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# **Describing network dynamics in three different business nets**

**Valkokari, Katri**

## **Abstract**

The purpose of this paper is to deepen our understanding of network dynamics in business nets in the context of the manufacturing industry. Using the abductive approach, the network dynamics are described and defined through an intertwined process of case research and theory building in three case nets. The paper suggests the concepts of *strategic intent* and *shared identity* to represent the two dimensions of the network dynamics. The study creates both theoretical and practical knowledge of the way the network dynamics diverge as a function of different business net types. Furthermore, the paper provides deeper understanding of the co-existence of different business net types within the manufacturing industry, where the focus has been on supplier networks and customer-supplier relationships.

## **Keywords**

Business nets; network dynamics; strategic intent; shared identity; co-production; development; manufacturing industry

## **Introduction**

Today, companies can cooperate in many different ways, and there is a wide spectrum of networking models ranging from supply networks and strategic alliances to networked innovation processes. Similarly, the theoretical discussion on networks has been active, and it has created several partly overlapping concepts for industrial networks. Furthermore, as many companies are moving away from vertical supplier-customer relationships towards horizontal cooperation that connects several members of a supply chain, their networks are becoming more complex and multidimensional (Halinen & Törnroos, 2005; Peppard & Rylander, 2006; Valkokari et al., 2011).

The range of views on the network phenomenon has followed from the different approaches and roots of network and alliance literature (Dhanaraj & Parkhe, 2006; Järvensivu & Möller, 2009). Scholars, in particular, hold different views on the boundaries of networks: networks are perceived either as open systems of business and social relationships or as closed systems of firms and their relationships. In the Industrial Network Perspective of Industrial Marketing and Purchasing (IMP) Group, networks have been seen as self-organizing structures without goals or clear boundaries (Håkansson & Snehota, 1989; Håkansson & Ford, 2002), while the approach of strategic business nets describes them as resources that could be managed (Möller et al., 2005; Möller & Rajala, 2007; Svahn & Westerlund, 2007; Järvensivu & Möller, 2009). In accordance with the strategic business nets approach, this paper views *business nets* as manageable and intentional. Nonetheless, the paper also counterpoints the evolving nature of collaboration – e.g. as social systems, networks can be seen concurrently as open and closed (Luhmann, 1995) and thereby also have unmanageable elements, as pointed out by IMP research (Håkansson & Snehota, 1989; Håkansson & Ford, 2002; Wilkinson & Young, 2002; Laurids & Lutz, 2006). The paths of the development of the business net

are therefore fundamentally unknowable because they are co-produced through interactions and not traceable in any simple way to the individual actions of the participants (Håkansson & Snehota, 1995; Brito, 2001; Wilkinson & Young, 2002; Ford & Redwood, 2005; Halinen & Törnroos, 2005; Hsin-hui & Zolkiewski, 2010; Breite & Koskinen, 2014). Thus, network changes can be seen as *manifested in* as well as *transmitted through* connected relationships with identifiable parties and unique counterparts (Ford et al., 2003).

As constant change is often seen as the main challenge facing firms in today's economy (Hamel, 2007; Sorensen, 2011), research interest has also focused on the types of networks that enable change, e.g. renewal, flexibility, agility and even exploration of new business opportunities. In order to create new knowledge about network dynamics, longitudinal research (Provan et al., 2007; Lowe et al., 2008) and multilevel analysis (Dhanaraj & Parkhe, 2006; Moliterno & Mahony, 2011) are needed. This study aims to fill the gap by deepening the understanding of network dynamics and the underlying mechanisms within business nets. The network dynamics consist of a complex pattern of activities, both intentional and emerging (Choi et al., 2001; Dhanaraj & Parkhe, 2006; Järvensivu & Möller, 2009; Breite & Koskinen, 2014). Through these activities and interactions between the net actors emerge the network dynamics that we can observe as changes in the net's characteristics, i.e. in structures, relationships, actors and their roles (Halinen, 1999; Hsin-hui & Zolkiewski, 2010). Thus, the business net approach utilized in this study complements the existing knowledge and offers new insights for a better understanding of network dynamics, while in previous literature the main level of analysis has typically been the individual relationships not the whole network.

To sum up, the purpose of the paper is to deepen understanding of the network dynamics in business nets in the context of the manufacturing industry. The main objective of this paper is to describe and define the interplay between the two key dimensions of the network dynamics in different business nets by comparing their development paths. The key research question is "*How are the two key dimensions of network dynamics – strategic intent and shared identity – co-produced within different business nets?*". Using an abductive approach, the key dimensions of network dynamics were formed within the iterative process between the theoretical, constantly evolving framework and the empirical analyses with three case nets.

To work on this goal, the rest of the paper is structured as follows. The next two sections review the research on business nets as well as networks and build the framework of network dynamics. The theoretical framework of this paper consists of: 1) a typology of business nets and 2) two dimensions of the network dynamics. The research methodology and design are then described. The case study section outlines the research and analysis methods and presents empirical data of the co-development in the three business nets. The observations are discussed in light of the theoretical framework in the next section. Finally, the theoretical contribution, together with practical implications and an evaluation of the research and recommendations for further research, is presented.

