

Utilizing network picturing in management of dynamic networks

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Abstract: The aim of this study is to extend our understanding of business network management, especially from the viewpoint of SMEs operating in a B2B context. This study illustrates how picturing a network from different actors' perspectives affects the network management and facilitates building of new connections.

Keywords: Network picturing, network management, SMEs

INTRODUCTION

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 dynamic and change, e.g. agility, renewal, and even exploration of new business opportunities. A business network is defined as set of (at least three) connected actors performing various types of business activities in interaction with each other (e.g. Halinen & Törnroos, 2005). The future structure and paths of the development of the dynamic business network are fundamentally unknowable because they are co-produced through interactions and not traceable in any simple way to the individual actions of the participants. The managerial challenge is to guide the development within a business network (Vagn Freytag & Ritter, 2005). Thus, more information is needed on how actor's network strategies actually come into being in continuous interaction between the organizations (Laari-Salmela, et al. 2015).

The aim of this study is to extend our understanding of *strategic management in dynamic business networks*, especially from the viewpoint of SMEs operating in a B2B context. This study focuses on downstream (demand) dimension of business networks, including perspectives such as sales, distribution, after-sales, and service networks. In line with the well-known ARA-model (Håkansson & Snehota, 1995), these purposeful intentional business networks consist of specific *actors* and their *activities* oriented toward the achievement of a particular task or outcome. The actors of the network are playing particular roles in which they convert both their tangible and intangible *resources* into negotiable offerings and fulfill different functions.

In the context of business networks, each of these actors has its own perception of the network and its position within it. In a way, network pictures are the actor's 'network theory' (Mattsson, 2002), i.e. its individual beliefs (theories in use) of what the relevant business network looks like and how it 'works'. In practice this is one of the reasons why the attempts to manage a network often fail or create no response. Although network pictures has risen as also active theoretical discussion in IMP research (for recent summary see, Laari – Salmela et al. 2015), the extant literature has to a large extent treated the concept of network pictures as decoupled from strategizing and the empirical evidence on the relationship between actors' network pictures and action is limited (Corsaro et al., 2011). Therefore, drawing from the management point of view, our preliminary research question is: *How to picture and combine the different network perspectives in order to better manage the network?*

The work-in-progress paper is structured as follows; we will first shortly look through the theoretical background of dynamic business networks, network pictures and boundary objects' role in supporting network development. The second section of this paper presents the research methodology and the latter the case description and findings. The paper concludes with summarizing the present contributions and needs for further research.

BACKGROUND

Business *network dynamics* is a concept inherently connected with time and temporality (Halinen & Törnroos, 2005; Halinen et al., 2012). In other words, although business networks are typically defined as long-term arrangements, they can (and should) be distinguished from firms by dynamics and temporariness. Business network dynamics consist of a complex pattern of activities that are intentional or emerging, strategic or operative (Håkansson & Snehota, 1995; Ford et al., 2003; Järvensivu & Möller, 2009; Halinen et al., 2012). In order to manage actors and their activities within this dynamic business network setting, the managers

need to understand the perceptions and interests the other actors have (Valkokari, 2014). In addition to the joint business activities and strategic intents, the evolving and dynamic nature of networks is counterpointed in this study. Thus, the network dynamics consist of a complex pattern of activities, both intentional and emerging. Through these activities and interactions between the business network actors emerge the network dynamics that we can observe as changes in the network's characteristics, i.e. in structures, relationships, actors and roles of actors (Valkokari, 2014).

In the IMP literature *network pictures* have been defined as business actors' subjective mental representations (or frameworks) of their surroundings, and thus as sense-making tools that underlie decision-making in networks (Mattsson, 2002; Ford, Gadde, Håkansson, & Snehota, 2003). They have also been used as a tool by either researchers or practitioners to grasp actors' understanding of their surrounding business network (Henneberg et al., 2009; Ramos & Ford, 2010). Furthermore, Laari – Salmela et al., (2015) stated how an interesting topic for research include opening up the relationship between network pictures and the sense-making taking place between organizations. In such cases network pictures can be utilized as a *boundary spanning mechanisms* (Hawkins & Rezazade, 2012), which serve as an interface between different organizations (Koskinen & Mäkinen, 2009).

