of customer knowledge development in inter-organizational contexts, in inter-firm relationships and in networks. Most recently, some authors have emphasized the significant role of customer knowledge development in networks for competitive advantage (Evanschitzky, 2007), and the impact of inter-organizational structure on inter-firm customer knowledge development (Elg, 2008). In this paper we will continue this line of thinking by focusing on customer knowledge creation as an inter-firm activity occurring in strategic business networks.

The purpose of the study is to describe the process of customer knowledge creation within strategic business networks. Two key issues will be discussed in detail: the nature of customer knowledge and the nature of interactive processes through which customer knowledge is created. We argue that the traditional conceptualization of customer knowledge, which originates from marketing literature, needs to be redefined. The current view regards knowledge predominantly as an explicit, objective and intra-organizationally produced asset that is interchangeable with data and information, but ignores the role of tacit knowledge potentially amplified and created in interaction between companies.

¹ The terms knowledge development and learning are used here interchangeably. Later, the term knowledge creation is used, particularly in the context of the knowledge creation theory of the firm as proposed by Nonaka and Takeuchi (1995).

We also suggest that different knowledge creation processes require different types of relationship between companies and that a strategic business network functions as both physical and mental place for required interaction.

The paper builds primarily on literature from organizational learning, strategic networks and the IMP industrial network approach. The field of organizational learning, which refers to the study of the learning processes of and within organizations, has become increasingly diversified and specialized over recent decades (Easterby-Smith and Lyles, 2001; Dyck, Starke and Mischke, 2005). Three approaches can be distinguished in this research: organizational learning that is dependent on the cognitive processes of individuals in organizations, an organization as an entity that is capable of learning on a collective basis, and an integrationist perspective that espouses both the individual and collective views (Dyck, Starke and Mischke, 2005). We advocate the integrationist perspective and build our study primarily on the knowledge creating theory of the firm proposed by Nonaka and Takeuchi (1995) and Nonaka and Toyama (2005). The theory has been tested in an organizational setting in various cultures (Dyck, Starke and Mischke, 2005; Schulze and Hoegl, 2006; Sabherwal and Becerra-Fernandez, 2003), and, interestingly, also in the network context, for example, within a small firm's network setting (Balestrin, Vargas and Fayard, 2008) and in inter-firm networks embedded within a district (Corno, Reinmoeller and Nonaka, 1999).

In this study, knowledge creation is regarded as an intentional activity that occurs within strategic networks. We use the term strategic network to refer to an intentional cooperative arrangement composed of more than two actors connected by business relationships – the arrangement being strategically significant for the involved actors. By applying the knowledge creating theory of the firm to the context of strategic business networks we will produce a novel analytical framework for the study of customer knowledge creation in such settings.

The aim of the paper is pursued in the following sections. The paper starts with a discussion on the nature of knowledge and customer knowledge in particular. Second we discuss the basic components and peculiar properties of strategic networks. Drawing on Nonaka and Takeuchi (1995) we propose that the strategic network can be regarded as a *ba*, i.e. a place for knowledge creation. Third, we identify the levels of knowledge creation within business networks and explore knowledge creation processes at these levels and in different types of relationships. Finally, the analytical framework of customer knowledge creation within strategic networks is put forward. The paper ends with conclusions and implications for both managers and researchers.

2. Nature of customer knowledge

Customer knowledge (e.g., Slater, 2001) and other knowledge related concepts such as customer information (see e.g., Houston, 1986; Narver and Slater, 1990), customer data (see e.g., Shapiro, 1988) and market intelligence (Kohli and Jaworski, 1990) are the key constructs in marketing literature. While the discussion has revolved around those terms, a specification of the term customer knowledge seems to be lacking. This claim is supported by Slater (2001) who explicates the interchangeable use of the terms of knowledge and information.

