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PROMOTING STRATEGIC NETWORKS WITHIN LOCAL ICT CLUSTER

Case KAATO ry

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Tämän opinnäytetyön tavoitteena on tutkia, millä keinoilla Oulun alueen tieto- ja viestintäteknologia-alan (ICT) yrityksiä voitaisiin tukea, jotta niiden asema kansainvälisillä markkinoilla paranisi. Alueen yritysrakenne on muuttunut dramaattisesti muutaman viime vuoden aikana ja muutamien kansainvälisten suuryritysten sijaan alueella on nyt paljon aloittelevia pieniä yrityksiä. Kohdeyritys, KAATO ry, kuuluu julkiseen sektoriin ja pyrkii edistämään alueen ICT-liiketoimintaa. Edellä mainituista seikoista johtuen kohdeyritys etsii uusia tapoja vahvistaa paikallisten ICT-yritysten asemaa.

Tämän opinnäytetyön tutkimusmetodi on kvalitatiivinen. Kirjallisuutta käytetään selvitettäessä kompetenssien merkitystä ICT-yrityksille sekä tutkittaessa strategisia verkostoja kompetenssien kannalta. Edelleen tutkitaan julkisen sektorin roolia strategisten verkostojen luonnissa. Lisäksi järjestettiin Internet-kysely paikallisten mittaamaan ICT yritysten asenteita kompetenssikehitystä sekä verkostoitumista kohtaan. Kirjallisuutta ja kyselyä täydentämään haastateltiin kohdeyrityksen projektipäällikköä.

Kirjallisuuden mukaan julkinen sektori voi toimia katalyyttinä ja luoda tilaisuuksia yritysten väliselle verkostoitumiselle. Nämä strategiset verkostot voivat puolestaan auttaa pieniä ja keskisuuria ICT-yrityksiä pienen koon asettamissa haasteissa ja tarjota keinon kompetenssien hankintaan. Verkostojen johtaminen on kuitenkin kompetenssi itsessään, joten tämän kompetenssin lisääminen ICT-ammattilaisten keskuudessa voisi parantaa myös verkostojen menestystä.

Tämä opinnäytetyö ehdottaa kohdeyritykselle katalyytin roolia ICT-yritysten strategisten verkostojen luonnissa. Katalyyttinä kohdeyritys käyttää resurssejaan luodakseen suotuisan ja luottamuksellisen ympäristön. Lisäksi kohdeyritys voi tukea verkostoitumiskulttuuria kouluttamalla verkostojohtajia.

Avainsanat	pienet ja keskisuuret yritykset, viestintä- ja informaatioteknologia, julkinen sektori, strategiset verkostot, kompetenssi

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Abstract of thesis

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The objective of this thesis is to study the means of support that could help the information and communications technology (ICT) companies in the Oulu region to improve their position in the global markets. During the last few years, the structure of the business environment in the Oulu region has changed drastically from few giants dominating the market to small and medium sized companies starting up their operations. The case company, KAATO ry, operates in the public sector and aims at supporting the ICT business on the region. Thus, the case company seeks to recognize innovative ways to strengthen the position of the local ICT companies.

The research method of this thesis research is qualitative. The literature is studied for understanding the relevance of competence to ICT companies as well as for studying strategic networking from the competence point of view. Furthermore, the role of the public sector in network creation is discussed. In addition, a survey was administered via the Internet among local ICT companies to reflect their attitudes towards competence development and networking. To complement the knowledge acquired from the literature and the survey, an interview of the case company's project manager was conducted.

According to literature, the public sector can act as a catalyst and provide opportunities for companies to build strategic networks. These strategic networks may provide a tool for small and medium-sized enterprises (SME) ICT companies to overcome the challenges of size and to access competences. However, network management is a competence itself and improving this competence among the ICT professionals could improve the success of the networks.

This thesis suggests that the case company supports strategic network formation among ICT companies by taking a role of catalyst. As a catalyst, the case company provides resources for creating favourable and trusting environment. Additionally, the case company could support culture of networking by training network managers.

Key words   Small and Medium-sized Enterprise, Information and Communications Technology, public sector, strategic networks, competence

CONTENTS

FOREWORD

1 INTRODUCTION

The environment that inspires to writing of this thesis is described initially. In addition, the objectives of the thesis research as well as the theories utilized are outlined.

1.1 Background and motivation

The economic situation in Finland is challenging, as the influences of the recession are still visible. For example, the profitability of companies has collapsed and thus their investments have diminished. This trend affects the foreign investments, which Finland has failed to attract. (The Federation of Finnish Technology Industries 2015, 3.)

The negative trend of the Finnish industry can be also observed at the local level. The cities Oulu, Tampere, and Salo have been influenced by the big lay-offs by Nokia during 2013 both directly and indirectly. Soon after Broadcom closed its site in Oulu and in 2014, also Microsoft closed its Oulu unit acquired from Nokia 2013.

The quarterly report 1/2015 of Centre for Economic Development, Transport and the Environment describes the overall atmosphere of the Northern Ostrobothnia business life as modest. According the quarterly report, there was approximately 1000 unemployed ICT professionals living in the province and 85% of them in the Oulu region. Consequently, the availability of highly educated ICT professionals has motivated some foreign companies to invest in new sites in Oulu. (Centre for Economic Development, Transport and the Environment 2015, 227.)

When considering the ICT evolution from company perspective, subcontracting companies suffer from the indirect effect of the big layoffs and globalization of the technology industry. The Finnish export was dominated by large companies and the subcontracting companies were supporting their activities. When reviewing

the technology industry, subcontracting companies include half of the jobs of the industry. These subcontractors are often small and medium sized (hereinafter SME) companies. The amount of jobs in IT services and software subcontracting exceeds 33 500 which equals to 67% of all IT and software professionals. (The Federation of Finnish Technology Industries 2013, 3-4.)

The actions to improve the employment rates should be prompt and tailored to the local environment. If the situation does not improve, there is a danger of brain drain, which could lead the currently strong ICT ecosystem to vanish. The migration of highly educated professionals from Northern Ostrobothnia would further lower the income of the counties in the region.

The case company, Suomen Tietoteollisuuden Tuki ry, with the brand name KAATO, is a strategic initiative of four cities of Oulu, Tampere, Salo, and Helsinki. Other funding bodies include the Ministry of Employment and the Economy, Finpro i.e. the national trade, internationalisation, and investment development organization, Council of Oulu Region, Tredea i.e. Tampere Region Economic Development Agency, and the Helsinki-Uusimaa Region.

KAATO is an independent organization with the main aim to attract foreign ICT investments to Finland. As the personnel are people with strong background in ICT sector, the inquiries from foreign ICT companies are directed to KAATO for further and detailed discussions. Since the KAATO employees are familiar with the local ecosystem, the foreign companies can be provided with information from centralized source without the need for contacting different officials. In addition to the main task, KAATO acts as an ICT advisor supporting the business organizations of the four cities when needed.

As the economic environment is challenging, KAATO is concerned about certain characteristics of SME ICT companies in the Oulu region. Consequently, the current researcher is requested to study whether the concern of lack of marketing competence is valid. Furthermore, if the concern is valid, what should be done for improving the situation? The personal motivation for this thesis research

grows from professional background. The mass layoffs have touched the researcher personally as well as her family and friends. Thus, the active involvement for improving the employment rates in Oulu region is important.

1.2   Research objectives and questions

The general aim of this thesis research is to investigate means of improving the employability of the ICT professionals in the Oulu region and to support the local SME ICT companies' efforts in global markets. As the Oulu region business ecosystem is dominated by ICT, the success of the ICT field has a great impact on the wealth also in general.

The second objective of the thesis research is to clarify what the role of competences for the ICT companies is. The competences that are especially viewed are marketing and strategic network management as suggested by the case company.

The third objective is to suggest a set of actions the case company should take in order to help the ICT companies overcome the competence related challenges. The proposal is to be concrete in nature and available for accomplishing during near future.

The research questions for this study are the following:

1) What is the strategic value of competencies for an ICT company?

The first research question aims at clarifying the relationship between competencies and companies within the local ICT environment. When overviewing the latest development of this relationship one is able to understand better the particular needs that are set by the global market place. The study emphasizes marketing competencies together with the strategic network management competencies in order to have a topical point of view.

2) What kind of opportunities strategic networks could provide for local ICT companies?

The second research question aims at exploring if the companies can benefit of joint efforts as well as the attitudes towards strategic networking among the companies. As the strategic networking is not active in the Oulu region, the obvious shortcomings are studied as well as the solutions to overcome them.

3) How could the case company help the regional ICT businesses to develop their operations?

The last research question concentrates on how the case company could support the companies, especially in the field of the network creation. The aim is to suggest concrete actions that the case company, BusinessOulu (hereinafter BO), could provide to the SME ICT companies in the Oulu region. The basis of the actions are drawn from research question one and two and the competence theories discussed in this thesis in chapter three.

Furthermore, this thesis contains an assumption that directs the daily work of the organizations such as BO and KAATO. It assumes that these organizations have a positive influence on the survival or even growth of the local ICT business ecosystem, the employment of the people and performance of the companies. Another assumption is that there is a way to employ people to the local companies as a result of concrete measures of the third party. However, the local companies may not have the resources or willingness to hire talents even though they recognize that there are competence gaps in their competence pool.