## Theoretical framework of business nets

### What are business nets?

In the late 1980s, Jarillo described strategic networks as “long-term, purposeful arrangements among distinct but related for-profit organizations that allow those firms in them to gain or sustain competitive advantage vis-à-vis their competitors outside the network” (Jarillo, 1988, p. 32). On the other hand, according to the IMP approach in its most abstract form, an industrial network is a structure in which a number of nodes are related to each other by specific threads (Håkansson & Snehota, 1989; Håkansson & Ford, 2002). Based on this, even an open business market can be seen as a network in which the nodes are business units of companies. These distinct views were the starting points for the study. During the research process, a perspective of “strategic business nets” emerged, which distinguishes intentionally created business networks from open macro-level networks of organizations (Möller et al., 2005) and highlights that companies and, potentially, other organizations are connected to each other for the purpose of doing business together (Halinen & Törnroos, 2005). Furthermore, Möller and Rajala (2007) conceptualized a business net as “a set of specific activities carried by the actors constituting the net”. Similarly to the above viewpoints, the network’s joint strategic business targets are an important issue also in this study. In addition to the joint strategic intents of networks, the evolving and dynamic nature of networks is counterpointed, e.g. as social systems, networks are seen as concurrently open and closed systems (Luhmann, 1995) and, thereby, also as having unmanageable elements, as pointed out by the IMP research (Håkansson & Snehota, 1989; Håkansson & Ford, 2002; Wilkinson & Young, 2002; Ford & Redwood, 2005; Laurids & Lutz, 2006). Nonetheless, the “business net” term is used instead of “business network”, while the main unit of analysis is the dynamics inside the business net not the interrelationship between the network and its environment.

Based on the above definitions of strategic business networks and nets (Jarillo, 1988; Halinen & Törnroos, 2005; Möller et al., 2005, 2007), a business net is defined *as a long-term, cooperative, delimited entity with identifiable joint goals whereby more than two partners share critical knowledge, resources and/or financial assets in order to attain, sustain or improve the net members’ future competitive positions*. In addition to joint goals, the actors agree on the net-level activities and operation model as well as the roles and responsibilities of the net members. Although business nets are defined here as long-term arrangements, they can (and should) be distinguished from firms by dynamics and temporariness, e.g. when the joint goals are achieved, the business net can break down (Halinen & Törnroos, 2005; Kenis et al., 2009). Furthermore, according to this definition, the business net only exists if all the network members recognize the joint goals and are prepared to cooperate in order to achieve them (Valkokari, 2009). Nonetheless, a business net is also characterized by the co-existence of stability and change, e.g. the configuration of a business net is dynamically evolving (Hsin-hui & Zolkiewski, 2010).

## **What are the different business net types?**

Looking at the business net types and network classifications presented in the literature, a number of different characteristics, such as the network's value creation, structure, focus and activities, can be identified. This study builds on the assumption that through activities and interactions between net members, network dynamics are caused in different ways in these different network types. Thus, a careful review of these conceptualizations of business nets raises several important issues about their dynamics, while, based on their different origins, the typologies have different viewpoints.

First, a baseline for business nets is the type of *value creation in the network*, from current value capturing to future business opportunities. Based on the notion of the value creation framework, Möller et al. (2005) suggested three generic net types: "current business nets", "business renewal nets" and "emerging new business nets". In short, current business nets are value systems with a high level of determination and well-known and well-specified patterns of activities and resources. As value systems, emerging new business nets are characterized by radical changes and inherent uncertainty. Business renewal nets, which produce incremental local changes in existing value systems, fall in-between these polar opposites. Then, business nets can be categorized based on *the structure of the network* as well as *the focus* or the *goal that the network tries to achieve* and thereby the *means it utilizes*. Nonetheless, these categorizations are typically connected to each other. Based on the goals of the network (de Man, 2004) and network structure (Scott 1996), a classification of three types has also been suggested. The first is supply- and demand-oriented networks, which are either vertical networks or solution networks between producers of complementary goods and services. The second is quasi-integration networks or alliances, which are primarily horizontal networks established to achieve market power, drawing on the complementary resources. The third is cross-sectoral technology-oriented networks, which are typically R&D networks between companies aiming to share risks, costs and/or competences in the development of new technologies or focusing on bridging technologies.

Based on these network typologies, the first part of the theory framework – the three business net models – was defined and the differences between the net models described. First, the traditional vertical supplier nets focus on the exploitation of present knowledge and resources. They develop through incremental improvements and are rather stable. Second, the enhancing business nets are based on horizontal complementary resources. Their renewal is based on shared problem solving and learning. Third, the innovation nets focus on the exploration of future business opportunities and the creation of new knowledge and resources. In such nets, the actors and their roles and positions change dynamically (Valkokari & Helander, 2007). Each of these types describes a snapshot of the business net, although they co-evolve through complex patterns of intended and emerging activities and interactions over time. Thus, business network dynamics is a concept inherently connected with time and temporality (Halinen & Törnroos, 2005; Halinen et al., 2012).

## **Conceptualizing network dynamics – the key dimensions**

Business nets consist of independent but coupled, interdependent actors, e.g. net member companies. These actors can have their own or shared mental models inside the business net and they make their own decisions. Furthermore, the direct and indirect interdependence between net actors influences the development of relationships, nets and networks (Das & Teng, 2002; Håkansson & Ford, 2002). At the net level, there is no single centralized control or change mechanism that achieves its behaviour. Therefore, changes emerge over time without any singular entity deliberately governing network dynamics. Nonetheless, as the net typologies suggest in typically quite hierarchical supplier nets, the focal company has a central position and more power than the supplier companies, while in innovation nets the roles of actors are dynamically changing.

In practice, the antecedents of the formation or development of a business net are the business needs of the networking companies (Halinen & Törnroos, 2005; Möller & Rajala, 2007). These needs are based on the actors' earlier experiences, interpretations of present business situations and visions of the future. Due to these needs and their own targets, companies are involved in a networking and negotiation process during which they build a joint vision for the future – the strategic intent of the net. Over time, actors, operating in parallel, learn about the behaviour and motivations of others through interacting with them and modify their behaviour and network approaches accordingly (Håkansson & Snehota, 1995; Lutz, 2009; Hsin-hui & Zolkiewski, 2010). Out of this on-going development process through different activities and interactions, i.e. the connected change (Halinen et al., 1999), the net structures, relationships and operations, which we observe, emerge. If the collaboration is long-lasting and interactive, the actors build a common mindset and form a shared identity. This development process of a business net can support its renewal and create new targets or functions for the network. However, it can also break down the net if the members do not have a shared frame of decisions, i.e. the joint goals of the net should be identified and agreed by all network members. The managerial challenge is to guide the development within a business net (Vagn Freytag & Ritter, 2005; Provan et al., 2007; Hsin-hui & Zolkiewski, 2010).

