

# **LEARNING NETWORKS PRODUCING CREATIVE QUALITY AND VALUE INNOVATIONS - CASE STUDY IN FINNISH FAMILY BUSINESS CONTEXT**

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## **Abstract**

The goal of this research paper is to illustrate the role of social capital in SME's network when developing innovations. Nowadays everybody seems to agree that innovations are important as a major factor in creating competitive advantage both in nations and in SME's.

New product development processes are often multifaceted issues demanding specialized knowledge of different materials, production methods, design etc. By combining knowledge of separate companies the network is able to produce creative quality and value innovations through learning. Complementary resources available through cooperation increase opportunities to develop new innovations. Also networking companies have more business and social connections, which mean they have interfaces that stimulate innovations. Social capital embedded in the companies and network is one of the most essential factors in this innovation development process.

Even though social capital has been studied in various contexts and also connected to SMEs, it is still important to pay more attention to this complex phenomenon. In this paper practical examples of value innovations will be described and social capital behind the development processes of these innovations will be analysed.

**Key words:** social capital, innovation, network, organisational learning.

## **INTRODUCTION AND RESEARCH MOTIVE**

This article is based on research that has been published as a dissertation (Arhio 2007). In this research paper the focus will be on the role of the network's social capital in the development processes of these value innovations and how to manage this process. Even though social capital has been studied in various contexts within SMEs, it is still important to introduce practical examples also in the context of family business. In this research social capital of network includes trust, communication and personal relationships.

The focus of empirical research was on the wood processing industry. Because of the researcher's own interest in small enterprises in the wood industry and their problems, the wood processing business was chosen to be the focus of this study. Small and medium-sized wood working enterprises have also been considered to play an important role in creating employment, especially in rural areas and much of the regional development resources have been used to promote this. The majority of Finnish wood working companies are small, as are the ones in the European Union, in which about 90% of wood working companies have less than 20 employees. Also SME's in wood industries are typically family businesses. The wood product industry has a strong effect on regional development in Finland. It has been calculated that one job in the wood industry has a multiplicative effect of a total 2.5 jobs (Nousiainen et al 2002).

## **AIMS AND RESEARCH QUESTION**

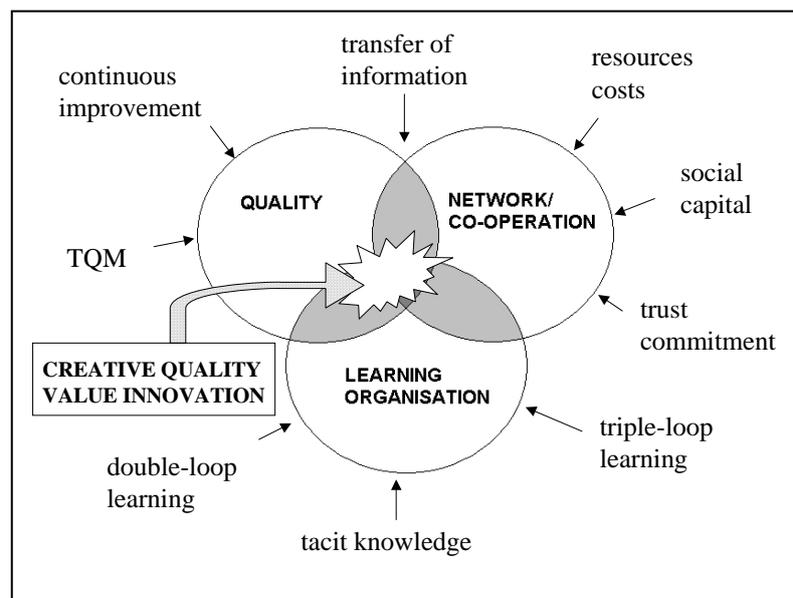
The aim of this research was to understand how value innovations have been built and what the effect on company business success is. This research paper focuses on the role of the network's social capital in the development processes of these value innovations and how to manage this process. The main research question was: How do networking companies in the wood industry create quality that generates value innovations? From a methodological point of view this study is of a qualitative nature, adopting the use of the case study. According to the hermeneutical approach, case study research emphasizes interpretation, meaning and understanding of phenomenon. (Denzin and Lincoln 2000).