This thesis excludes the characteristics of the strategic network. Further, it excludes defining objectives of strategic networks or what kind of structures strategic networks should form.

1.3 Structure of the thesis

This work is divided into six chapters. The second chapter is devoted to the theory the methodology. Moreover, this chapter justifies the choice made with the research approach and how the research itself was conducted. Chapters 3 and 4 focus on conducting the literature review. The first one defines the concept of competence, while the latter one elaborates the strategic networks from different viewpoints. Chapter 5 discusses the empirical data collection and furthermore presents the results of the study. Chapter 6 provides a concrete proposal for the case company, drawn from the previous chapters. Finally, the conclusion of this work is presented in Chapter 7.

2 RESEARCH METHODOLOGY

The research and the choices made concerning it are presented in following with the motivation for the choices.

2.1 Qualitative research

The thesis research is conducted by using three methods: the literature analysis, the survey, and the interview. The usage of more than one method, i.e. multi-method, is recommendable as it can be used for validating the information (Blaxter 2010, 85). In this specific case, the literature provides new ideas and framework for the current researcher, whereas the survey represents the current attitude among the local companies. Lastly, the interview enriches the collected information and provides a new perspective for the case in question. While qualitative method concentrates "collecting and analysing information in many forms" (Blaxter 2010, 65) and the aim of this thesis research is to understand attitudes and experiences, the qualitative method is chosen.

The interview provides an insight for a networking project from the project manager's point of view. As people are keener to talk than write, an interview is superior of data collection methods (Krishnaswami & Satyaprasad 2010, 100). Furthermore, a personal interview provides rich information compared to other methods (Krishnaswami & Satyaprasad 2010, 100). The interview process for this thesis research starts with written questions sent to the interviewee for familiarizing and answering. The emails are then followed by a face-to-face discussion that supplements the written answers. The discussion is then transcribed by the current researcher and the text is reviewed and corrected by the interviewee. The interviewing process that combines structure and open discussion, as in this particular case, is called semi-structured interview (Blaxter 2010, 193).
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2.2   Online survey

The target of the survey is to study views of ICT companies in the Oulu region on competencies and strategic networks. It also aims at understanding expectations the previous mentioned companies have towards the case company. The survey is carried out as an anonymous web survey, which in turn is delivered to the potential respondents via email. *"Surveys are systems for collecting information to describe, compare, and predict attitudes, opinions, values, knowledge, and behaviour"* (Fink 1995, 21).

The study of Streukensc, Smyth, Dillman, Christian and McBride (2009, 336) suggests that open-ended questions may re-emerge due their capability of collecting rich data. They continue proposing that open-ended questions in web surveys seem to collect better quality data than other modes of self-conducted surveys (Streukensc *et al.* 2009, 336). Respectively, the discussions with the experts of the case company suggest that the sample of the study will likely remain moderate. Thus, the questions concerning the views of the companies are formulated as open-ended in order to gather as much information as possible. Whereas the data concerning the type of the company and the experience on alliances are in the qualitative form.

This thesis research aims at describing a generalized view of the alleged competence gap and attitudes towards alliances. The requirement of generalization directed strongly the choice of the method. Consequently, as the survey research is able to "describe a large population" (Gaiser & Schreiner 2009, 68) it is considered as an optimal choice. Also Blaxter (2010, 79) supports the survey as a tool for providing generalized results.

The available time and funds are creating the most notable limitations. The case company is expecting to see the results of the survey promptly. Time limitation can be managed by the usage of a survey as a research method as it can be executed fast (Blaxter 2010, 79). The funds available for the survey are practically

non-existent. However, the database of companies and their contact information are available and chargeable databases are not needed.

As the companies targeted in the survey are technically developed, they are likely to have a positive response for technical solutions. As stated already in 2000 by Mann and Stewart, the usage of the Internet is becoming a standard especially in the business life (Mann & Stewart 2000, 8). This motive of everyday usage of the Internet in a working environment combined with the target of creating generalized view and the above-mentioned limitations supported the choice of an online survey as a data collection method.

Nevertheless, there are some challenges with online surveys and the most notable of them relates to the response rate. Online survey response rates seem to be lower than with the traditional survey methods such as telephone and traditional mail surveys (Vehovar & Manfreda 2008, 184). In order to increase the response rate and overall quality of the survey, the design of the survey needs to pay attention to this challenge.

2.3   Survey design

The sampling of responding companies utilizes the KAATO maintained database, which includes basic information of the majority of local ICT companies. This database is used when gleaning the companies that fulfil the criteria of the three requirements. First, the company is locally headed i.e. the company is not a local office with a head office elsewhere. Second, the company is SME i.e. the size of the company is between 10 – 200 persons and finally, the business field of the company is ICT.

The sampling is followed by the design work of the survey where important aspects to consider are usability of the survey form and anonymity of the respondent. Usability has a significant influence on success of a survey as it may even influence the response rate (Best & Krueger 2008, 220). Streukensc *et al.* state

(2009, 336) that in their research they found out that clear guidance and motivation for the respondents improves many aspects of the responses, for instance response time and response rate.

Anonymity can be improved by using an embedded hyperlink to a survey tool in an e-mail. Still, it is important to include the written format of that link as well due to the different e-mail reading options. (Best & Krueger 2008, 221.) Accordingly, the cover letter with the invitation to the survey is sent via email with the written link to the online survey tool.

The requirements for the survey instrument are ease of use and free availability. As a result, following options are suitable according the criteria and are investigated more thoroughly: GoogleForms, SurveyMonkey, QuestionPro, and Survs. The chosen instrument is GoogleForms as it provides familiarity – both the current researcher and probably the respondents - as well as an opportunity to export the results to Excel for a further study.

A survey should be tested at least once before launching it for the sample (Kaczmirek 2008, 247 citing Converse & Presser 1986). The questions along the cover letter are reviewed in a meeting together with three KAATO employees in order to respond the needs of the thesis research as well as the later needs of the case company. Later, the web survey form is being tested by five KAATO employees and the comments are taken into account when finalizing the wording and design of the form. Processing the questionnaire with the seasoned experts injects a great deal of practicality to the final form and streamlines the result. Consequently, the questionnaire is designed to be easily adopted, quickly filled, and using the same phrases as the people responding it.

The cover letter with a link to questionnaire form is sent by email to the 272 respondents in three batches and the time for response is approximately seven days. According the strong recommendation from the case company employees, no reminders are sent. These employees with experience on local company life

indicate that the companies receive great amounts of similar requests and may thus be irritated because of the reminders.

2.4   Data collection and analysis

The survey composed contains mostly open-ended questions in order to gather rich answers. However, the amount of the responses is moderate and thus analysed manually instead of computer analysis. For this purpose, the responses are imported from GoogleForms to Excel. The chosen method for analysing the data is descriptive statistics. This analysis method is the most common and include counts and percentages among others (Fink & Kosecoff 1998, 60). There are several qualitative analysis applications available but a majority of them require payment. In addition, those applications are targeted to larger sample sizes (Gaiser & Schreiner 2009, 115).

3   ROLE OF COMPETENCE FOR AN ICT COMPANY

The evolvement of the role of competencies within the business theories is initially discussed, followed by a brief definition of the concept of core competencies. This chapter focuses on explaining why it is beneficial for an ICT company to pay attention to competences.

Strategic business theories have presented competences from diverse standpoints and theorists have had several different perceptions on them. Since the 1980s, these theories have been positioning competencies in an increasingly central role when analysing the performance of the companies. In addition, the orientation of the theories have been shifting away from the game theory where competition can be managed by the moves and countermoves against the competitors (Teece, Pisano & Shuen 1997, 512).

Even the concept of competence has many definitions. In addition, according to Delamare le Deist and Winterton (2005, 39), especially in the past the continents, even countries, have had their own understanding of the definition. They argue that "competences required of an occupation include both conceptual (cognitive, knowledge and understanding) and operational (functional, psycho-motor and applied skill) competences". Despite the fact that this argument is accurate, this thesis research will adopt the definition by Proff (2005, 230) who defines competencies as "unique resources which create advantages, and which are knowledge-based."

3.1   Resource-based view

The resource-based view (hereinafter RBV) concentrates on the company's internal features rather than external factors. It relates to the earlier business strategy theories, which recognize the company's assets and resources as differentiating factors (Brahma & Chakraborty 2011, 9). One of the first theorists to use the

concept of RBV was Wernerfelt (1984, 171), who explored in his paper "A Resource-based View of the Firm" "[…] the usefulness of analysing firms from the resource side rather than the product side". Furthermore, Barney (1991, 99) suggests that "Firms obtain sustained competitive advantages by implementing strategies that exploit their internal strengths, through responding to environmental opportunities, while neutralizing external threats and avoiding internal weaknesses." He bases the RBV on the internal analysis, i.e. strengths and weaknesses of the organization (Figure 1).