Business network dynamics consist of a complex pattern of activities that are intentional or emerging, strategic or operative (Håkansson & Snehota, 1995; Ford et al., 2000; Choi et al., 2001; Dhanaraj & Parkhe, 2006; Järvensivu & Möller, 2009; Halinen et al., 2012; Breite & Koskinen, 2014). The two opposite governance structures of network activities are the hierarchical hub-spoke model and the multiplex model (Doz, 2001; Eccles, 1981; Provan & Kennis, 2007). Furthermore, network governance mechanisms are divided into contractual-based and relational-based governance (Sobrero & Schanger, 1998; Poppo & Zenger, 2002), whereas price, authority and trust are identified for three co-existing governance mechanisms (Kohtamäki, 2006). Contractual governance emphasizes the use of a formalized, legally binding agreement to govern the inter-firm relationship. Relational-based governance, by contrast, highlights the role of norms of solidarity, flexibility and information sharing in the relationship process. This inherent tension

between different governance mechanisms in business networks is also addressed in academic discussion about the network's existence and manageability (Håkansson & Ford, 2002; Järvensivu & Möller, 2009).

The net's *strategic intent* describes its will for the future and the need for joint development activities and, thereby, distinguishes closed strategic business nets from loosely coupled networks of organizations (Möller et al., 2005; Möller & Rajala, 2007). On the other hand, the *net's shared identity* (or purpose as defined by Ghoshal & Moran, 1996) creates a social context that shapes the value, behavioural norms and expectations of the network members. Based on previous literature, the differences and relations between the key dimensions, i.e. the business nets' strategic intent and shared identity, are summarized below.

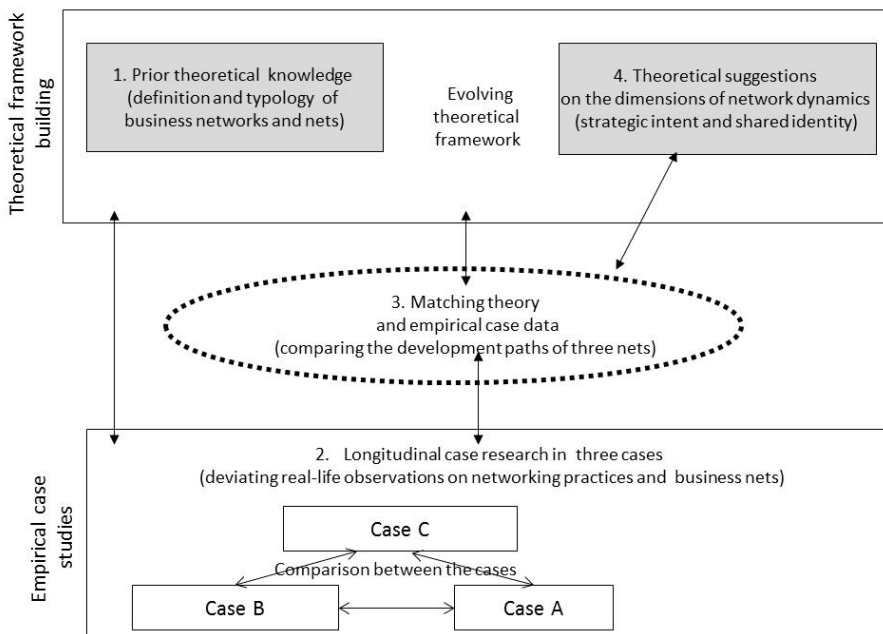
In the previous literature, the strategic intent and formal management of the business network are discussed through: (1) a shared value system that defines the membership roles and responsibilities (Achrol, 1997); (2) a strategic intention that differentiates between strategic business nets and loosely coupled networks or clusters (Möller et al., 2005; 2007); (3) a supply network strategy that consists of business objectives, competitive objectives and strategic decisions (Yee & Platts, 2006); and (4) a network strategy that is a shared view of the governance structure of a strategic network considering the authority, price and social governance (Kohtamäki, 2006). All of these concepts, except Möller et al. (2005; 2007), focus on supplier networks and highlight the customer's role as a network manager. Furthermore, the main difference between strategic intent and other concepts of strategic management is the idea that intent is based on joint sense-making between multiple organizational levels. Strategic intent represents a proactive mode in strategizing, a symbol of the organization's will for the future that empowers all organizational levels for a collective purpose (Mantere & Sillince, 2007; Hamel & Prahalad, 1989). Within the network management literature, this kind of multilevel approach is scarce however (Dhanaraj & Parkhe, 2006).

On the other hand, the shared identity and identification process within the networks are also considered with several concepts, and they partly overlap with the concepts related to strategic intent, e.g. especially the definition suggested by Dyer and Nobeoka (2000). The discussion has been active, especially in organization research and social science. The concepts related to shared identity are considered through: (1) shared identification, which distinguishes a firm from a market (Kogut & Zander, 1996); (2) a shared purpose, which shapes the values, goals and expectations of the members (Ghoshal & Moran, 1996); (3) network identification, which is a continuous process (Huemer et al., 2004); and (4) a shared sense of purpose, which defines the rules for participation in and entry to a supplier network (Dyer & Nobeoka, 2000). These concepts point out the meaning of continuous interaction between the network actors and the shared social context created through this interaction.

Looking across these works, it becomes increasingly evident that the previous literature does not consider the connection between strategic formal management and shared identification in business nets. However, this study explores the interplay between the two key dimensions of network dynamics, and they are used to describe, analyse and compare the co-development processes of three business nets.