Contrary to marketing literature, the distinctive nature of knowledge compared to the terms information and data are at the heart of the organizational learning and knowledge development discussion (e.g., Nonaka, 1994; Boisot, 1998). Data is easily distributed raw numbers, images, words or sounds attached to an object located in an agent's environment. Information, in turn, conveys meaning as it is an agent's interpretation of a flow of messages. The meaning is created in social interaction among people, and is dependent on the situation. Whereas Nonaka and Takeuchi (1995) share a fairly unified perspective on data and information, the term knowledge has gained unique features. According to scholars, knowledge, like information, is context specific, relational and it is about meaning. Knowledge differs from information as it represents commitment and belief that are anchored in an individual's value systems. In this sense, knowledge is never free from human values and ideas. Knowledge also implies a particular perspective or intention. It is related to action, as it orients human

action in a specific context, and it is always knowledge that enables the attaining of goals. To summarize, *one of the most salient features of knowledge is that it is embodied in individuals. In this sense, it is subjective in its nature.* (Nonaka, 1994; Nonaka, von Krogh and Voelpel, 2006)

In addition to the subjective dimension, knowledge also has an objective dimension. The dimensions are exemplified in the typology of tacit knowledge and explicit knowledge (Nonaka and Takeuchi, 1995). The definition of tacit knowledge used here is close to the aforementioned characterization of knowledge: it is highly personal, rooted in action, commitment and involvement in a specific context. It is tied to the senses, movement, skills, physical experiences, intuition or implicit rules of thumb, and therefore, it is hard to formalize and difficult to communicate. Tacit knowledge includes technical and cognitive elements. Technical tacit knowledge is informal and embedded in concrete skills. It refers to an individual's images of reality and visions for the future. The question of what ought to be (cf. what is) forms a very central aspect of technical tacit knowledge. The cognitive dimension of tacit knowledge includes mental models (schemata, paradigms), beliefs and perspectives, which help individuals to perceive and define their world.

Explicit knowledge is codified knowledge that is transmittable in formal and systematic words and numbers. Therefore, it is easily communicated and shared. It is objective knowledge associated with the knowledge of the mind, and it is knowledge about past events or objects. As such, it can be uttered, formulated in sentences and captured in drawings and writing.

On the basis of the discussion, we argue that the traditional conceptualization of customer knowledge that originates from marketing literature needs to be redefined. Following the reasoning of Nonaka and Takeuchi (1995), customer data is outside of an individual and customer information is codified knowledge, which is interpreted by an organizational member but it lacks, at least explicitly, the commitment and belief level both at the individual and organizational level. Customer knowledge, in turn refers to knowledge about the customer that resides in individuals (and among individual members of an organization) and in various forms of codified knowledge such as emails, customer databases, written documents etc. Recent developments within customer knowledge management (see e.g., Gebert et al., 2003) and marketing knowledge management (see Troilo, 2006) have also emphasized this point.

Like Nonaka and Takeuchi (1995), several other scholars have created knowledge taxonomies showing both the subjective and objective dimensions of knowledge. For example, Kogut and Zander (1992) identify "know-what" and "know-how" dimensions where "know-what" refers to what something means and "know-how" to how to do something (Kogut and Zander, 1992). However, there is a fundamental difference between these typologies. In contrast to mainstream organizational theorists like Kogut and Zander (1992), who identify knowledge as mutually exclusive "either-or" types of knowledge located at the objective and subjective ends of the continuum, Nonaka and Takeuchi (1995) describe knowledge as two *complementary and interrelated* dimensions. Both tacit knowledge and explicit knowledge are required as through interplay with and interchange into each other, new knowledge is created. In this sense, knowledge has an *expanding* nature.

3. Customer knowledge creation in strategic business networks

Before delving into the conceptualization of customer knowledge creation in strategic business networks, we first turn to describing the critical assumptions anchored to the model of organizational knowledge creation by Nonaka and Takeuchi (1995) and Nonaka and Toyama (2005).

The key focus area of the model is the way of which an organization can create knowledge while simultaneously assuming that knowledge is basically expanded through the knowledge interaction in the creative activities of human being. It is individuals, who will acquire and process tacit knowledge and in a strict sense, knowledge is created only by individuals. Yet, the interaction between tacit and explicit knowledge can simultaneously exist at several collective levels. Therefore, knowledge creation is regarded as a social interaction process between individuals with different types of knowledge and different knowledge content through which human knowledge is created, and tacit knowledge and explicit knowledge are qualitatively and quantitatively expanded. This social process is called knowledge conversion. It is notable that the knowledge conversion is not confined within an individual. In the knowledge conversion the interaction between tacit knowledge and explicit knowledge is elevated

from a lower level of knowledge creation to higher levels (individual, group, organization and environment), and hence, new knowledge is created. As the knowledge is created through social processes between individuals, the organization's role is to provide context for enabling the social interaction.