The network actors build shared understanding about the network's strategic intent through formal business negotiations as well as informal interactions (Valkokari, 2014). Thus, managers' understanding of perceptions across boundaries is a key to firm success in present networked business ecosystem, where knowledge and resources are dispersed and value co-creation for customers require integration of resources (Vargo & Lusch, 2008). Similarly to Hald (2012) this study explores the sense-making processes between the involved network actors and utilizes relationship mapping approach (network pictures) as the boundary-spanner means.

RESERCH METHODOLOGY

The research methodology used in this study is qualitative case study. The case study was chosen as a method because it is a suitable for situations that include complex and multiple variables and processes (Yin, 2003). The purpose of research was not to test hypotheses, but rather to understand a complex phenomenon and increase our knowledge of that phenomenon and therefore a qualitative and descriptive approach (Eisenhardt, 1989) was chosen.

The core case company develops and manufactures machines for construction, multi-purpose machines, and utility machines for demanding applications. The main market area of the company is the Nordic region, where the typical customer is a privately owned SME or an entrepreneur. The company has a strong history in development and manufacturing, previously sales and service functions were responsibilities of a specialized partner company. Due to changes in the market the case company started to build its own sales and service organization and network seven years ago.

Empirical research data is gathered by in-depth interviews, themed discussions and workshops with key persons in the case company, its sales network, customers and customer's customers. A total of 12 interviews were conducted during 2014 and 2015 (See table 1). Thus far only two representatives from the customer network have been interviewed. We will involve more stakeholders in the next phase of the research.

Table 1. The interviewees and their roles.

Actor (node)	Representative(s)	Role
Management	Managing director and owner	Strategy
Sales	Regional sales manager (n=3) Sales director Project sales manager	Sales
Manufacturing	Factory director Product manager Product development manager After sales manager	New product development and production
Public service provider	Managing director	Customer to case company and purchaser to contractors
Service provider	Vice president, service unit	Main contractor

CASE DESCRIPTION AND FINDINGS

Based on the individual network descriptions of each case company interviewees two distinct pictures were distinguished. The individual views were integrated into these two perspectives. Thus, the network pictures were first drawn from the case company factory (Figure 1) and sales (Figure 2) perspectives.

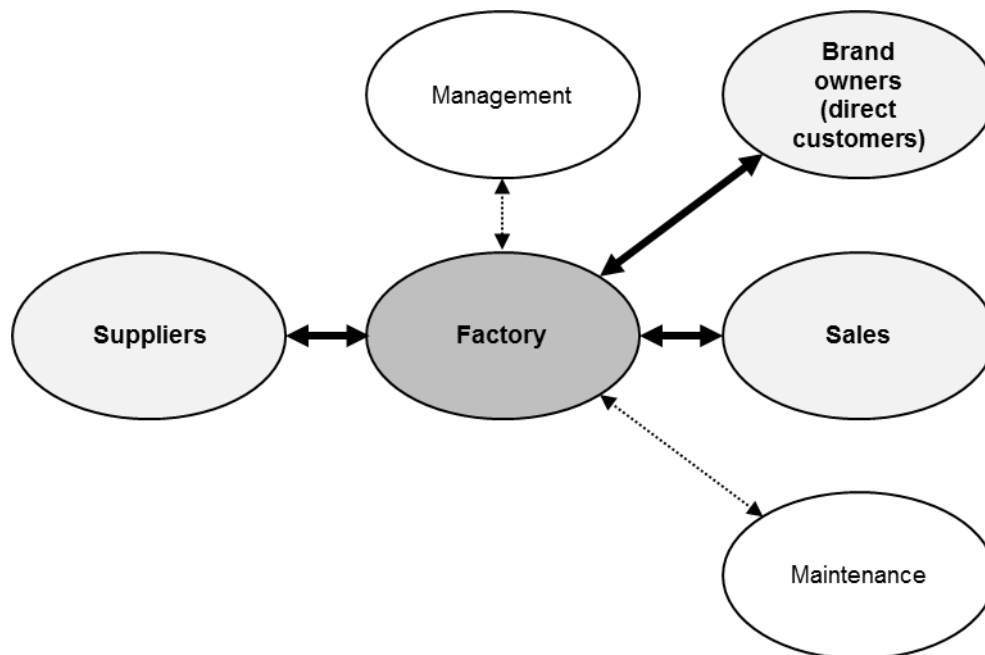


Figure 1. Network picture 1: Factory perspective.