## Research methodology and design

Although business networks have been studied extensively, as mentioned above, there are only a few longitudinal studies on dynamics within business networks (Halinen & Törnroos, 2005; Vagn Freytag & Ritter, 2005; Dhanaraj & Parkhe, 2006; Lutz, 2009; Abrahamsen et al., 2012) and especially business nets are still understudied (Hsin-hui & Zolkiewski, 2010). Given the complexity of the phenomenon and the evolving theories, qualitative, comparative case study research design, as also suggested by Provan et al. (2007) and Lowe et al. (2008), was used. The case study phase was abductive, which refers to a situation in which the nature of the research includes continuous interplay between the theory and emerging empirical findings (Dubois & Gadde, 2002). An existing and evolving theoretical understanding of business nets and their dynamics has been used and intertwined with empirical analyses (Figure 1). The theoretical definitions of business networks and their characteristics together with the antecedents of the practical development processes in different business nets were the starting points of the research problem. During the research process it became evident that neither strategic targets nor a shared purpose can establish a business net on their own. The key research question was then redirected as *“How are the key dimensions of network dynamics, strategic intent and shared identity, co-produced within different business nets?”*. This was further divided into sub-questions, e.g. *“How do the network dynamics differ between the case nets?”* and *“Why are the network dynamics different in the case nets?”*. The main unit of the case analysis was the business net.



**Figure 1. The research process**

This study creates both theoretical and practical knowledge of the way the network dynamics diverge in different business nets. The comparative multiple case study was chosen as an overall research



design in order to gather different net types and deepen the understanding of their dynamics. The comparison between different categorized cases enhanced the generalizability of the research finding. Through theoretical replication (Yin, 2003), the different cases produced contrary results for predictable reasons, i.e. network dynamics differ as a function of the net characteristics. Thus, the different cases complemented each other and provided a broad basis for theory building. As described by Eisenhardt (1989), building theory from case studies is always an iterative process, and the generalization happens at conceptual level. Comparing the main objective of the study with the data gathered from the case companies, a statement by Miles and Huberman (1994) justifies the qualitative approach: “With qualitative data one can preserve chronological flow, see precisely which events led to which consequences, and derive fruitful explanations.” The case selection was guided by business net typology, and the cases were sampled to represent different net types. Other viewpoints were their rich case data and their representative’s willingness to participate in discussions during the research process.

The empirical part of the research took place during 2002-2007. The data from the three case studies have been gathered from several sources (summary in Table 1). The two primary sources were inductive in-depth interviews and researchers’ participation in the net development processes. In qualitative case research, researchers typically have a relationship with every single case actor. As Lowe et al. (2008) noted in their paper, understanding the differences between the practical reasoning of managers and the academic interpretation also requires network researchers to use second-order questions to determine local meanings. Identifying the nature of the actors and the motives behind their activities may be easier when the researcher has continuous or recurrent access to the context of the actor. The researchers were also able, via the longitudinal research process and the abductive approach, to complete the data gathered from interviewees, discuss the results with the interviewees (network actors) and observe any changes in their behaviour.

**Table 1. Data collection for the three cases**

	<b>Case A</b>	<b>Case B</b>	<b>Case C</b>
<b>Interviews</b>	Core company 6 + network companies 2*3 <i>Altogether 12</i>	Core company 9 + network companies 2*7 <i>Altogether 23</i>	Core company 7 + network companies 8 + 5 <i>Altogether 20</i>
<b>Memos of meetings</b>	11	8	9
<b>Research reports</b>	1 report 3 conference papers	2 reports 1 conference paper	1 report

Altogether, more than 30 companies were involved in these business nets, most of them SMEs. Based on the interviews, the research also covered the earlier networking experiences of the case companies. The research data consist of over 50 interviews with net companies’ key persons and the minutes of more than 20 different meetings with net members. All the interviews were semi-structured, lasting from 1.5 to 2 hours, and recorded. The interviewed key informants were the CEOs, owners and managers of the case companies. They also participated in the net meetings, and the memos reflecting the discussions in the meetings formed

another important source of knowledge. Furthermore, these meetings were reflected on afterwards with one or several participants. The major advantage of this kind of complementary data source is that the researchers are able to approach the network processes concurrently from several perspectives and, furthermore, reflect on the theory frames with net actors in network meetings. The author of this paper participated in the development work of each case. As presented in Table 1, the research reports and conference papers were one source of case data that also supported the case analysis. In order to be considered reliable, case studies require transparency and replication, which can be ensured by careful documentation and clarification of research procedures and data collection. The key informants and other researchers reviewed the case-specific research reports, ensuring the construct validity of the study.

Cross-case analysis was then used to deepen the understanding of the way the two different dimensions of network dynamics are co-produced in different business nets. Table 2 presents the main characteristics of three cases. In order to ensure the internal validity of the study, a two-sided research framework was formulated and the findings reflected in the literature from several perspectives through the research process. First, the development paths, e.g. the co-production process of strategic intent and shared identity, in the case nets were described (see Figures 2-4) and compared (see Table 3). As the analysis continued, systemic qualitative techniques such as coding were used to examine the research case data. Through coding, the net actors' viewpoints on the key dimensions of network dynamics were gathered, e.g. whether the key concepts presented in the literature also existed in case networks (summarized in Table 4).

## **Case studies**

This section describes development paths in three different Finnish technology industry case nets. The periods of the longitudinal case studies varied from one and a half to two years. The cases were selected to represent the three different types of business nets (see Table 2) in order to gain a broader understanding of network dynamics. Naturally, these kinds of theoretical typologies include some simplifications and are snapshots from business nets that, in practice, evolve over time. Case A presents a hierarchical supplier net managed by the core company, whereas Case C presents an innovation net between equal partners. Case B presents the intermediate model, e.g. enhancing the business net, based on horizontal complementary resources, but it also has some characteristics of a supplier net. The case descriptions are summarized in Table 2 and the development paths of the case nets are then described in more detail.