3.1. Levels of knowledge creation within strategic business networks

Whereas the proponents of the model of knowledge creation consider knowledge creation as an organizational phenomenon including individual, group, organization and environment levels, we focus on knowledge creation in strategic business networks, and suggest three different levels of knowledge creation: community of interaction, business relationship and strategic business network. The levels represent sources of knowledge, which needs a context for interaction.

Organizational theorists present business networks as a context of knowledge creation that is challenging (Corno, Reinmoeller and Nonaka, 1999; Nonaka and Konno, 1998). This context is called a *ba* (Japanese for place), or a *basho*, when a network as an organic configuration of various entities (e.g., firms) is emphasized. A *ba* is a place in a specific time and space, where social interaction takes place. It can be physical space (e.g., an office), virtual space (e.g., email), mental space (e.g., shared experiences and ideas, ideals) or any combination of these kinds of spaces (Nonaka and Konno, 1998). A *ba* has two important characteristics: interaction and goal orientation. The aspect of interaction is important, as the power to create knowledge is embedded through interaction with other individuals or with an environment and not just within an individual (Nonaka and Takeuchi, 1995; Nonaka and Toyama, 2005). The role of goal orientation is to give direction and energy to the process of knowledge creation. Goals refer to long-term common targets shared by different actors (Corno, Reinmoeller and Nonaka, 1999), an overall vision, which is a *raison d'être* for the network, and driving objectives, which represent concrete concepts, goals or action based on vision (Nonaka and Toyama, 2005).

We adopt the strategic business network perspective to business networks. A strategic network is a business network structure, where a set of companies are connected by multiple business relationships (Håkansson and Ford 2002, 133). The business relationships are connected to other relationships and thus, become generalized. It is this generalized connectedness which ties companies into the form of an aggregated structure (Håkansson and Snehota, 1995).

The strategic networks can be characterized in a variety of ways. For example, Jarillo (1988) defines strategic networks as long-term purposeful arrangements, among distinct but related for profit organizations, which allow the firms embedded within the network to gain or sustain a competitive advantage compared to their competitors outside the network (Jarillo, 1988; Jarillo, 1993). Gulati, Nohria and Zaheer (2000), and Amitt and Zott (2001) view strategic networks as a composition of enduring inter-organizational ties, which possess strategic significance for the firms entering them and include various forms of constellations of ties (Amitt and Zott, 2001, Gulati, Nohria and Zaheer, 2000). Möller, Rajala and Svahn (2005), in turn, define strategic business networks, called strategic nets or value nets, as intentionally formed business network structures that contain a finite set of organizations but at least three with agreed roles (Möller, Rajala and Svahn, 2005). The authors use the term net to make a difference between intentional business networks and networks in general (Möller and Rajala, 2007), and to highlight the subdivision diminished from the broader network structure (Easton 1992). These definitions emphasize the duration of the arrangement (Jarillo, 1988), the purpose of the network (Jarillo, 1988; Jarillo, 1993; Gulati, Nohria and Zaheer, 2000; Amitt and Zott, 2001; Möller, Rajala and Svahn, 2005) and the borders of the network (Jarillo, 1988; Jarillo, 1993; Möller, Rajala and Svahn, 2005). To sum up, the term strategic network refers to an intentional cooperative arrangement composed of more than two actors (companies or potentially other organizations) connected by business relationships, the arrangement being strategically significant for the involved actors.

The above mentioned definitions reveal several characterizing features of the strategic networks. The most visible property, peculiar to them, is that a set of actors and business relationships are organized towards a common goal, while simultaneously the actors strive to attain their own. In this sense, a strategic network can be regarded as a goal oriented system, where the actors' goals are related to common goals. The common goals determine the members of the network. The distinction also

outlines a boundary between the insiders and outsiders and therefore, the network is, structurally, a fairly closed system.