New product development and production are the main functions of the factory. Technical product support to sales and maintenance networks are also identified as important functions. Continuous development of technological solutions is necessary due to the tightening regulations concerning emission limits. Competition and varying customer needs are the drivers for the development of new and more customized, solutions. The production is specialized in frame building and is a subcontractor to other machine builders. These direct

customers and system suppliers are among the most important network partners. The information concerning the customers of the own brand comes mainly through the sales organization. The managing director and the owner of the concern is responsible for the strategic level issues but the operations are run by the factory director. The roles and content of the interaction of the “first level” partners are described in detail in the table (Table 2).

Table 2. First level network partners of the factory.

Network focus actor	1 st level partners and description
Factory <ul style="list-style-type: none"> • Production • New product development • Product support • After sales support 	Sales <ul style="list-style-type: none"> • customer orders and inquiries • order-to-delivery process (schedule and capacity) • customer requirements and customization requests • maintenance (after sales) support
	Brand owners (direct customers) <ul style="list-style-type: none"> • orders • schedule and capacity (production planning) • negotiation on pricing principles
	Suppliers <ul style="list-style-type: none"> • system suppliers as partners in technology and solution development • cost, quality and schedule of parts and supplies

The network perspective of the sales is presented in figure 2.

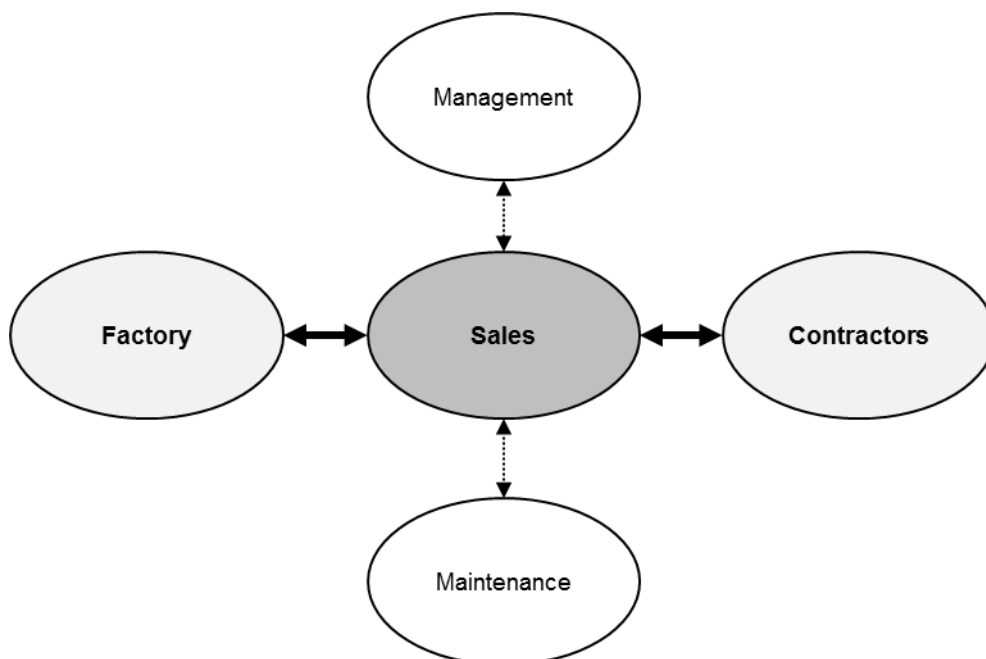


Figure 2. Network picture 2: Sales perspective.

The sales representatives are responsible for sales and customer relationships in certain geographical areas. Most of them have a long history and experience in the industry, thus they know their traditional customer base, competitors and the machines they sell. There are loyal customers in the areas that ideate new solutions and applications for the machinery to enhance their businesses. The machines are customized, and dealing with the versatile customer requirements and requests are the motivation of the regular communication between the sales and the product development and production. Also, the tenders and order-to-delivery process require cooperation. The company has built a maintenance network in the field, but the sales representative is often the first contact concerning repair or maintenance. The management sets the sales targets and supports with bigger customer events. The first level partners of the sales and their roles are in the table 3.