**Table 2. Case description and comparison between the three case networks**

	<b>Case A</b>	<b>Case B</b>	<b>Case C</b>
<b>Customers</b>	Consumers (house owners) and network's core company	Global original equipment manufacturers	Due to competition between network companies, difficulties in defining the customers
<b>Actors</b>	Core company (main customer) and 20 small supplier companies; three suppliers participated actively in network development	Core company, five technology industry SMEs, and one local unit of the material supplier	Toolmaker companies; four SMEs participate actively in network development
<b>Characteristics</b>	Network companies (suppliers) prioritize the development of a partnership with the core company. Horizontal interaction between the suppliers was infrequent and based on informal meetings	Network companies pursue the continuity of operations and shared identity as geographically proximal actors. Core company targets are to achieve intensive growth.	Network companies see horizontal cooperation as one way of being competitive and surviving in global competition.
<b>Required change</b>	Exploitation of present resources and knowledge, effectiveness of operations and improvement of customer satisfaction	Integration of system deliveries within the technology industry and increase of network's turnover (search for new customers)	Exploration of new opportunities within the tool industry and especially the development of a horizontal network between four toolmakers
<b>Environmental constraints</b>	Strategic choices of core company launch the network development process	Changes in production strategy of global OEMs influence the operation and competitiveness of the network	Intensive globalization of key customers changes the competitive edge of the tool industry

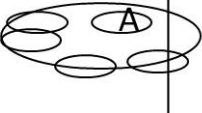

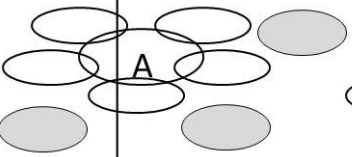
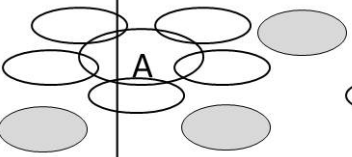

### **Case A – Lack of horizontal interaction challenges renewal within a supplier net**

The Case A network consisted of a brand owner of construction services and almost 20 of its suppliers. The network had been evolving since the mid-1990s and, consequently, the companies had plenty of experience cooperating with each other. In the roof-building service, the network's core company, e.g. the brand owner, delivers customer service, design, production, logistics and everything else apart from roof assembly and sales, which are carried out by the suppliers.

As is typical of vertical supplier nets, Case A was managed and strongly controlled by the brand owner. Nonetheless, there was informal cooperation and horizontal relationships between geographically close suppliers. The relationships and interactions between the core company and the supplier firms involved operative discussion about assembly issues. The core company was also the main subject and decision-maker in the development work, while the suppliers were objects of the development work. As the joint development work started, the owners of three assembly firms and one independent seller joined the development group together with the representatives of the core company. Thus, a business net was configured from a broader assembly network. During the process, net A was able to build a common strategy that aligned the objectives of the net actors. The net's strategic intent defined the efficiency and profitability

of its assembly processes as the mutually beneficial main objective. The net-level performance measures and cost accounting management tool were realized as suitable development actions based on the net strategy.

After the cost model and simulation tools had been developed, the net development group organized training for a wider group of roof assemblers, i.e. the whole network. This training allowed the roof assembly companies to discuss and share experiences with each other. Regardless of these discussions, the assembly companies considered each other as competitors and were not prepared to settle their differences and openly agree on their possibly different positions and roles. As the majority of the suppliers remained remote from each other and the horizontal interaction between the suppliers was not strongly supported or desired by the customer, there was no clear shared identity at net level. One representative of a net member company stated this explicitly: “Why should I share my experiences with other companies? They should learn on their own, as I did.” This statement illustrated the suppliers’ attitudes to and capabilities of networking with the larger group of suppliers. The supplier companies therefore felt that the net consisted of supplier-customer relationships and horizontal relationships between geographically close suppliers, whereas the customer company included all supplier companies in the net.

1990s	2000-2003	2004	2005	2006
The customer company (brand owner) outsourced the roof assembly work	First co-operation project on safety was realized	Net's development group and joint targets were formed	Joint development actions also involved actors outside the core group	The customer company launched a partnership programme supporting development of supplier companies
				

**Figure 2. The development path of Case A**

### **Case B – Net actors’ conflicting interests lead to re-configuration of the enhancing net**

The Case B net consisted of the core company and six net companies. The net companies had engaged in cooperation and had had social relationships with each other since the 1990s. The main customers of the case net were two large global companies, one in the transportation and the other in the electro-technical industry. Initially, the cooperation between the companies was not systematically managed and the existence of the net was mainly founded on the personal relationships of the owner of the core company. The interaction between the net companies was informal but lively at several levels of the companies. Based on their former experiences, similar mindsets, positions and resources, the entrepreneurs of the net member companies therefore had a shared identity with regard to the importance of these relationships and collaboration between geographically proximal companies.

At the beginning of the net's development work, one of the main customer companies participated actively, and new objectives emerged based on the needs of this customer. The production concept of this customer was different from that of other customers and caused conflicting insights into the division of work between the net actors. Three of the companies had the same kind of production machines. Although, from the core company's point of view, these companies had different roles in the net, as their production philosophies were different, the companies considered each other partly as competitors and the relationship between them was conflicted.

All the net companies were quite similar in terms of size, resources and organizational culture. The main differences between the companies concerned entrepreneurship and their intent to grow. The core company had a clear vision and growth targets, while the others were content with the present situation, as described by one of the entrepreneurs: "We don't have remarkable growth targets; we grab the opportunities that suit us." Due to these conflicting interests between the companies, the Case B net was not able to agree on the net's strategic intent. Moreover, the representatives of the net companies were not used to discussing strategic issues. Later on, some of the companies left the net because they could not commit to intensive growth or their role and position inside the net.