On the basis of the preceding discussion, we propose that a strategic network can be regarded as a ba. Strategic networks fulfill two significant requirements of a ba: it is a context for interaction and it is goal oriented. A strategic network provides opportunities for interaction by linking companies with each other through relationships. In terms of network literature, it is an activity link (Håkansson and Snehota, 1995), where interaction takes place. Additionally, a strategic network is compatible with a ba as it is a goal oriented network. Consequently, the definition of a strategic network can be extended to include the features of a physical, mental and virtual place for knowledge creation.

As noted, the inter-firm relationships enable the interaction between companies, and are critical components of the strategic business network structure. Therefore, we propose that *the business relationship level of knowledge creation* plays a dominant role in knowledge creation within a strategic business network.

The business relationship is one of the crucial structures of a network and is anchored in industrial network and strategic network thinking. Håkansson and Snehota (1995) define a relationship as mutually oriented interaction between two reciprocally committed parties. A relationship results over time from the inter-company interaction (chain of episodes = a sequence of acts and counteracts), where connections between two parties have been developed to produce mutual orientation and commitment. Agreeing with these scholars, we use this definition to refer to relationships and, as a specific interest of this study is in relationships embedded in strategic networks, we underscore the idea that an interaction between reciprocally committed parties is not only mutually oriented but also oriented towards a common goal. As the study concerns knowledge creation as an inter-firm activity, we emphasize interaction within relationships.

Business network and strategic network literature has shown that relationships have specific characteristics (Ford and Håkansson, 2006). For example, Easton (1992) identifies four characterizing features such as mutual orientation, dependence, measure of tying and investment; Håkansson and Snehota (1995) divide relationship characteristics into structural and process classes with their sub-types; and Campbell and Wilson (1996) describe value creating networks by the features of specialized investment, partner asymmetry and trust. By acknowledging that many other classifications exist, we adopt the class of structural characteristics suggested by Håkansson and Snehota (1995). Although these characteristics originate from the industrial network approach, we assume that due to their generalized nature, they are adequate for examining strategic relationships.

The specific features that characterize business relationships can be covered by four key features: continuity, complexity, symmetry and informality (Håkansson and Snehota 1995). Continuity often implies the age and relative stability of a relationship. Continuity might be a precondition for change and development. The aspect of complexity points out the number, type and the contact pattern of individuals involved in a relationship, and the scope and use of established relationships. Symmetry implies the relationship parties' balanced resources and capabilities and the amount of resources controlled. These have implications for the parties' possibilities to exercise influence, to take the initiative and promote change. Informality shows the degree of formal contractual arrangements in relationships. Informal contracts are more effective for the development of a relationship than formal contractual arrangements.

While we emphasize the inter-firm relationship as one level of knowledge creation, we also assume that informal relationships embedded within strategic networks have an essential role in knowledge creation. For example, Balestrin, Vargas and Fayard (2008), focusing in particular on the social relationships between businessmen representing the organizational members of a network, uncovered the importance of social interaction for the small-firm network (Balestrin, Vargas and Fayard, 2008). On this basis, we assume that individuals representing various companies within strategic business networks can form a group and subsequently participate in knowledge sharing and knowledge creation within the network. It is significant that the group arises within goal oriented strategic networks. We call this group, a *community of interaction*.

Communities of interaction (Nonaka and Takeuchi, 1995) or knowledge networks (Enkel, Back and von Krogh, 2006) can be described as a connection between experts across companies in order to

share knowledge to reach a specific goal (Enkel, Back and von Krogh, 2006). The basic task of communities of interaction is to complement a business network structure in order to support the transfer and creation of knowledge between independent companies, but simultaneously support a network's goal (applied from Enkel, Back and von Krogh, 2006). The communities of interaction play a dominant role in knowledge creation; within these communities the knowledge created by individuals is amplified and crystallized as part of a strategic network (Nonaka and Takeuchi, 1995).

To conclude the discussion, we suggest that the crucial levels of knowledge creation within strategic networks are the levels of a strategic business network regarded as a ba, business relationship and communities of interaction. They all work for the overall vision and goal of the network and have an important and distinctive role to play in the creation of customer knowledge for the strategic business network.