Internal Analysis	External Analysis
Strengths ↕ Weaknesses	Opportunities ↕ Threats
↓	↓
RESOURCE BASED MODEL	ENVIRONMENTAL MODELS OF COMPETITIVE ADVANTAGE
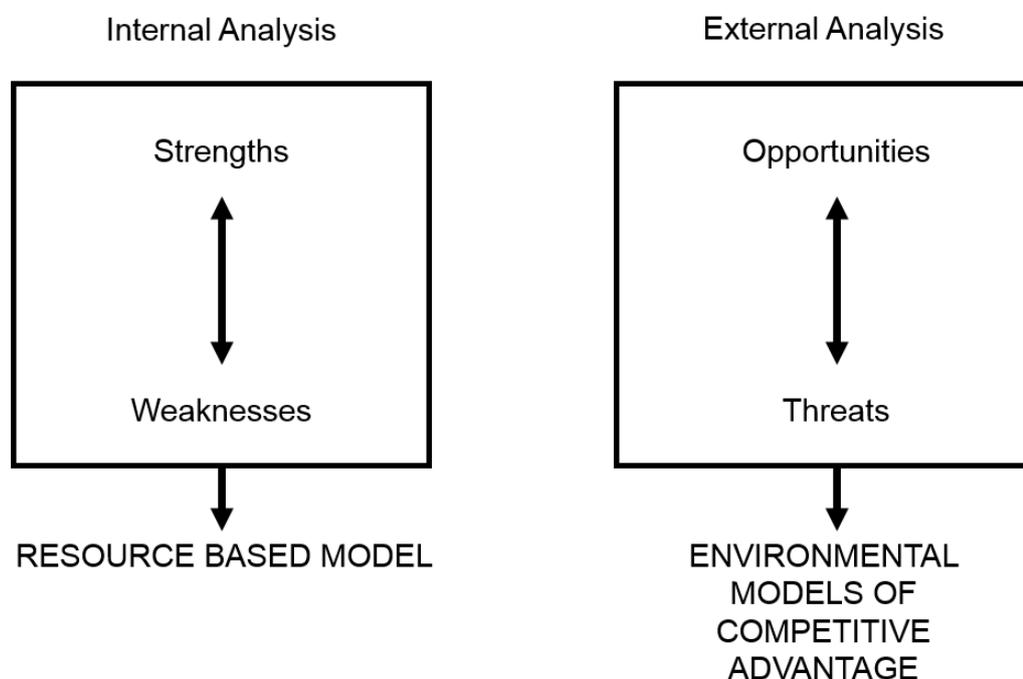
Figure 1. The relationship between traditional SWOT analysis, the RBV, and models of industry attractiveness (adopted from Barney 1991, 100)

Barney (1991, 105) determines and describes the characteristics that a company's resources should have in order to create sustained competitive advantage. The resources should be valuable and rare when compared to the market and in addition difficult, if not impossible, to imitate and substitute i.e. Valuable, Rare, Inimitable, and Nonsubstitutable. In literature, these characteristics are commonly known as VRIN criteria. (Barney 1991, 105.) Jelavic (2011, 21) states that a significant amount of the competitive advantage of the high-technology

companies is drawn from the human knowledge within the company. RVB encourages identifying these resources and capabilities that are strategically relevant and fulfil the VRIN criteria.

3.2 Dynamic capabilities

The theory of dynamic capabilities elaborates the RBV theory further and it is closely linked to the fast moving high-technology business. Given that, Teece *et al.* (1997, 515) perceive that some large corporations in high-technology business followed the theory of RBV by acquiring technology assets and protecting the assets with intellectual property rights. However, these companies in question did not gain noteworthy competitive advantage with their actions. To explain this phenomenon they presented the theory of dynamic capabilities. They brought up the idea that the competencies should be regularly renewed and reorganized in order to reply the requirements of the environment. Zubac, Hubbard, and Johnsson explain why the acquisition may not be successful way to grow missing competence. They state that in general the acquired resources tend to fail to fulfil the VRIN criteria since companies adapt similar resources, e.g. technologies. This means that how companies orchestrate their resources and competencies internally could provide them competitive advantage. (Zubac *et al.* 2009, 521.)

Proff divides the competence work in competence building and competence development. The latter occurs as a result of outside factors and is important in the changing environment. She also argues that the development is the only way to ensure the sustainable competitive advantage. (Proff 2005, 232.) Correspondingly, Petts (1997, 553) states that it is not enough in the contemporary business environment to satisfy current customer needs. Instead, successful companies are able to anticipate and be proactive. This leads to constant development of the company's core competencies with the speed that is set by the business environment. High-technology companies face fierce speed of change whereas the traditional business environment are more stable. (Petts 1997, 553.)

3.3   Core competencies

Prahalad and Hamel in their paper "Core Competence" explain among other things how it is important to recognize the core competencies of a company. They characterize the core competencies as "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies". Furthermore, they point out that the core competencies grow when shared on the contrary to the physical assets. (Prahalad & Hamel 1990, 82.) This means, that sharing the competence within the teams and inside the company cultivates and increases the amount and level of competence instead of diminishing it.

Petts sees core competence as "[…] a unique combination of technologies, knowledge and skills that are possessed by one company in a market". He also states, that the core competences may not be observable outside a company. Additionally, Petts reminds that without a value for a customer competences become "impotent". (Petts 1997, 552.) Also Seppänen (2000, 45 citing Bogner and Thomas, 1996) points out that "[…] the competence is a market driven concept". This statement means that in the end customers make the ultimate decision if competences of a company are appreciated. In other words, if customers are prepared to pay for company competences in form of a product, service or other.

Additionally, Zubac *et al.* (2009, 520) adopt the view that core competencies differ from dynamic capabilities (Figure 2). They state that company needs dynamic capabilities in all of its functions in order to respond to critical strategic challenges. However, core competencies are on top of dynamic capabilities. They continue that if the company has core competencies and it is able to recognize those, replicating competitive advantages becomes easier also when major changes occur in the business environment. (Zubac *et al.* 2009, 520.)
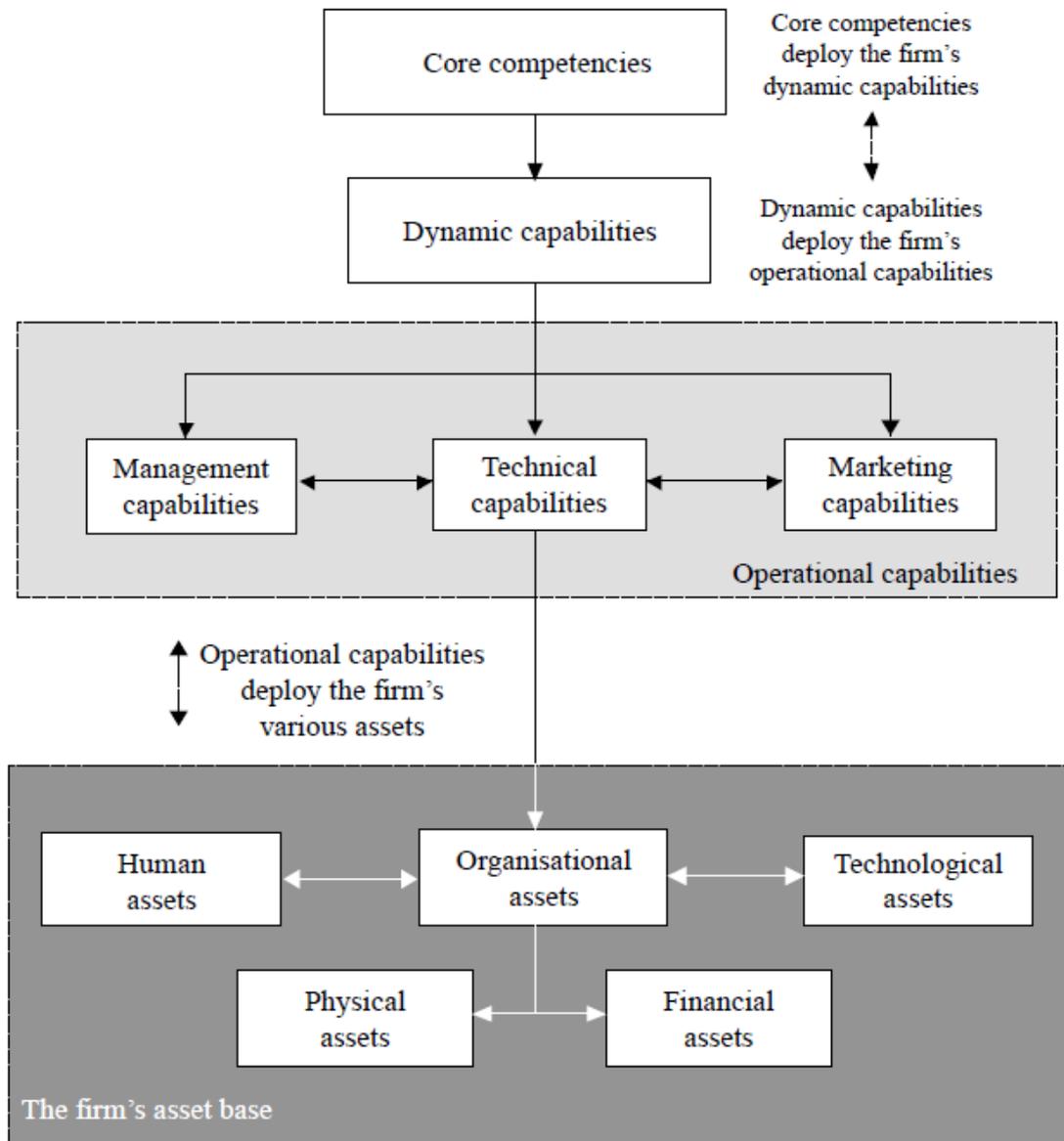
Figure 2. "The different resource types and their interrelationships" (adopted from Zubac *et al.* 2009, 518)

3.4 Competence within the networks

The meaning of networks for companies' success has been in the spotlight during the last decade. SMEs may find several benefits on being actively involved in partner networks but also from a competence point of view. For example, Hinterhuber and Partners (2013, 798 citing Lavie, 2006) argue that reaching competitive advantage does not explicitly require the ownership of the resources. This

means that networks and alliances can be seen as sources of resources. The better networks a company has the further the locus of core competencies is shifting. Without efficient networking, resources and access to competencies are limited to those a company itself obtains.