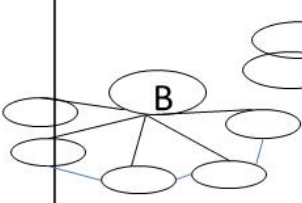
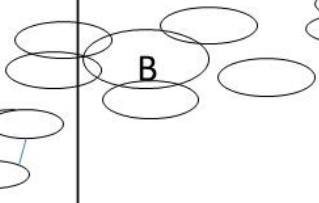
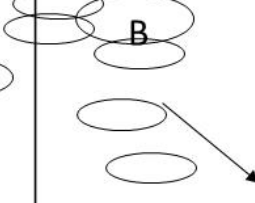
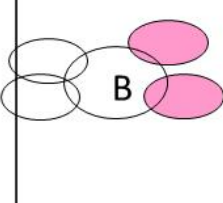
1989	2000	2001	2002	2003
The core company was established, network companies co-operated occasionally	The net's development work was started by the CEO of the core company and a local activator	Net members had several discussions about joint targets and the developed, networked operation model	The net members were not able to agree on the net's strategic intent	The core company looked for new co-operation partners
				

Figure 3. The development path of Case B

## **Case C – Coopetative relationships between equal partners challenge the development of the innovation net**

Several of the toolmakers' global customers from the telecommunications sector had moved their production units to lower-cost countries or nearer their markets by the beginning of the 21st century. The toolmaker companies had therefore had to look for new ways to survive. The Case C net consisted of four equal toolmaking companies. Originally, seven companies took part in discussions with the aim of configuring a net that could offer services and broader tool deliveries to global customers. Due to the companies' prior experiences of unsuccessful cooperation and conflicting interests, three of the companies were not willing to continue networking after the first discussions.

Due to the highly competitive situation and continuous tendering, the toolmakers were not able to forge tight relationships with the customers. The remaining firms of net C were partly competitors and their representatives were not willing to discuss their customers openly. Hence, it was difficult for the firms to create a new innovative business concept to net, as they did not have a close connection to the customers and their needs. Only one of the companies had a clearly strategic approach to networking – the others were not willing to discuss strategic issues and future business opportunities in broad terms. Under the operation model of the net, it was agreed that both the net role and the position of all the companies would be similar. According to its operation model, the net formed an operative resource base with agreed processes and responsibilities, and the independent companies had their own customer relationships and strategic management. Nonetheless, during the networking process the companies had several open discussions, and because of their similar knowledge bases – resources, machinery and processes – they were able to learn from each other.

The toolmaking companies were found to be quite similar in size and resources. Three of the net companies were also managed by their owners and their organizational cultures were therefore very similar, and the entrepreneurs were used to surviving alone and trusting only themselves. For this reason, the participants discovered that it took time to form a shared identity for the net, although the strategic intent and operative processes of the net were formally described. One of the representatives pointed this out: “Collaboration deepens through successful experiences and day-to-day operations.”

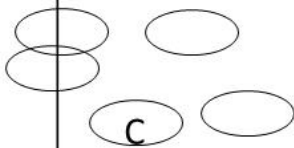
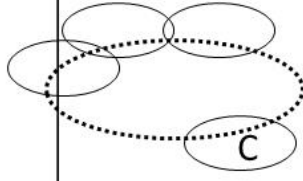
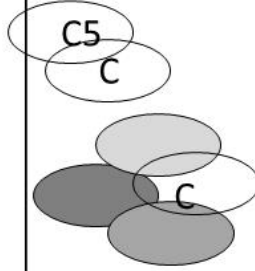
2001-2004	Beginning of 2005	End of 2005	2006-2007
Customers outsourced toolmaking and indicated the need for broader "tool families"	One toolmaking company contacted seven companies and made suggestion for co-operation	Four companies agreed on joint targets but the focus was on the net's co-operative model	Co-operation was realized in dynamically changing configurations and parties other than the four net members participated
			

Figure 4. The development path of Case C

### Case analysis – comparison of development paths

Table 3 summarizes the case nets' development paths illustrated in Figures 2, 3 and 4. The differences and similarities between the three business nets were analysed and compared. The network dynamics were thereby examined through the interplay between the two dimensions – strategic intent and shared identity.

Table 3. Summary of the elements of network renewal

	Case A	Case B	Case C
<b>Strategic intent</b>	<p>The network formed a common strategy mainly based on the objectives of the core company</p> <p>Joint measurement and supplier's self-evaluation processes were implemented</p> <p>Collaboration was strongly based on initiatives and control of the core company</p>	<p>The changes in the business environment (customer needs) altered the strategic intent and caused conflicting interests between network companies</p> <p>Cooperation was based on a network strategy, although missing joint measurement and evaluation processes limited its power to guide the network</p>	<p>Equal partners in a loosely coupled network have diagonal and multilevel connections between network companies and other outside companies</p> <p>The network formed a jointly agreed operation model and defined the cooperation processes</p>
<b>Shared identity</b>	<p>Scarce horizontal cooperation between suppliers limited shared sense of purpose, although geographically proximate supplier companies had many informal relationships</p> <p>Network actors identified themselves as members of the core company's network</p>	<p>Shared identity formed through horizontal cooperation and informal but lively interaction between the network companies at several levels of the companies</p> <p>Social connections between network members led to self-organization and the formation of sub-networks</p>	<p>Past connections and experiences between network members influenced their network identification, e.g. interest and willingness to collaborate, although they all agreed on the importance and meaning of the network</p> <p>Network actors shared knowledge on operative issues (which were not the original focus of networking)</p>

In both cases A and B, a loosely-coupled network was formed between geographically proximal companies. Through the networking process, the core companies aim to build a closer net. In Case A, the net formed a strategic intent based mainly on the objectives of the core company, and the collaboration was strongly based on its initiatives and control. Due to the lack of horizontal interaction at net level, the shared identity therefore only existed at the level of dyadic relationships between the core company and its suppliers. In Case B, a strong shared identity had existed as a regional network since the 1990s, due to the horizontal connections and prior experiences. The actors in Case B were still not able to agree on the net's strategic intent, however, as they had little experience of the strategic development of nets, and this was reflected in their willingness and ability to engage in shared sense-making and visioning processes. Furthermore, conflicting interests and social connections between net actors led to self-organization and the formation of sub-nets. In Case C, the net actors formed a jointly agreed operation model and defined the net's processes. However, the cooperative relationships between actors still influenced their willingness to discuss broadly strategic issues and customers. Past connections and experiences between net members as well as the companies' interpretations of changes led to the reconfiguration of relationships and the net's shared identity.