3.2. Process of customer knowledge creation within strategic business networks

The organizational knowledge creation is a process of knowledge conversion through four different modes: (1) socialization, (2) externalization, (3) combination and (4) internalization (Nonaka and Takeuchi 1995). Therefore, it is called the SECI-model. In each stage knowledge is converted from one form of knowledge to another through social processes between individuals, and then, individual knowledge is amplified and internalized as part of the knowledge network of an organization and vice versa.

Each stage of the SECI-process has a corresponding and supporting ba: an originating ba, a dialoguing ba, an exercising ba and a systemizing ba (Nonaka and Konno, 1998). The ba are defined by two dimensions of interaction: the type of interaction it is, whether the interaction takes place individually or collectively, and the media used in the interactions, i.e. whether the interaction is through face-to-face contact or virtual media such as books, manuals, memos or emails. Each ba fosters a particular mode of knowledge conversion in the stages of the SECI process and offers a context for a specific step in a knowledge-creating process.

Following this reasoning, we define knowledge creation in a strategic business network as a process that inter-organizationally amplifies the knowledge created by individuals, and integrates it as part of the knowledge network of organizations belonging to the strategic network. The SECI model applied to the context of the strategic business network is presented in Figure 1 below.

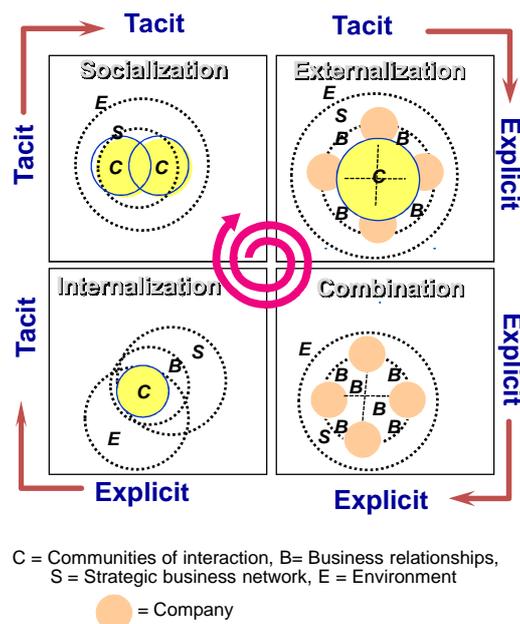


Figure 1 The SECI-process in a strategic business network (applied from Nonaka and Toyama 2005)

Socialization is the process of creating new tacit knowledge through social interaction between individuals (Nonaka, 1994) belonging to the community of interaction. By empathizing with others one can share, accumulate and create tacit knowledge such as mutual trust (Nonaka, 1994). A key to creating tacit knowledge is to share the same experience through joint activities or spending time together. The joint activity enables individuals to attach themselves to an environment from which they are able to acquire tacit knowledge by observing or talking with others. Specifically in the strategic business network context, the experience is shared by the individuals belonging to the community of interaction. This type of interaction is fostered by the originating ba (individual and face-to-face interaction) (Nonaka and Konno, 1998), which emerges within a small-firm network, for example, from business travel and visits to trade fairs, and social gatherings and informal meetings (Balestrin, Vargas and Fayard, 2008).

In an externalization phase tacit knowledge is converted into explicit knowledge (Nonaka, 1994). During the conversion, one articulates and crystallizes tacit knowledge in order to be able to share it with group members (Nonaka, 1994), which are the individuals within the community of interaction. Shared articulated knowledge forms the basis, for example, of concept creation in new product development (Nonaka, 1994). The method for advancing articulation is dialogue, which is based on active listening and the articulation of one's tacit knowledge. The process of articulating tacit knowledge into explicit knowledge is promoted by a dialoguing ba (collective and face-to-face interaction) (Nonaka and Konno, 1998), in which externalization takes place at formal assemblies, collective decision making processes and at meetings to develop strategic planning (Balestrin, Vargas and Fayard, 2008).