Möller, Rajala, Svahn and Tuominen (2002, 14) study the relationship between network management and dynamic capabilities. In their paper, they suggest that the companies that "[…] have both strong learning and network capabilities are able to learn more quickly and from a larger experience and competence pool". The idea here is that companies gain learnings from their network and are able to influence their future direction instead of merely surviving the change. In addition, Möller *et al.* came to the conclusion that updating the dynamic capabilities is a way for companies and their networks to differentiate in a terms of change management (2002, 14).

Complementing point of view is provided by C.J. Prahalad who sees the customer networks as an innovation potential. Prahalad states that instead of thinking innovation as an internal privilege of a company the mind-set needs to change. He believes that successful companies are able to co-create with their customers. (Randall 2006, 5.) In another words, some competences may lie partially – or even completely – outside a company. Similarly, Felzensztein, Gimmon, and Aqueveque found benefits of clusters for companies competing global markets in their study. They suggest that horizontal co-operation between companies may even result more innovative marketing strategies. (2012, 400.)

4 STRATEGIC NETWORKS

The role of the public sector in the formation of the strategic networks is discussed in this chapter. In addition, it contemplates the strategic networks from the competence point of view and highlights concrete network managing qualities.

4.1 Concept of strategic network

One potential solution for improving the competence pool that has been discussed in the Oulu region is the formation of strategic networks. BusinessOulu has recognized the value of the alliances and has been monitoring opportunities to support alliance creation for years. However, no steps have been taken towards the realization of the visions. KAATO also brought up the idea in the event organized 2013 to the local companies who were cautiously positive towards the idea.

This work uses the concept of strategic network to describe the "stable, interorganizational ties, which are strategically important to participating firms" (Amit & Zott 2001, 498 citing Gulati *et al.* 2000). As an important addition taken from Möller *et al.* (2002, 3) also the definitions of intentionality and value producing are included to the concept of these networks. Rather than defining the exact positions of different participants of the strategic network, the current researcher concentrates on discussing the high-level dynamics of networking. For this reason, articles discussed may refer to "alliances", "clusters", or "strategic networks". Möller *et al.* (2002, 3) list various types of strategic networks such as "supplier nets, distribution nets, R&D nets, competitive coalitions […], and technology-coalition". All these network types are included in the concept of the strategic network.

The type of the strategic network this thesis research concentrates on is the relationship with complementors, described by Ritter, Wilkinson and Johnston (2003, 5). The relationship with complementors contains network of companies "[…] whose outputs or functions increase the value of their own outputs". As

stated before, the amount of small companies has grown and their collaboration could improve their opportunity to succeed. The examples of the complementor relationship Ritter *et al.* provide are marketing and innovation collaboration, the types of collaboration, which correspond well the needs of ICT companies. Furthermore, they suggest that recombining the outputs of the companies of the network may create new products. (Ritter *et al.* 2003, 5.) In another words, several small companies could combine their output and provide a one solution – a new product – instead.

4.2 Benefits of strategic networks for ICT companies

Alalääkkölä (2013, 38 citing Cabanelas *et al.* 2013) brings up five factors that improve stability of the network: social learning process, trust between the partners, motivation and commitment of the network members, improved collaboration, and reduced opportunism. In order to succeed, the network needs to be able to grow above all these challenges among others. This development in turn requires resources and thorough planning which may have hindered the start of the actions in the Oulu region.

The case study of Alalääkkölä's pro gradu work focused on composing a regional competence network in Oulu. The network in question was created especially to respond the needs of certain international investors. Alalääkkölä (2013, 86) states that this regional competence network was able to raise interest among these investors. He points out that the ready-built networks have stronger opportunity to attract global investors than separate small companies would have.

Ervasti, Pikkarainen and Codenie (2012, 9) present similar findings as Alalääkkölä of the value of forming alliances in their report of Alliance Creator Network. Alliance Creator Network acts as an active link between ICT companies to initiate and improve their collaboration. Interestingly, they see the knowledge deficit in the ICT sector as an aspect that forces companies to act. They especially emphasize the challenges of ICT companies to translate their technical advances

to marketable products. Thus, one of the four focus areas of Alliance Creator Network is go-to-market process. According the report Alliance Creator Network has achieved positive results. Consequently, the actions have included workshops, matchmaking opportunities, and information sharing that all will improve the trust and collaboration among the participants. (Ervasti *et al*. 2012, 12.)

Moreover, Growth Forum 2013 Report (Peltonen, Rönkkö & Mutanen 2013, 26) summarized the challenges that Finnish software companies see limiting their growth. The challenges the companies mentioned were "[…] the shortcomings in sales and marketing, too small size to pursue customers, and the poor availability of able sales and marketing personnel". Furthermore, these three issues were the only ones seen as actual challenges (Figure 3). Consequently, this result follows the views of Alliance Creator Network. The challenges were the same among all the interviewed software companies with one exception: The companies that were one year old or younger did not mention marketing and sales competence as a challenge. Furthermore, Peltonen *et al*. suggest that the reason behind this phenomenon is that the start-up ICT companies mainly concentrate on R&D and do not market their products. (Peltonen *et al*. 2013, 28.)
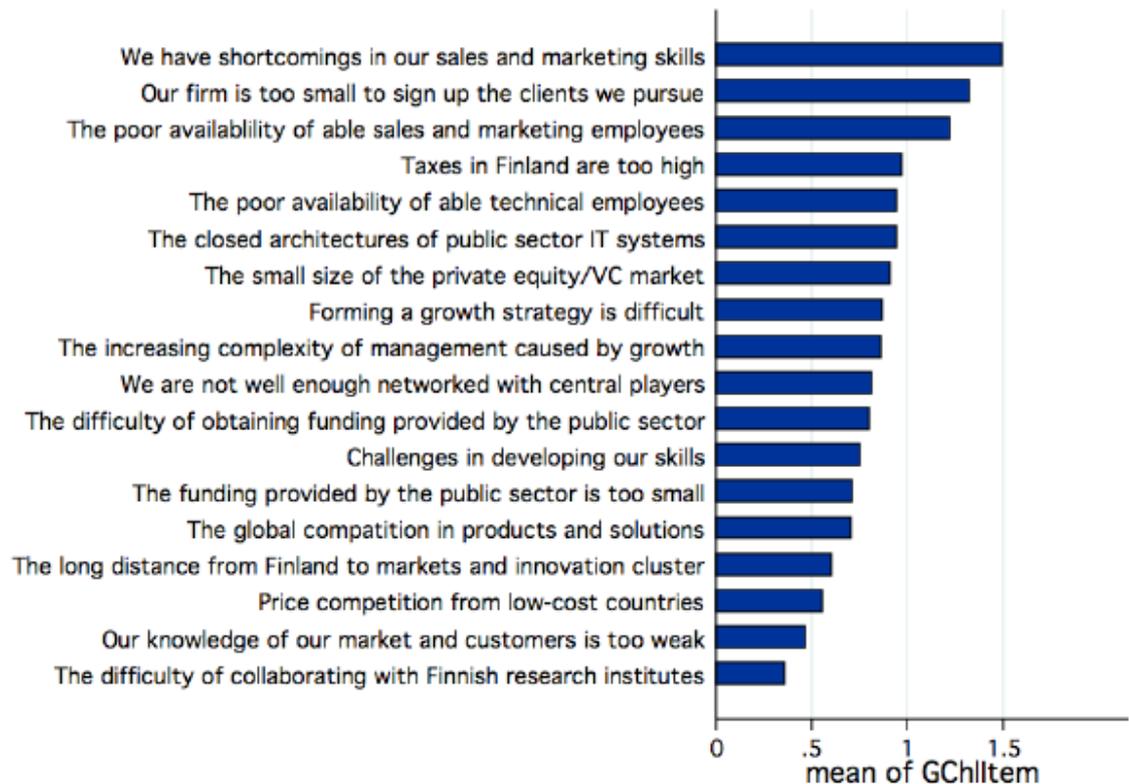
Figure 3. "The most important growth challenges of the average Finnish software firm" (adopted from Peltonen *et al.* 2013, 27)

4.3 Role of the public sector in network creation

The public sector has an important role when considering strategic network creation of companies. For example, Ritter *et al.* state that government agencies are included to relationships with complementors. They see the public sector in a supporting role while companies enter new markets or need relevant information on business field. (Ritter *et al.* 2003, 177.)