## **THEORETICAL BACKGROUND**

The main theoretical concepts behind the study include networking, quality and organisational learning. Closely related were also knowledge management and innovations. Innovations are especially seen as a crucial factor when developing sustainable competitive advantage nowadays (Himanen & Castells 2004; Meso & Smith 2000). When thinking about quality management in practice, the point of view is often how to manage quality and continuous improvement in different supply chains and in cooperation. Small and medium-sized enterprises are able to benefit when developing innovations in cooperation. Only seldom those companies have economical and human resources enough to spend on effective actions in R&D. Development process of innovation in cooperation is a learning process, too (McGovern 2006) and learning networks can be seen as a source of industrial development (Morris, Bessant & Barnes 2006).

Networking can be described in many ways. In this research networking refers to voluntary cooperation between companies to achieve a certain goal or a shared purpose. Quality in the context of cooperation means shared (common) understanding of quality, which contains both quality of product and quality of action (Savolainen 1999). Learning in this research extends to more than learning in traditional educational contexts. Organisational learning with all the knowledge behind the actions leads to continuous improvement. (Argyris and Schön 1978; Ruohotie 1996). Creative quality is even more than traditional total quality management with continuous improvement. In wood industries creative quality is expressed in the form of solving customers problems in co-operation and in appearance of new innovations (Arhio 2007,14). Those innovations are called value innovations with characteristics of five S's (Wang & Ahmed 2002).

Figure 1 illustrates the theoretical framework of the research consisting of quality, organisational learning and network. Combining these different theoretical aspects is challenging but arguable when presuming how value innovations appear in the shared core of these. Around the circles there are some related items and among them one of the most important is the social capital.



**Figure 1. Aspects of the theoretical framework of the study.**

The idea of value innovation has been absorbed from Wang and Ahmed (2002). Value innovations have been discussed also by Kim and Mauborgne (1997; 1999). Kim and Mauborgne also connected value innovation with strategic regeneration of a firm (Kim & Mauborgne 1999). In spite of these basic research works, the concept of value innovation has quite seldom been chosen to be the focus of research in the field of SMEs.

According to Argyris and Schön (1978) different stages of learning can be characterised as single-loop, double-loop and deuterio-learning (triple-loop). Fiol and Lyles (1985) discuss the same concept with the terms of lower and higher levels of learning. Lower levels of learning are routines within the organisation's rules and structures.

Higher level learning occurs in ambiguous contexts and includes also changes, even in organisation's basic assumptions. (Argyris & Schön 1978; Fiol & Lyles 1985) In the organisational context triple-loop learning involves knowledge creation, and the role of tacit knowledge and the interaction between tacit and explicit knowledge is critical in the triple-loop learning process. (Nonaka & Takeuchi 1995; Lam 2000)

Coupled with organisational creativity triple-loop learning indicates creative quality leading to value innovation. Creative quality and value innovation can be characterised with the five "S's":

- S1: Satisfying customer needs
- S2: Surprising customers with additional value
- S3: Superposing organisational competency
- S4: Surpassing competitors' products and services and
- S5: Stimulating new market demand. (Wang & Ahmed 2002)

In creative quality the customer will be delighted when getting actually more than expected. This 5-S model requires triple-loop learning which sometimes means unlearning organisation's traditional ways of action. The organisations with creative quality actions are able to solve customer's problems. According to Wang and Ahmed (2002) this higher stage of learning, quality and value innovation can be seen as a platform to organisations' business success. As in quality concepts in general, customer satisfaction is a basic element in creative quality, too. However, in addition to conventional quality concepts, creative quality also includes surprising the customer with a new product or service. In creative quality the organisation's competence increases when focusing on the end-customer and linking innovation with buyer value. These companies are able to stimulate new demand and economic growth. An innovative wood-working company with creative quality tries to solve customers' problems and offers new innovations. Creative quality and value innovations due to triple-loop learning grow up through new knowledge creation. Also in wood industries this higher stage of learning and quality might be a platform of future business success.