Combination is a process of converting explicit knowledge into new forms of explicit knowledge (Nonaka, 1994). In this process, explicit knowledge collected from inside or outside of the strategic business network is connected to a more systematic set of explicit knowledge (applied from Nonaka, 1994). Then, this new explicit knowledge is disseminated among member companies, and shared throughout the strategic business network (applied from Nonaka, 1994). Finally, the explicit knowledge is edited and processed in order to make it more usable (Nonaka, 1994). Knowledge combination and transfer can be facilitated, for example, by information technology and databases. Furthermore, breaking down a corporate vision or a new product concept into a workable action plan is knowledge combination. All in all, during a combination phase the externalized tacit knowledge is systemized in explicit forms for collective awareness and practical usage. Combination is supported by a systemizing ba (virtual and collective interaction) (Nonaka and Konno, 1998), which may occur during the courses and lectures, and electronic communication space at the network level (Balestrin, Vargas and Fayard, 2008).

Internalization is the process of embodying objective explicit knowledge into subjective tacit knowledge (Nonaka, 1994; Nonaka and Toyama, 2005). In this way it can become knowledge of one's own. Explicit knowledge can also be embodied through simulations or experiments, which can trigger learning-by-doing. Through interaction with an environment, where explicit knowledge is created, and the subsequent internalizing of this knowledge, it becomes part of an individual's tacit knowledge bases in the form of shared mental models or technical know-how. Internalized knowledge affects both individuals and the environment because, it changes the actions of individuals and how they view their environment. This phase is promoted by the exercising ba (individual and virtual interaction) (Nonaka and Konno, 1998), which emerges as new production practices (Balestrin, Vargas and Fayard, 2008).

Movements from one mode of knowledge conversion to the next constitutes a process which forms a dynamic spiral of knowledge creation that can trigger a new knowledge spiral as it transcends the boundaries of previous level of knowledge creation (Nonaka and Takeuchi, 1995).

3.3. Knowledge creation processes and the types of inter-firm interaction

Corno, Reinmoeller and Nonaka (1999) propose that the ways of sharing knowledge differ in relation to the type (or levels) of inter-firm relationships, and that the inter-firm relationship can be analyzed through the lenses of the methods of sharing knowledge between the firms.

The authors suggest three different types of relationships which they term intimacy, encounter and initiation, and relate them to the different modes of knowledge conversion (Corno, Reinmoeller and Nonaka, 1999). At the *initiation* level, relationships between firms require explicit knowledge. The relationships are limited to unstable and discontinuous market transactions and occasional exchanges. The method of sharing knowledge at this relationship level refers to the combination phase of the SECI model supported by systemizing ba. At the *encounter* level the parties try to understand tacit knowledge, to make this knowledge explicit, and then to collect, integrate and use it. The encounter is a collaborative form of relationship, which is characterized by trust and bi-directional and stable relationship between the firms involved. According to the authors, this level corresponds to externalization and internalization, which are supported by a dialoguing ba and a exercising ba respectively. In the *intimacy* relationship, the parties share tacit knowledge through the sharing of experiences. This creates opportunities for face-to-face interaction (originating ba) and for socialization. Intimacy is a type of deep cooperation characterized by trust and commitment, and stability and continuity. It refers to a kind of cognitive relationship.

Following the ideas of Corno, Reinmoeller and Nonaka (1999), we suggest that the type of business relationship sets the stage for knowledge creation and ultimately determines which mode of knowledge conversion potentially occurs.

4. Customer knowledge creation in strategic business networks framework

The discussion by far has proposed that the knowledge creation processes are dependent on the type of customer knowledge (tacit knowledge or explicit knowledge) and the level of knowledge creation (communities of interaction, business relationship, and strategic business network). Furthermore, the previous section showed that different knowledge creation processes require different types of business relationship (initiation, encounter, intimacy). Based on these notions, the analytical framework for describing customer knowledge creation within a strategic business network is depicted in Figure 2.