Table 3. First level network partners of the sales.

Network focus actor	1 st level partners and description
Sales <ul style="list-style-type: none"> • Tenders • Used machines (trade) • Customer requirements (defining and communicating) • Customer relationships 	Factory <ul style="list-style-type: none"> • Production • New products and solutions • Feasibility (and cost estimates) of customer requirements and customized solutions • Delivery of ordered machines
	Contractors (the customers of machinery) <ul style="list-style-type: none"> • Orders and inquiries concerning new and used machines and services • Customization requirements • New application ideas • Information on application areas: end-customers preferences, competition, work available for the contractors with certain machines

The two “end-customer” perspectives were sought in application areas where the machines of the case company are used. The first end-customer is a public service provider (Figure 3), which operates in the area of one large city. The purchasing and providing of services were separated some years back. The main collaboration partners are the customers to be served, the public service purchasers. Other integral partners are the other public service providers that are together seeking synergy and other means to make the public service organizations more effective. The service provider has its own service workers and machine fleet and thus it is a potential customer to machines of the case company. The main task of the service provider concerning the machines is to optimize the use of the fleet. Subcontractors are used only when extra capacity or very special machinery is needed. The latest change in the organization was the change from a geographical organization into a functional organization, when, e.g., a special logistics unit responsible for machines was founded. The stakeholders affecting both the purchasing and providing of services are mainly officials and political decision makers. Environmental issues and employer brand are typical focus areas of public service providers.

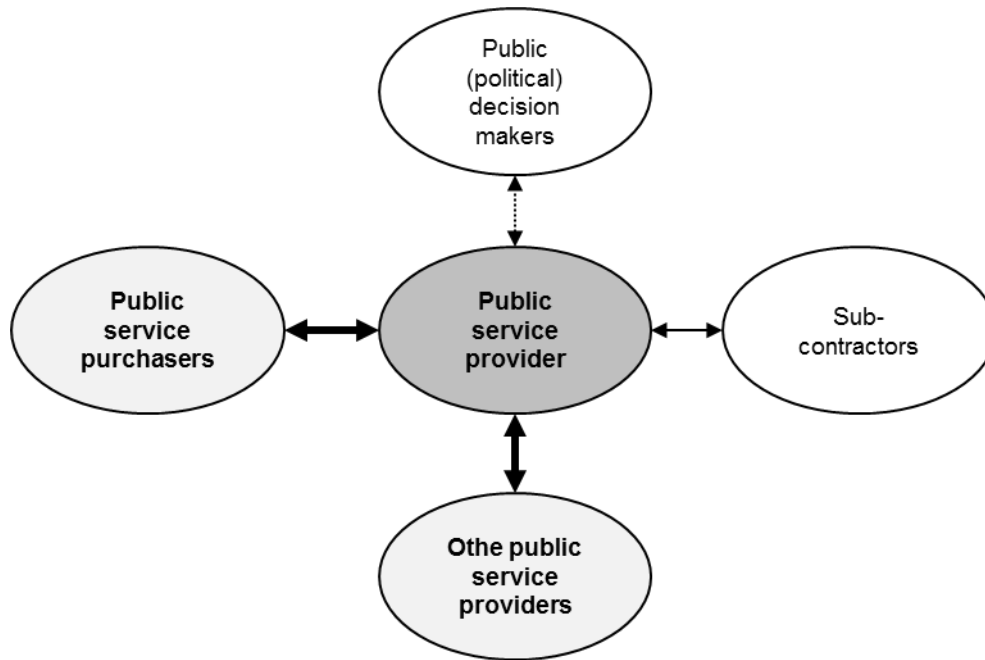


Figure 3. Network picture 3: Public service provider perspective.