## **Discussion of case findings**

Since the beginning of this research process in 2002, several different business network definitions and typologies have emerged in the literature. Due to the abductive approach, these evolving theory frameworks, the case work and analyses formed an intertwined research process. Within the case analysis and systemic combining of the three cases, it was recognized how even the basic terms related to the research framework of the study (such as 'business networks or nets') were understood quite differently from different theoretical as well as practical perspectives. These differences posed additional challenges to linking the empirical data with literature. In this section, the multidimensional analysis is used to further describe development paths and the dynamics in different case nets and to compare business net types and their influences on dynamics.

### **How are strategic intent and shared identity co-produced within different nets?**

The comparison between the case study findings and the second part of the theoretical framework on the key dimensions of the net's dynamics, e.g. strategic intent and shared identity, is summarized in Table 4. In addition to the summarized descriptions of development paths (Table 3 and Figures 2-4), coding of case data was used in order to further analyse whether the net actors recognized the existence of concepts, such as roles, responsibilities, strategic intentions, governance structures, shared purposes, values and meanings. As can be seen from Table 4, the concepts addressed in the literature were at least partially in accordance with the case findings. In all the case nets, some elements of both strategic intent and shared identity existed.



**Table 4. Dimensions of the network dynamics – comparison between the case study and the theoretical framework**

		Case A	Case B	Case C
<b>Strategic intent</b>	Shared value system defines membership roles and responsibilities (Achrol, 1997)	x	x	x
	Strategic intention distinguishes between strategic business nets and macro-level networks (Möller et al., 2005, 2007)	x	x	x
	Business objectives and strategic decisions are the elements of the supply chain strategy (Yee & Platts, 2006)	x	x	
	Network strategy is defined as a shared view of the governance structure of the strategic network considering authority, price and social governance (Kohtamäki, 2006)	x		
<b>Shared identity</b>	Shared identification distinguishes a firm from a market (Kogut & Zander, 1996)	x		
	Shared purpose that allows organizations to create and nurture a social context that shapes the values, goals and expectations of members (Ghoshal & Moran, 1996)	x	x	
	Strong network identify (shared sense of purpose) with rules for participation and entry to network support knowledge sharing between network actors (Dyer & Nobeoka, 2000)		x	x
	Network identification represents a continuous process whereby actors simultaneously imagine, visualize and experience identities in light of the boundaries that are drawn, the meanings that are understood and the set of relationships that will be acted on (Huemer et al., 2004)	x	x	x

Through joint *strategic intentions*, all the case nets distinguished themselves from the macro-level networks, as pointed out by Möller et al. (2005) and Möller and Rajala (2007). Furthermore, through the common business objectives, the case nets had also agreed on roles and responsibilities in accordance with the concepts of a shared value system (Achrol, 1997) and the elements of the supply chain strategy (Yee & Platts, 2006). Only in the Case A net, however, did the common view of governance issues, including the net level performance measurements, exist in accordance with the network strategy concept (Kohtamäki et al., 2006). As a contribution to the recent understanding of strategic intent, the net cases suggested that in order to form the net's strategic intent, the strategy formation process needs to be interactive and transparent, rather than relying on given blueprints, 'how to' manuals or measurements. In other words, the study highlights the importance of strategizing as joint sense-making between all net members.

On the other hand, the formation and maintenance of the net's *shared identity* were connected to social interaction between net actors. In accordance with the concept of a shared purpose (Ghoshal & Moran, 1996), in Cases A and B the geographically proximal net actors have several informal connections that allow them to create a shared social context that shapes their values and joint norms. In these cases, however, the

shared purpose was not aligned with the strategic intents of the case nets. In order to build the net's shared identity and ensure the commitment of the net companies, the needs and targets of all the net companies have to be taken into account. Specifically, the cases illustrated how, as pointed out by Huemer et al. (2004), continuous identification processes foster transparency of the net's boundaries, meaning and relationships between the net actors.

Based on the intertwined process of theoretical framework building and case studies, *strategic intent* was re-defined as *a net's joint goals – which are formed, at least partially, by all the net companies – about the future benefits of networking and joint actions to reach these benefits*. The strategic intent of a net also defines its *operation model together with the roles, responsibilities and rights of net companies*. Therefore, *shared identity* was defined as *a shared understanding of the net's meaning, existence and borders, which is formed through interaction, interpretation and sense-making of the net actors' joint experiences*. Thus, extant literature tells us little about co-existence and interplay between these two dimensions of network dynamics. By connecting the concepts of shared identity and strategic intent, this study complemented previous understanding of how the frequent interaction on both strategic and operational matters supported the operation of the business net. As defined in prior literature, network dynamics consist of a complex pattern of activities, both intentional and emerging (Choi et al., 2001; Dhanaraj & Parkhe, 2006; Järvensivu & Möller, 2009). If these activities did not exist then we would not be able to distinguish the business net from its environment, as also defined by Möller and Rajala (2005). According to the cases, the existence of net management activities based on strategic intent enables parallel functioning of business nets, whereas a shared identity enables learning and social commitment between net actors. Both strategic intent and shared identity are therefore required.