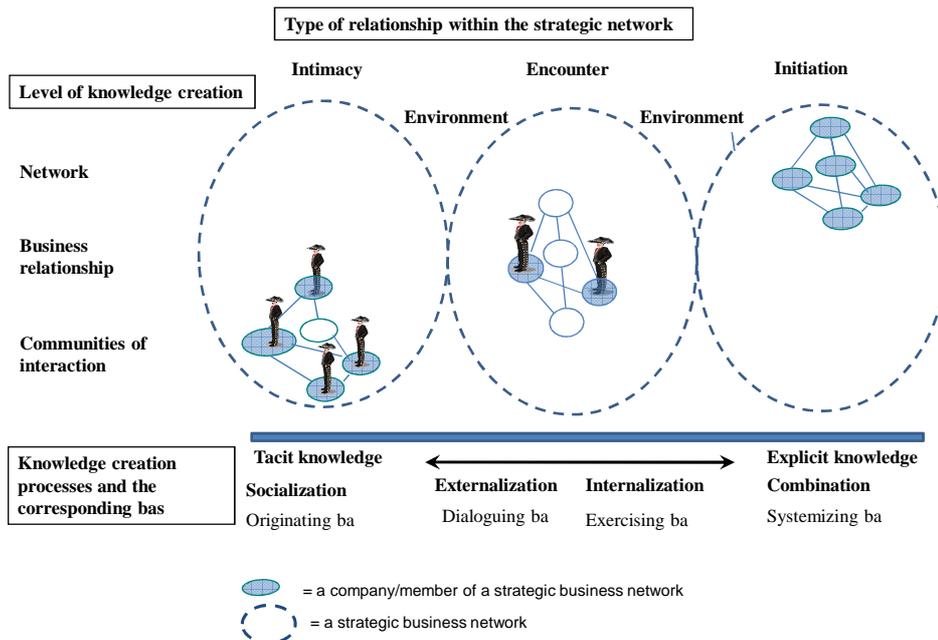


Figure 2 Customer knowledge creation in a strategic business network

We place three knowledge creation processes along a continuum, where the left hand side of the continuum describes the process of socialization emphasizing tacit knowledge, and the right hand side of the continuum describes the process of combination highlighting explicit knowledge. Combination is a process of converting explicit knowledge into explicit knowledge. This process takes place at the level of strategic business network, which collects externalized tacit knowledge from the business relationships embedded within the network and explicit knowledge from outside of the network, and connects them into more systematic set of explicit knowledge for collective awareness and practical usage. This knowledge creation process requires initiation type of relationships characterized by unstable and discontinuous exchange. The process is supported by a systemizing ba.

Encounter is a collaborative type of business relationship characterized by trust, reciprocity and stability. In encounter-relationships the knowledge created by individuals within the communities of interaction is amplified and internalized as a part of the knowledge networks of strategic business networks through business relationships. Encounter type of business relationships that allow the interaction between tacit and explicit knowledge and the processes of internalizing and externalizing, are of key importance for customer knowledge creation. These processes are promoted by exercising ba and dialoguing ba respectively. Socialization is a process of sharing tacit knowledge between the individuals within the communities of interaction through shared experiences. This knowledge creation process requires an intimacy type of relationship, where a deep cooperation prevails. Its characterizing features are trust and commitment, as well as stability and continuity. Intimacy is a kind of cognitive relationship, where mental models, beliefs and perspectives are shared. The process of socialization is fostered by an originating ba.

It should be noted that while we place the knowledge creation processes along the continuum with the two extremes, we avoid claiming that the knowledge creation proceeds sequentially from one phase to another. We only want to emphasize that the knowledge creation processes require different types of relationship within strategic business networks, and the knowledge creation processes take place at different levels of network. Similarly, we want to stress that the four types of knowledge creation processes are not mutually exclusive. They are all needed for customer knowledge creation within a strategic business network. This might depend on the goals of the strategic network itself, whether it aims at (1) establishing exchanges of products and services between the actors or achieving efficiency gains through value activity integration and cooperation and joint marketing, (2) creating incremental innovations through improving existing offerings and developing services, and (3) creating radical innovations through e.g., new technologies, products or business concepts (applied from Möller and Rajala, 2007). The different network goals might require different types of customer knowledge, and different types of relationships respectively. In order to enhance the exchange and efficiently goals of the strategic network, initiation types of relationship enabling explicit knowledge creation are sufficient. The strategic networks pursuing goals of incremental innovations require both tacit and explicit knowledge created within the encounter types or relationships. Finally, the intimacy relationships enable creation of tacit customer knowledge, which is particularly significant for radical innovations. In other words, if a strategic network is unable to establish a specific type of relationship, it leads to the missing type of knowledge and thus, the goal of the network remains unachieved. Particularly, the ability to externalize tacit knowledge embodied in individuals within the communities of interaction, and internalize it as part of the business relationships is critical for the competitive advantage of strategic business networks.