Another end-customer perspective is built around a private sector service provider specialized in power network services e.g. designing and building wind farms (Figure 4). Political decision making, ranging from EU regulations to regional level decisions, forms a wide array of stakeholders affecting different phases of large projects. The main network partner is yet the client that ultimately defines the content and extent of the project and with whom the contract is signed. The client also signs an agreement with the supplier providing the power plant(s), which is the other main contractor in the work site. The interface between these two main contractors is clearly defined but, e.g., realization of a complete wind farm with wind mills requires collaboration. The focus service provider is a service integrator. It has no machinery but it orchestrates a large network of subcontractors operating in the site. The expertise of service integrator is project management: it ensures that there is right machinery and workers at the right place when needed. These subcontractors are the customers of the case company.

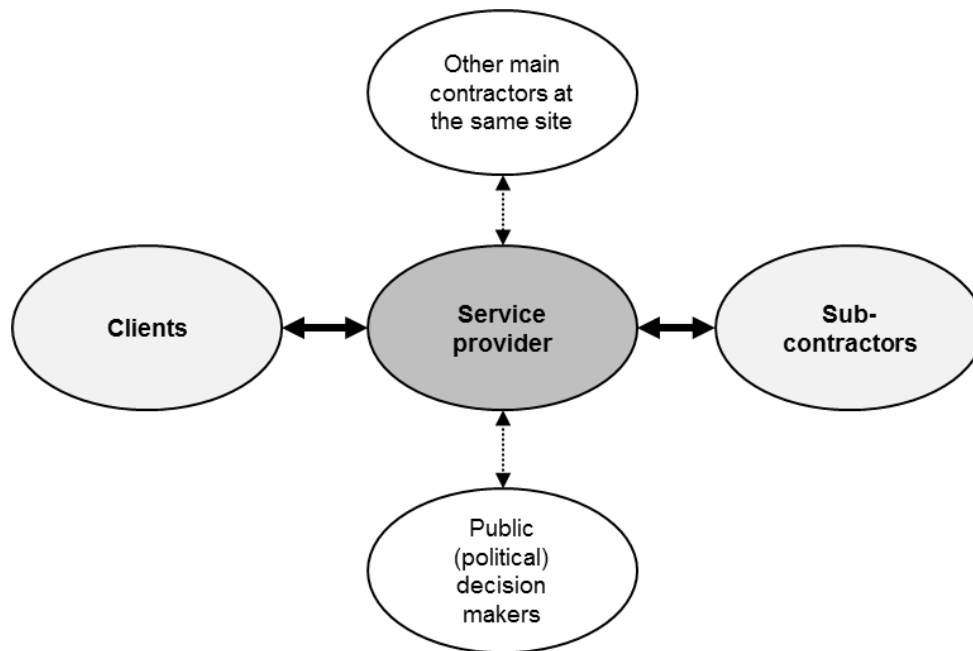


Figure 4. Network picture 4: (Large) service provider perspective

The four network pictures are snapshots from different network actors' perspectives. The case company sales and factory perspectives are combinations of viewpoints of several interviewees, thus there is more dimensions in the descriptions (Tables 2 and 3). Managing the factory and sales operations and aligning their objectives is rather straightforward since they are subordinates to the company management, i.e. the managing director. Anyhow, understanding different perceptions inside a company is especially valuable when a strategic change is planned. Managing the outsiders is far more challenging, if not impossible. But studying their perceptions of the network facilitates identification of shared goals and enhancing their commitment to collaboration. Compared to factory and sales perspectives (Figures 1 and 2) the network pictures of service providers (Figures 3 and 4) drawn here are a more higher level views. If we studied deeper the different levels and stakeholders in these organizations, "the kaleidoscope" would give again a bit different pictures. This level of examination is still sufficient for the purpose of testing if the management of the case company is able to utilize the network pictures and different viewpoints in order to better execute its strategy.

The strategic aim of the case company management is to change the industry in the direction they believe is profitable to them and also to the other relevant network actors (service purchasers, service providers and contractors). The vision of case company's strategic management is that the modern mobile multi-purpose machinery they offer is more productive and environment-friendly than the traditional solutions. Conventional methods and approaches still dominate at work sites and sub-optimization is common. The current focus of the case company sales is direct customers, the contractors. This is a slow bottom-up approach for change: the contractors work and market their versatile machines to the service providers.