This role can be viewed also from a regional policy point of view. According to Andrew Reamer, 26 European nations have included the development of clusters into their development programs. In addition, there are several subnational programs. The roles of the national and subnational programs are complementary in

nature. Whereas the national program provides knowledge and funding, the subnational programs concentrate local aspects, for example regional synergies. (Wessner 2011, 52-55.)

Furthermore, Reamer (cited by Wessner 2011, 52-55) states that the national competitiveness is a function of regional competitiveness. Which in turn is a function of a cluster competitiveness. This chain of relations indicates how successful local clusters benefit the national competitiveness and why it is important to promote cluster work in many levels. He sees the local variation in the actions important as the regions are different and the successful model cannot be directly copied from one place to another.

In addition, Maryann Feldman supports the idea that companies and clusters are locally grounded but globally connected. She brings up the thinking that connections are after all tied between individuals rather than between companies. However, companies also have roots and ties to their location, and therefore these regional connections create need for local support to clustering. Feldman brings up also the fact that many clusters are results of serendipity. Although, there are no means to create coincident deliberately the local officials may alter the environment to be encouraging for the cluster formation. (Wessner 2011, 47-51.)

Ard-Pieter de Man sees the ability to build and manage alliances as an important competence in the future. He states that success or failure of an alliance is not necessarily caused by the alliance itself but rather by the organizations participating and their internal characteristics. Furthermore, successful alliance management requires different skills than managing traditional organizations. (Wessner 2011, 65-71.)

Parkhe goes a step further than de Man does. He suspects that in the concurrent business environment, which alters with furious pace, companies do not have time to nurture the relationships. However, that nurturing is needed when building trust. Consequently, Parkhe suggests that there is an opportunity for companies

to provide a service and act as a matchmaker between the parties. The match-maker would hold and constantly update the key information on companies in addition with the knowledge of their reputation and previous behaviour. Consequently, the role of matchmaker could be seen suitable for the public sector. (Wessner 2011, 119-122.)

4.4   Managing strategic networks - a competence itself

Managing company's strategic networks requires resources as any other business function. In addition to available resources, literature recognizes need for participating companies to possess certain capabilities and features in their culture in order to create successful networks. However, this section concentrates on studying the characteristics required of the individual managing the strategic network of a company. Heimeriks (2005, 29) sees the position of dedicated alliance manager as an important part of a company's network competence and a way to develop firm-wide networking capability. This theory is supported by Sluyts, Matthyssens and Martens (2011, 882) as they suggest "[…] alliance department can establish an infrastructure to support the management of alliances and to enhance the process." Wittman, Hunt and Arnett (2009, 753) see that "[…] alliance competence is more tacit and learned by doing" and emphasize the importance of an experience.

Spekman, Forbes, Isabella, and MacAvoy recognize that the role of the network manager evolves with the time. As characteristics and activities of a strategic network will change when it grows older, the challenges are subject to change as well. (Table 1). At the same time, Spekman *et al.* share the managerial activities to two categories: business and relationship activities. Business activities include activities such as processes, competitive and financial issues etc. whereas the relationship category includes for example development of trust, conflict management, and getting to know the parties. (Spekman *et al.* 1998, 761.)

Table 1. "Alliance life cycle stages and differentiating characteristics" (adopted from Spekman *et al*. 1998, 761)

	Anticipation	Engagement	Valuation	Co-ordination	Investment	Stabilization	Decision
Characteristics of life cycle stage	Pre-alliance Competitive needs and motivation emerge	High energy Complementary Congruence Strategic potential	Financial focus Business cases Analysis Internal selling	Operational focus Task orientation Division of labour Parallel activity	Hard choices Committing Resource reallocation Broadening scope	High interdependence Maintenance Assessment of relative worth and contribution	Where now?
Key business activity	Partner search	Partner identification	Valuation Initiating	Co-ordination Interfacing	Expansion Growth	Adjustment	Re-evaluation
Role of alliance manager	Visionary	Strategic sponsor	Advocate	Networker	Facilitator	Manager	Mediator

Spekman *et al*. point out that the strength of interpersonal ties is especially important when the business faces challenges. These relationships provide shield for example when the goals are not reached or when the expectations are not met. Nevertheless, they warn one being naïve or being comforted to wrongful positive feeling as no interpersonal relationship, however good it is, can save utterly failing business. (Spekman *et al*. 1998, 763.)

Significantly, the managerial qualities of strategic networks have not been researched in the same extent as the organizational qualities. For example, Dealtry (2008, 451-452) sees that there is a significant gap between the current understanding in human resources department and understanding the actual requirements of strategic network manager role. Likewise, Ritter *et al*. state in their research paper 2004 (181) that "[…] the current understanding of network management is limited, which poses implications for managers and researchers alike." Perhaps due the fact, that the importance of the networks keeps growing meanwhile their failure rate is notable, the amount of studies including the managerial qualities has grown in 2010s.

Consequently, the following sections study business and relationship aspects of network management. Further, the first section is dedicated to study personality aspect, as it was touched on in several sources and thus seen important as such.

4.4.1 Personality and perceptions

Instead of seeing managers as homogeneous mass, which makes rational and similar decisions, Pansiri rises the idea of managers being humane individuals whose decisions are result of personal attitudes and experiences (Figure 4). Furthermore, Pansiri suggests that attitudes and experiences influence to decision making concerning strategic networks. Besides, the mind-set influences the manager's way to identify the challenges strategic network faces and the manager's reactions to them. (Pansiri 2005, 1104.) For example, while facing trust issues, proactive manager would start initiatives while reactive manager would lessen the commitment to the network (Kumar & Nathwani 2012, 44). As well as participation to strategic network, also wide array of other choices are result of the cognitive base of manager.
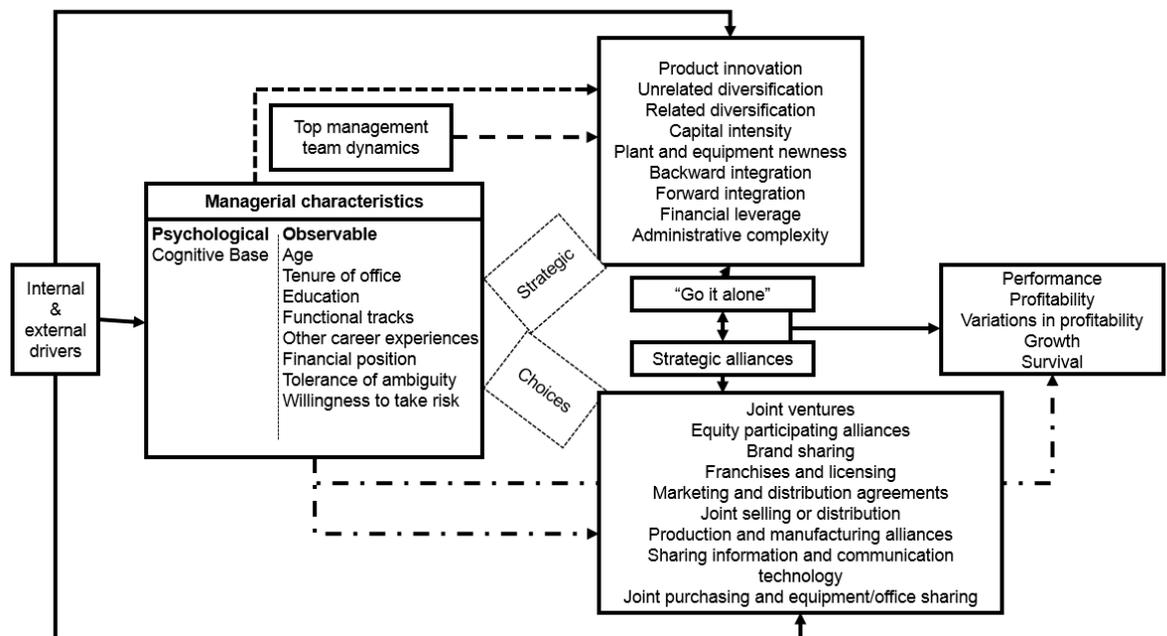

Figure 4. "Upper echelons perspectives of organizations" (adopted from Pansiri 2005, 1098)

Gammoh and Voss on their study of brand alliances came to similar conclusion. They suggest that manager's attitude towards brand alliances along firm's alliance competence predicts a probability to join a brand alliance. In addition, they

found a positive relationship between alliance experience and alliance compe-
tence. This means that also in the area of strategic networks experience grows
competence. However, if the experiences of alliances were negative the compe-
tence grew at lower rate than in companies with positive experiences. Moreover,
the negative experiences also resulted less repetition to participate alliances.
(Gammoh & Voss 2011, 978.)