5. Conclusions

In this paper we have suggested that an extended view on customer knowledge is needed to study customer knowledge creation in strategic business networks. The subjective and expanding nature of knowledge is taken as a starting point and the importance of both tacit and explicit knowledge for the functioning and performance of strategic business networks is acknowledged. A strategic business network is seen as an organic configuration of ba, i.e. a physical, mental and virtual place for knowledge creation, which opens a fundamentally different perspective on strategic business networks. Both the IMP approach and the strategic network approach describe business relationships as physical structures of exchange or cooperation. This is definitely not enough for studying knowledge creation that is a social

process and strongly dependent on individual level interaction taking place within communities of interaction in mental and virtual spaces. Studying interpersonal communities of interaction in different spaces besides the concrete inter-firm cooperation opens new avenues for research of knowledge creation. The new perspective (bas) also emphasizes the necessity of strategic networks and the member companies of them to create bas, i.e. enabling places as infrastructure in various forms, for intended knowledge creation to occur and expand in the network. This way the framework also creates new knowledge for network management.

This means that knowledge can be created across company boundaries and that boundaries should be seen as transparent rather than closed. We suggest that the knowledge conversion occurs in social processes at different levels of the network, communities of interaction and business relationships forming the most fundamental structures for interaction. It is further argued that the type of business relationship largely determines what kind of knowledge is and can be created and to what extent knowledge becomes part of the knowledge networks of organizations and strategic networks.

This paper contributes primarily to the theory of strategic business networks. We propose an analytical framework for the study of customer knowledge creation in such settings. Knowledge creation, and customer knowledge creation, in particular, is a neglected topic within strategic business network literature. Furthermore, whereas the studies, by far, have dealt with the formation of knowledge sharing networks, problems within them and influencing factors on learning in strategic networks, this study increases understanding of knowledge creation within the strategic networks. Finally, the study proposes a novel approach for studying learning in strategic networks (cf. Möller and Svahn 2006). An analytical framework focusing on the processes of customer knowledge creation is therefore needed. The framework takes into account the levels of knowledge creation (community of interaction, business relationship and network), the processes of knowledge creation (combination, internalization, externalization and socialization) and the qualities of business relationships (initiation, encounter, intimacy) required to create customer knowledge in strategic business networks.

This paper also contributes to the theory of industrial networks. We maintain that IMP literature has focused predominantly on tacit knowledge and experiential learning. The proposed framework complements this approach by focusing on the creation of both tacit and explicit knowledge in networks.

6. Implications for research and management

The framework offers an analytical tool for studying knowledge creation as an inter-firm activity in a strategic business network. The potential value of the framework is its applicability in analysing knowledge creation within different industries. However, the framework is only tentative, and will be empirically tested and developed further in the near future in the tourism industry, in the context of a tourism centre.

Even in its preliminary form the framework stimulates new ideas for both researchers and practitioners. The knowledge creation model suggests that when a strategic business network is seen as a ba, instead of as an organization structure, one can more easily see what kind of knowledge should and could be created, who are the people with embedded knowledge and what kind of inter-firm relationships are needed to create customer knowledge. If this view is adopted it would mean that different types of knowledge and spaces for knowledge creation would become interesting for managers and researchers alike.

Managerial implications can be drawn from both network governance and the single firm perspective. For network governance knowledge about how to create space within networks for knowledge creation is of key importance. What is important is how the different ba's (combination, exercising, dialoguing and originating) may be enabled and made effective in the strategic business network context. For a single company the understanding of what types of business relationships are needed in order to get access to relevant customer knowledge is crucial. Access to tacit customer knowledge, which is particularly important for innovation in the knowledge economy, requires investments in relationships of trust and commitment. The identification of communities of interaction and key individuals within them is crucial.

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