So, organisational learning affects the company's or network's quality performance and innovativeness. Organisational learning, with different learning mechanisms like experience accumulation and knowledge sharing, is one of the key elements in evolution of dynamic capabilities. Dynamic capabilities are organisational and strategic routines that rely on existing knowledge and the creation of new knowledge. (Eisenhardt and Martin 2000; Zollo and Winter 2002). Teece et al (1997:516) define dynamic capabilities as "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments". Ability to renew existing resources, routines and capabilities in order to achieve competitive advantage in changing business environment means organisational learning.

## **SOCIAL CAPITAL**

The concept of social capital is concerned with the significance of relationships as a resource for social action (Coleman 1988). According to Putnam (1995) social capital is not a one-dimensional concept and different authors have focused on different dimensions of social capital. Nahapiet and Ghoshal (1998) discussed about interrelationships between social capital and intellectual capital.

Originally the term “social capital” appeared in community studies highlighting the importance of personal relationships. These relationships develop over time providing the basis for cooperation and trust. Since its early use the concept has been adapted to a wide range of social phenomena. In addition to influences on the development of human capital, the social capital plays an important role in the economic performance of firms as well as geographic regions and nations. (Coleman 1988; Putnam 1993, 1995)

The theory of social capital emphasizes the value of networks of relationships as a “collectively owned capital”. Much of this capital is embedded within mutual contacts and recognition. Resources for social capital are available also through the connections the network brings; including also the “weak ties” (Granovetter 1973). As a set of resources rooted in relationships social capital has many different attributes. Nahapiet and Ghoshal (1998) separate the structural (connections), the relational (personal relationships developed over time through interactions) and the cognitive dimensions of social capital. These dimensions are highly related. The cognitive dimension of social capital refers to resources providing shared representations, interpretations and systems of meaning among parties. Social capital in the relations between and among persons is owned jointly by the parties and because of that issues like friendships cannot be passed easily from one person to another.

The social capital of network seems to be a crucial factor in developing innovations in cooperation. In a successful development process of value innovation presented in this research the influence of different social capital dimensions has become evident.

## **DATA AND METHODOLOGY**

The case company is a medium-size manufacturer of wooden windows with its networking companies. During this study the company was owned by the entrepreneur’s family and the second generation was in charge. The company is well-known for the excellent quality of the products and also actions, so it was an obvious choice to be the focus of this study. The co-operative companies included in this research are manufacturers of doors, wooden components, insulation glazing elements, seals, aluminium parts, integrated blinds and wooden battens and laths. Basic facts about the companies can be seen in table 1.

These are private owned companies and most of the partner companies can also be characterised as family businesses. From the customer’s point of view the window is one solid product with the case company’s brand. Although the different components are produced separately, the installation is finished by the case company. Also the doors are sold in the name of the case company. This kind of cooperation could also be called as extended enterprise (from the customer point of view).

**Table 1. Basic facts about the companies included in this research.**

<b>Company (establ.)</b>	<b>Products</b>	<b>Turnover (in Millions)</b>	<b>Personel</b>
Case company (1977)	windows and doors, including installation services	47	200
Partner A (1978/2005)	doors	3.5	17
Partner B (1980)	insulation glazing elements	3.7	19
Partner C (1995)	plastic parts: air inlet window system, integrated blind mechanism	0.5	5
Partner D (1937)	aluminium parts	40.7	145
Partner E (2003)	wooden battens and laths	1	6
Partner F (2005)	seals	1.2	7
Partner G (1993)	seals	8	47
Partner H (1996)	blinds	0.7	9
Partner I (1996)	wooden components	6	21