As the trust among the participants of a strategic network plays such a vital role,
it is important to take every opportunity to promote it. Consequently, participants
can either build or destroy the trust with their personal behaviour. Even trust pro-
motion may sound insignificant, Rampersad, Quester, and Troshani state that the
importance of this aspect should not be underestimated. In their study of "Exam-
ining network factors: commitment, trust, coordination and harmony" they found
out that keeping promises, sincerity, and trustworthiness plays an important role
when building trust between participants. (Rampersad *et al.* 2010, 495.)

4.4.2   Business activities

Dealtry (2008, 451-452) states that designing and managing an alliance requires
experience and multidisciplinary view for vision and strategy. Thus requiring full
time senior role for that position. According to Möller *et al.* (2002, 13) the network
management requires capability to create, transfer, and apply the knowledge cre-
ated in the network. In addition, ability to translate ambiguity and rapid experi-
mentations to processes and coordinated actions is necessary for the network
manager (Möller *et al.* 2002, 13). Also Gueth (2001, 134) emphasizes the im-
portance of refining the best practices to replicable processes. He suggests that
once created those processes can be replicated later along the success when
forming new strategic networks (Gueth 2001, 134).

Gueth presents the case of pharmaceutical company Eli Lilly in his paper. Eli Lilly
has dedicated Office of Alliance Management (OAM) that supports network man-
agers by developing tools and practices, which "cover every phase of the alliance,
from the start-up (building personal relationships and establishing a common

strategic goal within the working team) to aligning partners' capabilities". The first of the two most important tools is the three dimensional fit assessment, which evaluates the compatibility of cultural, operational, and strategic fit between allies. When issues arise, this tool directs the discussion to the facts instead of sentiments. The second one is a web-based survey, which provides information how the participants see the state of alliance. The views can then be compared and interventions can be planned in order to improve the partnership (Figure 5). (Gueth 2001, 136.)
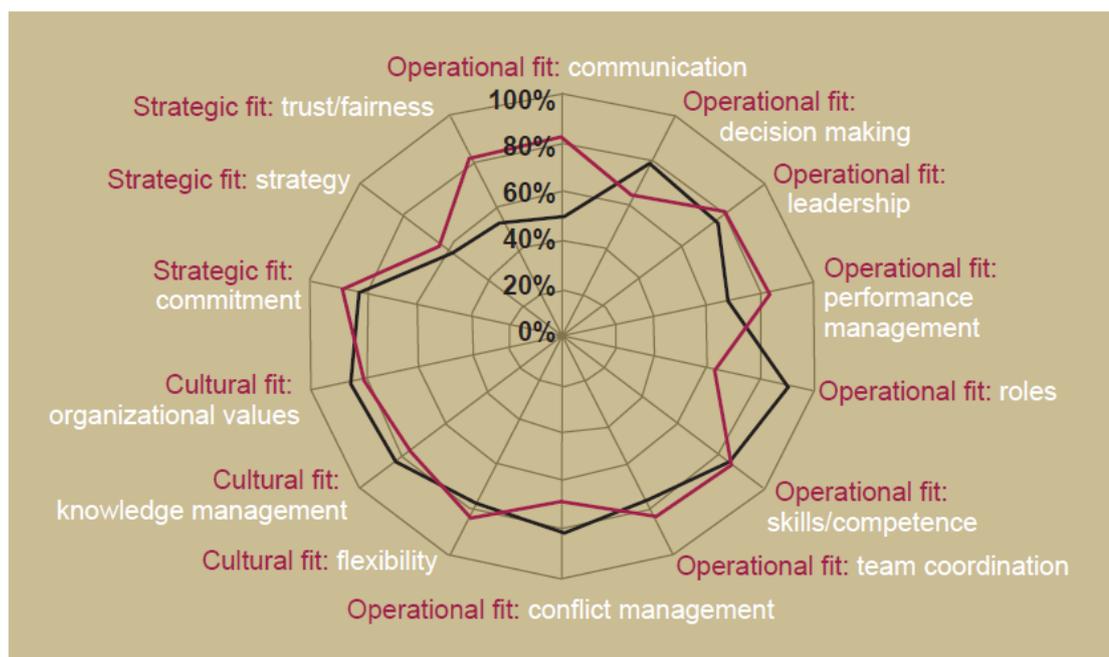
Figure 5. Example of the radar chart: Voice of the Alliance survey shows the findings in each dimension and helps to identify differences in perceptions (adopted from Gueth 2001, 138)

Segil points out in her case study the importance of having common metrics. It is important for a manager to understand that it is not enough to have metrics for his/hers own company but instead for the entire strategic network. These metrics are not static during the existence of the cooperation but rather adjusted according the life cycle of the alliance. When planned carefully in advance the metrics can response to current challenges in the alliance culture and may even prevent common pitfalls. (Segil 2005, 46-50.)

The value of procedures is brought up also by Sluyts *et al.* (2011, 882). They suggest that by creating manuals and guidelines a strategic network manager can collect and organize the knowledge concerning the network activity. By providing these tools and collecting the lessons learned they can spread information for the whole company for adopting (Sluyts *et al.* 2011, 882). Veilleux, Haskel and Pons (2012, 30) see that "[…] documenting learning and disseminating this information throughout the organization is critical to procuring a competitive advantage". However, in their study on biotechnology SMEs they found out that the vast majority of the companies included their study "do not document and do not share the individual learning acquired from involvement in alliances". Veilleux *et al.* continue that in case of key persons move away from the company, all the learnings on the alliances will be lost. (Veilleux *et al.* 2012, 30.) This risk is recognized also by Heimeriks (2005, 29) who states that "If firms do not share the lessons learned, they are more likely to fail as critical knowledge only resides in those who have already learned the lessons".

4.4.3   Relationship activities

Relationships take time to build and instead of financial investments, they base on trust, liability, and collaboration (Wittman *et al.* 2009, 753). Thus, this important part of the strategic network formation is achievable also for companies with limited monetary resources. As company cultures and communication styles may differ radically between participating companies participating the strategic network, it is important for managers to invest in these themes.

Ronco studied real estate alliances and found out that in order to succeed alliance needs successful communication. All employees should be included to the overall communication instead of top management communication only. As Ronco points out, the further the employee is from the top management, the more likely there will be misunderstandings and confusion. (Ronco 1998, 29-32.)

Jefferies, Brewer, and Gajendran (2014, 476) studied critical success factors (hereinafter CSF) of an alliance. Among the most important CFSs they found five

new project specific factors, from which two are related to communication. These two communication factors are "[…] facilitating on-going workshops that include site personnel; and the integration of a web-based management programme". They see that it is valuable to include sub-contractors to workshops where the management can directly discuss with them. Consequently, these "[…] workshops build trust, strong relationships and commitment". (Jefferies *et al.* 2014, 476.) Correspondingly with Ronco, they see the value of information sharing for the whole personnel.

The case Jefferies *et al.* studied involved a large alliance including many companies and a significant monetary investments. Thus, the adoption of separate management tool was viable. Nevertheless, according the study the tool was acknowledged "[…] as being a key factor that led to successful communication between the stakeholders". (Jefferies *et al.* 2014, 476.) Even in case of looser strategic networks with lower business impact, the previous information can be utilized. The parties of the network need a tool to share information, and discuss and overcome the challenges quickly. Whether this tool is a face-to-face meeting or an application depends on the network itself.

While underlining the importance of building pleasant atmosphere among the partners, Rampersad *et al.* point out the need of adequate negotiation skills. Furthermore, they state that it is essential to be able to articulate opinions properly as well as ability to reach fruitful compromises. (Rampersad *et al.* 2010, 495.) Correspondingly, Ronco points out that one-way communication is not enough in a complex situation but managers need to have collaborative communication skills in order to manage alliance successfully. Thus, he requests tools for employees in order to improve their collaborative communication skills and "setting a positive tone, clarifying expectations and providing skills necessary for a successful alliance". (Ronco 1998, 30.)

Kumar and Nathwani underline the importance of managers to understand their own company's motivation to participate a strategic network in their study. While motivation to participate may be to success or to avoid failure, i.e. promotion or

prevention orientation, it influences all the decisions. When recognizing own motivation, decisions can be adjusted and being over-positive or over-cautious can be avoided. Furthermore, Kumar and Nathwani promote the value of understanding the motivation of the other participants. That understanding may help to understand comments and opinions of other participants as they might be stated with different motivational background. If the parties can truly recognize and appreciate each other's views, it may even help to overcome conflict situations. (Kumar and Nathwani 2012, 49.)

5 EMPIRICAL DATA COLLECTION

The questionnaire as well as its results are presented in this chapter (Appendixes 1, 2, and 3). In addition the questionnaire administered among the local ICT companies, one semi-structured interview was carried out (Appendix 4). The interviewee is the project manager from the case company who organized the Automotive Round Table (hereinafter ART) networking project during September 1st – December 31st 2014. It should be kept in mind that the networking projects vary greatly. In other words, ART is an example of a networking project, which targets on improving the regional network of small ICT companies. However, often the alliance examples studied in the literature involved great investments and monetary involvement. This difference is likely to cause differences between viewpoints. The responses from the interview are used in order to elaborate the answers from the questionnaire and reflect against the information collected from the literature. In the final section, the results are reflected against to the literature presented in earlier chapters. This chapter includes also citations from the open answers to the questionnaire.