The other actors' perspectives were visible and the position of the case company (or lack of it) within them discussed when the management perspective was drawn. Those pictures helped to understand "the big picture" and forming the target of new collaboration. The management network picture (Figure 5) involves the service purchasers and providers as important network partners through which the striven change is possible to accomplish. This collaboration is initiated in a pilot project where the new methods are used, compared and

measured. The case company will plan and execute the pilot together with one service purchaser and several service providers. Thus, this is the case company's first step to strengthen its position in service purchasers and providers network pictures.

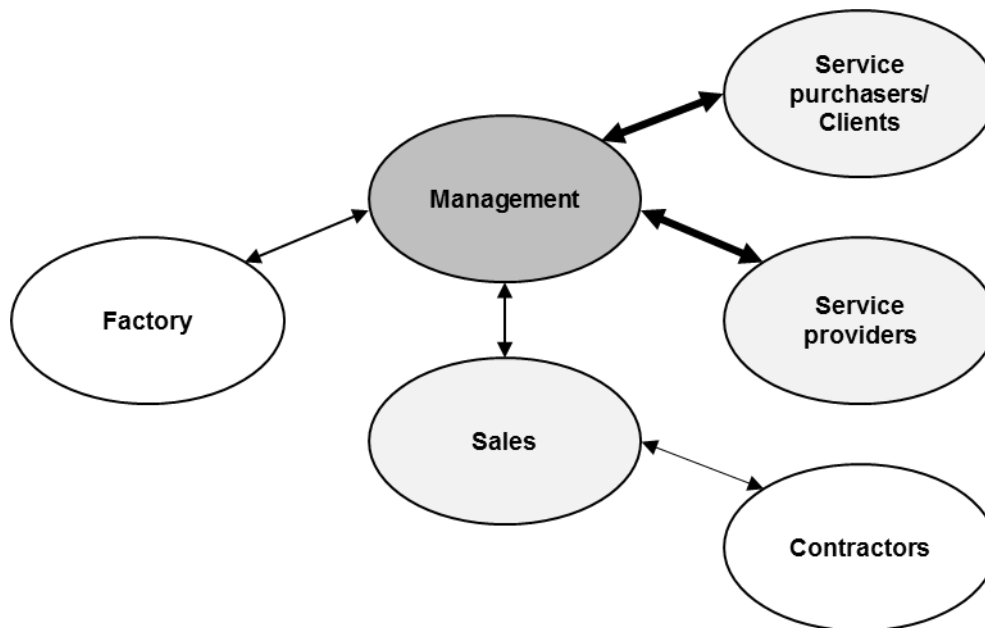


Figure 5. Network picture 5: Management perspective.

CONCLUSIONS

This study deepens our understanding of how picturing a network (using simple drawing tools) from different actors' perspectives affects the network management and development of new connections within networks. The managerial challenge is to guide the development within a business network, and therefore more information is needed on how actors' network strategies actually come into being and can be affected through interaction. Often, companies anchor to a single vision of their customer needs and network structures which may preclude considering the viewpoints of other network actors. Many businesses have a complex nature, and network picturing gives a possibility to see beyond the most obvious and traditionally closest actors. In the case company, network picturing resulted in identification of new relevant network actors. Each actor has to be approached in a specific way and by a specific actor of the case company. For example, the management might be the most appropriate actor to approach and negotiate public service providers, while sales the most appropriate one to approach the current customers, i.e. contractors.

Our research suggests that different network picturing tools can be utilised as a transformation means in companies seeking growth and new markets. This is in-line with Corsaro et al., (2011) and Laari-Salmela et al. (2015), who emphasized the the relationship between actors' network pictures and strategic actions.

The next step of the research is to widen the understanding by studying the viewpoints of different customer-side network actors, especially the direct customers (contractors) and their network pictures. The next large phase is to follow and support the pilot project (new collaboration in context) in order to explore the sense-making processes between the involved network actors by using different tools as boundary spanning mechanism (Haldrup, 2012). Within the context of business networks it is important to integrate intangible and tangible

value flows between the network actors. Therefore, social network analysis (SNA) can be used to understand knowledge flows and the network patterns of expert communities or value network analysis (VNA) could be utilized to integrate both tangible and intangible value flows.

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