**Table 2. Semi-structured interview themes.**

Basic characteristics of the company year of establishment, owners of the company turnover, personel business concept and values customers, competitors quality system (if there is one)
Cooperation (customer relationship) with the case company the beginning of the relationship: when? how? the importance of the case company among customers? who (persons) are involved? communication in practice? goals in developing the cooperation?
Actions in value added chain (case company - co-operative partner) processes of order and delivery materials flow information flow feedback how are the possible claims handled?
Quality and improvement of the quality (in co-operation) quality agreements and standards common understanding of quality problems/ developments of the quality continuous improvement of quality
Development projects and new innovations starting point description of the process innovation's usefulness, new value

The research data was collected through personal interviews and secondary sources such as company presentations and web sites, written form of company values, quality standards and instructions. Using multiple sources in research data collection improves constructing validity of the research. A total of thirteen persons in the case company and its partners were interviewed during the winter of 2006-2007. As the goal was to find examples of development processes of new innovations, informants for the interviews at the case company were personal in charge of continuous improvement and new product development. Informants for the interviews at the partner companies were those who had been in close contacts with the case company. In small family businesses these people were mainly entrepreneurs themselves. Semi-structured interviews (table 2) in the cooperative companies were taped and transcribed. By interviewing both case-company and its co-operative partners the present situation of cooperation, quality management and methods of continuous improvement, transfer of information (knowledge) and developed innovations were clarified.

Analysis of research materials was carried out by listening the interviews and reading the written (and transcribed) materials. In the background of the analysis there is the researcher's pre-understanding of the phenomenon. Also themes of interviews were chosen on the grounds of these pre-understanding and theoretical issues.

## RESULTS

The objective of the study was to find out, how networking promotes creative quality and value innovations. A total of four different value innovations were investigated (Arhio 2007). An interesting example of value innovation is the supply air window; its development process has been carried out in cooperation. Another example is the integrated shade system where the control of venetian blind is located at the bottom of the frame so it is always easy to reach. Integrated blinds are already installed in the factory in the space between the glazing elements. Innovation is that all functions are controlled with one knob and the system works without surface-mounted strings and levers.

Analysing the information collected by the interviews showed interesting points concerning organisational learning in a network, information transfer and continuous improvement. Learning in inter-organisational cooperation is a process, where knowledge work takes place between the partners. Knowing the partner is the precondition for knowledge transfer and learning. Many relationships have been long-lasting, 10-20 years. "*co-operations has developed during these years and people have learned to know each other*" (sales manager of aluminium parts manufacturing company). Knowing the partner leads to the next step, where trust and commitment increase little by little. This learning process is sometimes a forced activity to maintain and develop the business relationship. "*..has really forced us to learn the acceptable quality (which is high) and also the assurance of delivery.*" (manager of the insulation glazing elements manufacturing company).

The national standards can be seen in the background of quality requirements for windows, but the case company's quality requirements are higher. This culture can also be seen in the company's five values: satisfied customer, open cooperation, comple-

tion of affairs, continuous improvement and quality and reliability. Open cooperation as a company value means honest and responsible behaviour through the whole supply-chain. In open cooperation the feed-back is based on facts. Completion of affairs is target-oriented, effective operation to achieve good results. Continuous improvement consists of activities based on knowing and foreseeing customer needs and market stresses.

Quality and reliability grow from fulfilling the agreements and high quality of action and end products. In addition to well-known standards, learning the quality and common understanding of quality develops through contacts and discussions. During that process the common quality culture develops, too. *“quality culture develops when we have permanent staff”*. Several persons from different network companies pointed out the importance of regular contacts (both formal chief level meetings and more informal contacts between the workers). *“at least every week we have telephone contacts and regular visits.. and e-mail”* (manager of battens and laths manufacturing company). As quality also means the quality of action, the importance of knowledge transfer is emphasized in the changing environment. A remarkable part of the quality culture is embedded in the tacit knowledge of employees.

Results indicate that networking companies are able to develop value innovations with creative quality more effectively than individual companies. Some innovations developed in case network can be characterized as value innovations with creative quality. Those innovations fit in with the five “S” model framework: satisfying, surprising, superposing, surpassing and stimulating (Wang and Ahmed 2002). The essence of creative quality, as of conventional quality, is to satisfy customer needs. In addition to conventional quality with customer satisfaction, creative quality generates new products or services that surprise and delight customers, like integrated blind with easy to use and clean characteristics.