5.1 Conducting the questionnaire

The questionnaire was planned in cooperation with the experts of the case company. The planning started with choosing the appropriate language; in this case, the questionnaire was conducted in English. The reasoning for the choice is that the respondents may have included also other nationalities than Finns and in

addition, all respondents were estimated to obtain sufficient language skills. The question setting and the expressions used in the questions were finalized together with the colleagues of the thesis writer and thus the parlance was familiar for the business environment in question.

The questionnaire was sent to 272 company representatives via email (Appendix 1). The email itself included a cover letter that briefly presented the functions of the case company and the questionnaire with the link to the questionnaire. This link opened a web page displaying the questionnaire and thus the responses were anonymous. The cover letter was undersigned by the managing director of the case company and the thesis researcher. It was probable that using the name of the managing director improved the response rate, as he is well-known and respected member of the local ICT ecosystem. The list of the 272 respondents was composed from the document created for internal use of the case company. This document combines contact information from all the public sources familiar for the members of the case company as well as the personal additions from them. In order to keep the survey simple and thus improving the response rate the minimum amount of questions was included. This means that only background information concerning the companies were the questions on the size and the type of business.

Until the last response date 37 responses was received which equals the response rate of 13.6%. This result was reached without sending any reminders as strongly recommended by colleagues of the thesis researcher. The motivation behind leaving out the reminders was that according these colleagues, the target companies receive several questionnaires from numerous sources and even gentle reminders might result opposite effects. Furthermore, as the cover letter was undersigned also by the managing director of the case company, the thesis writer did not want to compromise their future contacts towards the companies. The representatives of the case company were satisfied with the result and considered the response rate sufficient.

The questionnaire included four open questions, which provided an opportunity for respondents to write comments with their own words. Even open answers may be complicated to process the thesis writer wanted to maximize the amount of collected information. The decision was also supported by the supposition that the amount of responses was expected to remain moderate. Nonetheless, a positive surprise was that so many respondents took the time to write their own views. However, the responses in general were accustomed in nature and did not present any radical innovations.

5.2 Strong technology competence, marketing needs strengthening

The hypothesis at the case company is that the companies in question are technologically advanced but lack the marketing competence. As an example, Peltonen *et al.* (2013, 26) come to this conclusion in their Growth Forum 2013 Report. Furthermore, they suggest three reasons for the imbalance between technological advancement and lack of marketing competence: First, if the companies are headed by technology advanced people, they might not value the marketing function. Second, the companies may lack able and available personnel capable of marketing complicated software products. Finally, the respondents, targeted CEOs, may have distorted views on the situation and the root cause lies somewhere else than in the marketing function. Peltonen *et al.* (2013, 36-37) continue, "With respect to international markets, however, the survey suggests that obtaining customer contacts, customer references and collaboration partners are the greatest problems".

The responses of this survey resonates with the hypothesis and the survey of Peltonen *et al.* (2013, 36-37) as follows: IT companies also in the Oulu region are stronger on technical areas than in the field of marketing. If the responding company had been recognizing competence limiting their growth the function of marketing and sales is mentioned in 11 cases from 20. From 37 respondents 21 sees that they would like to gain marketing support from the alliance while only 11 companies would like to provide marketing support. The number of 21 companies

interested in marketing competence is by far the highest when compared to others: The second competence that the companies would like to gain from the alliance is UI & Industrial design with 13 responses. The quotes below exemplify the survey responses concerning the interest towards marketing.

"Alliance with other start-ups and marketing experts, controlled cross-marketing between services from the same area, cooperation with schools"

"international marketing and sales, setting up the sales channel, sourcing and logistics"

5.3   Public sector as a catalyst

During the last five years, the business environment of the ICT companies has changed dramatically in the Oulu region due to the closure of big company units and rise of start-ups. These start-ups benefit most of the strategic networks as they can for example improve their market position. Nevertheless, the trust between the participants of strategic networks lays the basis for its success. In return, the trust is result of active and open relationships. Nourishing these relationships requires resources while the time and financial resources especially in the small companies are limited. Here lies the opportunity for the public sector, and the case company, to provide the required resources for relationship building.

As described in section 4.2 the public sector can take on the role of the catalyst. The catalyst may create environment with a positive atmosphere, which provides room for serendipities and an opportunity to create connections. The responses from the interview followed this mind-set. According to the project manager, he sees he is responsible rather for facilitating the process rather than directing it. Furthermore, the project received feedback that it was successful. "… There was "buzz" around automotive and information was shared efficiently".

The responses to the question of "Which support actions you wish to see to overcome these competence challenges?" resonate with the actions proposed in the literature part concerning the strategic network creation. From the 17 responses, eight of the responses mentioned information sharing and/or networking process in some form. Two respondents wish to see support for acquiring competence in to the company and one respondent mentioned the time challenges. The quotes below are examples of the responses mentioning networking process.

"Some way to find contacts and partners in this area"

"building partnerships with other small/mid-sized sw dev companies"

The benefits were similar also according to the project manager of ART. He states, "Especially small companies are really not aware what kinds of research and development activities is going on. It is good to have regular sessions in which these are shared". These information-sharing events provide additionally potential for new opportunities and contacts. (Heikkinen, 2015.)

At the same time, the case company needs to overcome the companies' concerns. These concerns include the lack of fairness and honesty, and the amount of work compared to benefits, as is illustrated in the extracts from the questionnaire.

"If the benefits exceed the burden, we will certainly participate"

"*… but we are most of all team players. The main thing in alliances is that who ever was leading the project at that certain time, the behavior and treatment of the alliance partners must be equal and fair. There must be enough respect to the other companies, and the history and track record must be clean. There shall not be a single black sheep of the family in the alliance, otherwise that alliance will not exist for a longer time. No selfishness or inside couplings within the alliance allowed. Honesty must be the driving force.*"

The concern of burdening work due strategic networks can be overcome with clear requirements and target setting. However, the target itself can differ from pure information sharing to something complex involving monetary investments. In the case of ART, the participants agreed on the tasks together during the discussions. These tasks were selected with two characteristics in mind, i.e. they were practical in nature and could be arranged during the duration of the project. Moreover, the burden can be lowered by taking into account the limited resources of the SMEs, as in the case of ART.

The role of catalyst may dispel doubts and even prevent unwanted behaviour among the participants. When the catalyst is prepared and capable to build fruitful cooperation, the environment is optimal for positive behaviour. Nevertheless, the catalyst is not able to influence the internal decisions of a participating company or motives of an individual. Overall, positive experiences are needed in order to build trust on benefits of strategic networks and to encourage companies to create strategic networks.

5.4   Strategic networking – a managerial choice

The case company wishes to see strategic network creation as a tool in the future to strengthen the companies in the region. Many of these companies are very small start-ups that compete in the global market.

Consequently, most of the responses, 33 pcs, are from the companies employing under 25 persons. One can speculate that small companies are the ones, which would benefit most of the strategic networking and thus were most eager to response to the questionnaire. However, also the remaining four larger companies are all open for the cooperation. Only one respondent does not want to participate on alliance and does not see any benefit on their business due their service model.

"Size of the company. We have surely been here long enough to see that big customers buy from larger enterprises. Large companies invest first, after recession is over."

The question of the reasoning for potential participation to the alliance gained 36 responses. Seventeen of those responses related to the benefits of bigger size. The benefits mentioned were for example stronger position in the market, improved credibility, and company growth. Three respondents saw that alliance would provide an opportunity to use the existing resources more efficiently and concentrate to the core competences. However, the positive effects need to be clarified for the potential participants as not everyone sees the opportunities of the networking, as the following quote of the questionnaire reveals.

 "*Not to be left outside if everyone else is joing. The other benefits of an alliance are unclear*".

It is notable that the respondents recognize the benefits of networking and their responses follow the same logic with the thinking in the case company. It is encouraging to see the corresponding viewpoints, and that promotes the case company to work for strategic network creation.

The literature research in the previous chapters proved that managing strategic network requires competence and this particular field of management is not yet very well known. One might see that the respondents are either well aware of the special qualities of network management or see that field as overwhelming. Either way, only 17 of the all 37 respondents saw that their company has "competence to manage alliances".

"*To last question: I do not know what kind of competences managing an alliance would mean.*"

Among other competence areas, section 4.3 describes the personal level of qualities that influence the choices made towards strategic networks. It is discussed

that the negative experience on alliance slows the competence growth in the alliance management field. This relation may be seen in the question if the company has experience on alliances, in which 17 of the companies responded positively. However, only 11 of these experienced companies saw that they had competences to manage alliance. The following quote presents very positive attitude towards alliances.

"Considering because one big alliance would be much stronger than bunch of small companies alone. Also considering because typically small companies / entrepreneurs / start-ups have personnel that have similar characteristics. They are used to eagerly push forward, endure insecure times, do brave decisions and strive aggressively for the target so they are very easy to work with."

5.5   Analysis

Global competition puts pressure on the ICT companies, independent of their size. The pressure resonates with all areas of the business but especially it creates the need for a constant change in order to stay even on par with the competitors. This is especially challenging for small companies which lack human resources and thus also competence.