### **How do the network dynamics differ between the case nets? Why are the network dynamics different in the case nets?**

The first part of the preliminary research framework, the typology of business nets (Valkokari & Helander, 2007), was used to define the characteristics of different business nets and deepen the understanding of their dynamics by comparing the cases. The cases were selected to represent different types of business nets. The paper thereby also suggests that the different net types, distinguished in typologies (Möller et al., 2005; Möller & Rajala, 2007; Valkokari & Helander, 2007), can also be identified in practice in the context of the manufacturing industry.

In accordance with the business net typologies, Case A describes how, in supplier nets, the focus of the development work is on operative issues: the efficiency and productivity of net-level processes. Case A illustrated how the development of closed, vertical and rather hierarchical supplier nets can easily be foreseen and managed. At the other end of the spectrum, Case C presented why it is harder to predict or manage the development of more open horizontal nets between equal partners. As the theoretical framework of the business net typologies suggests, the innovation nets are characterized by higher uncertainty, risks and

emerging strategies. Similarly, in the Case C net, its openness and net companies' interpretations of changes led to the constant reconfiguration of the net and its targets. In Case A, the interaction was based on vertical connections, which were strongly controlled by the core company, e.g. the net structure remained stable. Although the supplier companies' commitment and interaction were supported by meetings and training, they did not form a shared identity. The net's renewal was based on the core company's interpretation of changes within the business environment. However, the effectiveness of the operations as an assembling supply net was clearly agreed on to form the joint targets of the Case A net. In both Case B and Case C, cooperative relationships were necessary for horizontal connections and interaction. For this reason, the net actors were not able to form a clear strategic intent with regard to the network because of conflicting interests, although their experiences and interpretations of the required actions were similar. These findings of the way interaction and interdependence form the connected change within the business nets are consistent with past literature (Halinen et al., 1999, 2012). Håkansson and Ford (2002) argue based on their three managerial paradoxes in networks that understanding the interdependence of network actors and their own strategic targets may facilitate foreseeing the development path of the network. Furthermore, Ford et al. (2003) stated that network changes can be seen as *manifested in* as well as *transmitted through* connected relationships with identifiable parties and unique counterparts. Nevertheless, the actors also have conflicting interests, and network formation and development is always a negotiation process between the interests of the actors and the network.

The former network typologies do not consider broadly how the characteristics of network actors influence the network's dynamics (Halinen & Törnroos, 2005), although the actors' roles and positioning in general have been discussed (Håkansson & Snehota, 1995; Anderson et al., 1998; Lutz, 2009). In the case nets, variance and diversity between the companies influence their intents, competencies and activity to take part in the development work. In Case A, the net members had similar resources, positions and targets as suppliers of the core company – the dynamics based on their diversity and variation therefore remained scarce. In Case B, the net companies had different roles and resources, but their positions and strategic competences were similar. The companies still had clearly conflicting interests and resources for growth however, and this influenced their commitment to the net targets as well as the net's ability to form a clear strategic intent. In Case C, the net actors had similar resources and positions as equal partners, but their targets and interests were (partly) diverse depending on their relationships with other companies outside the net. The net was therefore quite dynamic, and the structure of the net, e.g. the roles and positions of net members, also underwent changes. The similarity of the net companies facilitated the formation of similar interpretations, but at the same time it limited the emergence of radically new strategies also in the Case C net.

## **Conclusions**

In a complex and turbulent business environment, understanding the dynamics of business nets is one of the major success factors for companies. The main theoretical contribution of this paper lies in examining how

dynamics are co-produced through the complex pattern of activities – both intentional and emerging – within different business nets. In describing and analysing such challenging multidimensional phenomena, the study contributes to existing literature by bringing together the two key dimensions of the business network's dynamics, i.e. strategic intent and shared identity. It also proposes that both of these dimensions are needed in the management of business nets. Based on a theoretical framework and the empirical case studies, both dimensions are redefined. Another theoretical contribution is concerned with business net types and their existence also in practice. There are few, if any, studies in which different business nets are covered within the manufacturing industry. The study contributes the current understanding that in the manufacturing sector the business net types are not limited to the traditional supply networks. A clear implication of the framework and empirical case studies is that the focus of the development work differs in the three business net types, also within manufacturing industry. As prior literature typically focuses on characteristics and development paths within one net type, this comparison between net types contributes new viewpoints to net management practices as well as existing literature of network dynamics.

The results of the study lead us to consider also the different views on network borders and dynamics between IMP and “strategic business net” approaches. IMP research would treat all three case nets as subsystems inside larger industrial networks, while according to the “strategic business net” approach it could be stated that the net's strategic intent distinguishes it from the networked business environment. This research adds to the prior research on “strategic business nets” that, in addition to strategic intent, shared identity is also needed in order to define the net within a social context. Furthermore, the case discussion describes that strategic intent and shared identity are co-produced diversely in different business nets. More generally, we can learn from the study that temporariness is an important aspect in business nets. The net typologies are snapshots of the business nets and their networked business environment, which co-evolve continuously in practice.

This deeper understanding of the dynamics can be used by managers of business networks, nets or relationships to evaluate their networking and development practices in different situations. The study describes how net-level strategies and intents can serve to structure, organize and give meaning to the business net's complex operations. Concurrently, a joint sense-making process enables the formation of the shared identity and the norms between the net actors.

This research was not without limitations. First, the previous literature was scattered and ambiguous, which challenged the framework building of this study. Second, the aim was to obtain a broad perspective of the subject. The dynamics in different business nets were compared, but, due to the research design, a multiple-case approach, it was not possible to give deeper consideration to the entrepreneurship and strategic management in one network or company. Third, there are managerial as well as industrial and cultural differences regarding networking and management practices, and these were not gathered. One important subject for future studies would therefore be to research entrepreneurship and networks as strategic choices. Perhaps, as also pointed out by Anderson et al. (2010), future research could focus on discourse analysis in the context of entrepreneurial networks. Thus, another important dimension for future research

would be a quantitative approach in order to test the net types and differences and their impacts on a larger scale.

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