Superposing means that value innovating companies surpass the traditional with the innovative by superposing organisational competency and building up new layers of capacity. In the case of developing supply air window the company and its partners have learned much about air conditioning and also developed production systems and materials of the product; so the companies have achieved new levels of capabilities. Traditional competitive advantage aims at doing (or manufacturing) better and cheaper than competitors. Value innovators place emphasis on customers rather than on competition itself. (Kim and Mauborgne 1999) By doing so value innovators are able to surpass competitive offering and premises. With integrated blind system the company has surpassed competitors’ with protection of design and has had a head start over others. The integrated blind as a value innovation has also stimulated increased demand for windows.

According to Wand and Ahmed (2002) creative quality and value innovation originates from constant questioning of existing markets, industries and competitors – so these companies explore many strategic alternatives to creativity and innovations. Achieving this level of creative quality and value innovations requires triple-loop learning. Developing value innovations has been a learning process to the companies. Continuous improvement means continuous learning.

Extensive learning has taken place during the development processes of studied value innovations. The companies have also learned through problems they have encountered in product development. At the early stage of the innovation process of integrated blind the cogwheel problems nearly stopped the project. Some people in the case company wanted to interrupt the development and forget the idea. This means, that in a process like that also some persistency is needed. Only very seldom new development will succeed at the first tryout. Finally the companies were able to solve the problems in cooperation. Problems compelled companies to search for new production technologies, knowledge from different materials and innovative constructions.

The case company is a learning organisation and the network can be characterised as a learning network. Characteristics of a learning organisation are e.g. systematic problem solving, learning from own history and experiences, learning from other companies' experiences and best practices, testing new methods and effective transfer of knowledge through the whole organisation. (Pedler et al 1996; Nevis et al 1995) Organisational learning in the network also means diffusion of tacit knowledge in the network. In this case the networking companies have been successful in utilizing tacit knowledge in value innovation development processes.

## **DISCUSSION**

Combining organisational learning, quality and networking to explain innovation process was the theoretical contribution of this research. Value innovation is also a quite new concept that was in this research studied in a context of SMEs. This case study will also carry a way of benchmarking and learning for both entrepreneurs and practioners as for policy makers. However, value innovations should be studied closely also among different enterprise sectors to clarify the network learning processes embedded in value innovations development.

The results indicate that as a result from complementary resources and social capital the networking companies are able to develop value innovations more effectively than individual companies alone. Complementary resources available through cooperation increase opportunities to build up new value innovations. As a result from deeper business and social connections the networking companies have interfaces which can stimulate innovations. During value innovation development process the network is learning through experience accumulation and knowledge sharing.

The most interesting issue is the concept of social capital that is central to the understanding of network learning and continued innovation. Learning through communication also promotes network's social capital when developing value innovations. During the development processes of value innovations the partners have learned to know each other and also the level of trust is increasing. The practical contribution of this research to wood processing SMEs is that they are able to benefit from developing value innovations in cooperation. In the future an organisations success depends more and more on the whole network's success and the companies that are able to manage their network will succeed. In wood industries this kind of network learning with increased level of social capital might be a platform for future business success.

The concept of social capital is central to the understanding of continuous innovation (continued improvement). Social capital is defined as the network of relationships possessed by an individual or social unit, and the sum of actual and potential resources embedded within, available through, and derived from such a network (Nahapiet and Ghoshal 1998:243). Social capital has been linked to the creation of both human capital and intellectual capital and it is a necessary condition for the existence of dynamic capabilities (Blyler and Coff 2003). Dynamic capabilities development in networks result from knowledge sharing, collective learning, experience accumulation and transfer through social interactions. The importance of experience accumulation and knowledge sharing (also tacit knowledge) cannot be undervalued in the processes of continuous improvement.

So, social capital is a very effective factor in developing value innovations in the network of small family businesses. In the future the importance of network's social capital should be studied more thoroughly in different networks and also in the contexts of other industrial branches and services.

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