It is notable that even the small companies may have valuable core competencies, which are not visible for outside observers. According to the questionnaire responses, several companies in the Oulu region have recognized their core competencies. Accordingly, they wish to be able to concentrate on doing what they are doing best. These companies saw strategic networks as an opportunity to either acquire competence or share the workload with other companies. As it is not necessary to own the resource rather than having a way to utilize them these competence networks could provide solution for the previous mentioned challenge.

Another challenge that rises is the small size of the companies. Again, the ICT companies face global competition where the very small companies may lack the credibility. However, if the small companies are able to work together and provide a total solution they lower the risk of the potential customer. While removing the workload and the risk from the potential customer, small companies become more lucrative partner and can compete for larger projects.

However, this kind of deep cooperation requires deep trust. The same way that the networks are built between individuals instead of companies the trust is built – or destroyed – between individuals. Consequently, some of the respondents of the questionnaire express their concern of deceit or "cherry-picking" when working together. This concern may be only healthy prudence or a result of negative experience. In any case, creating positive experiences on strategic networking substantiates positive attitudes towards them.

Building a relationship where both parties trust each other requires time away from the core business. If the person is suspicious towards the benefits of the strategic networking and commitment to the network is seen as waste of time, the results are not satisfactory. Nevertheless, the presence of the third party may encourage the hesitant parties and provide a positive starting point. The structured work that is led by a neutral contributor may lower the barrier for the participation.

This neutral contributor is a perfect role for the public sector, as the case company, which targets on promoting the local economy and is searching for applicable ways to accomplish that task. To lower the barrier of participation even more, the case company has monetary and personnel resources that are vital for the success. By removing the financial risk from the potential participants of the strategic network, the participation becomes more lucrative.

One could think the public sector as a catalyst. All the ingredients for successful strategic networks are available, but there needs to be someone who provides

the spark. In other words, there needs to be someone who provides the opportunity for the networking. That opportunity may include even such seemingly simple issues as connecting the potential participants, time and date for meetings, and valuable new information concerning the business cluster in question. These factors provide the opportunity to create personal connections between the professionals who would not otherwise encounter. At the same time, the catalyst may nourish the relationships and learn to understand the motivation of the participants.

One of the strengths of the public sector is the holistic view that is required in order to the strategic network to succeed. The case company is a trusted party with access to the wide variety of information and manifold connections from authorities to venture funding. The holistic understanding needs to be characteristic also to the individual managing the network. In addition, the position requires skills especially distinctive for the network management. This person has to have previous management experience and ability to think strategically. Furthermore, he/she needs to pay attention in order to clearly and thoroughly communicate as the communication cultures differ between companies.

Considering everything, there is a natural role for the case company as a catalyst in order to help companies form strategic networks with local characteristics.

6 PROPOSAL FOR THE CASE COMPANY

The concrete ideas the case company may use in their work of supporting ICT companies in the Oulu region are presented next. The concepts and methods are generated from literature and the empirical studies to response the specific challenges the business ecosystem in question suffers. However, as stated earlier, ICT environment is under constant change and correspondingly the ways of support should evolve.

Both literature and the empirical studies support the idea of natural networking as an opposite of pushing companies into cooperation. As ICT companies operate typically in volatile global markets, the form of cooperation needs to respond the requirements of these markets. Natural and versatile networks may be quicker to respond compared to artificial and bureaucratic ones. Furthermore, many of the companies interested in the strategic networks are small and thus comprise personal risk to the entrepreneur. Consequently, the entrepreneur may be hesitant to join network if he/she feels that it results losing the independence and increasing unnecessary risks.

6.1 Establishing the productive environment

It is important to create trust and confidential atmosphere while encouraging strategic networking. Nevertheless, this atmosphere requires personal involvement. Furthermore, nurturing personal connections is time consuming and requires resources. Here would lie a natural role for the case company. Providing a framework for selected ICT cluster and generating the positive ambience around it is valuable part of strategic network creation. When the atmosphere becomes successful, it attracts interested parties and expands spontaneously.

The project itself would start with the case company hiring project managers for catalysing the network creation. These responsible managers should fulfil the criteria of a good manager, but also have enough experience and domain expertise.

The catalyst work would start by cross checking national and regional strategies, future views of ICT business, and the local ICT company base. This task requires understanding of the local ICT business and at the same time experience to assess economic trends. Then, the manager could proceed selecting the business cluster to proceed. There are several options for selecting the participating companies, one being inviting participants with complementing core competencies. This option could minimize competition between participants and provide opportunity to create end-to-end service.

The second task would be defining the targets and metrics. These targets and metrics should be adjusted during the project, in the best case together with the participating companies. It is important that the strategic network project has a clear time line and participants see the opportunities linked to their contributions to keep them motivated and committed.

On the one hand, the project needs tangible aspects to build credibility, but on the other hand, it also needs a positive atmosphere that creates sense of innovation. The manager is in a key position to set the tone for the project with his/her personal attitude, either optimistic by believing to the success or doubtful and negative. Consequently, when the atmosphere is positive and active there are opportunities for bottom-up alliance creation and serendipity.

6.2   Improving the strategic network management competence

According to the literature research, network management is a competence itself and even seasoned manager needs additional skills for successful performance. In order to overcome this competence gap, the case company could arrange a network management training. This training would provide information about the

specific challenges of the networks as well as training of the skills that are especially needed. For example, communication and goal setting are the type of skills that could be included to the training. If the demand is high enough, the training could be repeated. The later trainings would be adjusted with learnings and comments from the previous experiences.

The planning of the network management training could start at the same time with the networking project presented in the previous section. The training becomes more valuable if it can respond to the issues brought up by the participants of the project. Moreover, the project managers are valuable source of information when modifying the training to correspond the unique local circumstances.

One of the main targets of the training would be to expose the common pitfalls and challenges, and to provide some concrete tools to overcome them. Sharing the success stories and understanding the failures would provide the aspect of real business life. Additionally, it is important the trainer to have personal experience of strategic networks. These before mentioned factors create credibility for the training, which is needed especially if the trainees have reservations towards strategic networks.

The tools to be included into the training could be following:

- evaluating the compatibility of the partners

- evaluating the health of the network

- the metrics

- framework for communication

- collecting and delivering the lessons-learned

Particularly, if the trainees are already involved in a strategic network they can identify suitable tools for their individual needs. As the strategic network managers should already have managerial experience, they possibly are familiar with the proposed themes in general. Then again, the role of the trainer is to emphasis

the challenges characteristic for the networks and guiding the trainees how to solve them.

At the same time, the training is an opportunity to network – which should be kept in mind when selecting the participants. The participants from the networking project would be natural participants for the training, but also supporting and complementary companies could be encouraged to participate.

6.3   Next steps of the projects and the training

Sharing the results of the actions presented in the earlier sections for interested ICT companies is important. While keeping confidentiality, it is possible to publish lessons learned document presenting the networking project. On the one hand sharing the learnings provides information for other companies to utilize and on the other hand, it reinforces the positive atmosphere.

Furthermore, that information may encourage new companies to build strategic networks. The case company could also consider, if there is enough resources and need, providing catalyst services for any interested companies. In case a group of companies recognises a business opportunity but lacks an ability to move forward with the strategic network creation, a catalyst service might overcome that challenge. The awareness of having an external party with experience of networking process might provide the final piece of assurance to start building cooperation. In addition, when problems arise the third party would be able to provide tools to solve the problems.

6.4   Networks of the case company

After all, it is important to practice what you preach. The case company is established to keep alive and utilize the wide networks created during the Nokia era. These networks can be exploited while organizing the projects and trainings. The

people previously working for Nokia can be found in many different business fields. As an example, almost the entire Nokia Bochum unit was relocated to BMW and thus providing a gateway to automobile industry. These networks are valuable when sharing success stories, planning the requirements of customer cases, needing a sparring partner, or when searching for potential customers.

In order to be a credible partner for companies, the case company could benchmark and network with strategic network projects from the other regions. Even the characteristics may wary from district to district; innovative solutions can be studied and adapted. Exchanging fresh ideas between other public sector representatives may open new views and opportunities. Ultimately, being active is important. It is impossible to know beforehand which discussion will be the one to open new doors.

7 CONCLUSIONS

The overall economic situation seems to be slowly improving, while the influence of the recession still touches the economy. For example, during 2013-2014, several large ICT companies either collapsed or closed their functions in Finland, and consequently their subcontracting companies were suddenly without customers. As a result, these SME subcontractors needed to redefine their business models and massive amount of ICT professionals ended up unemployed.

However, there are encouraging signals indicating positive development. For example, the Oulu region has been able to attract banking companies and automotive industry to open a unit or at least study the opportunities. Their motive has been the availability of highly trained ICT professionals. At the same time, the spirit has been rising and new companies have been started alongside the existing SMEs.

The challenges of these ICT SMEs relate to the size, as they compete in the global market. The change in the global market is continuous and the pace is rapid. Especially in the ICT sector the pressure of change leads to the need of constant updating of the competences. While these companies may have valuable core competences, their small size may lower the credibility. Additionally, these companies are frequently technology driven and their marketing efforts may be either pending or neglected. Consequently, the lack of marketing communication weakens their opportunities to attract customers.

The case company operates in the public sector and their aim is to support the Finnish ICT industry. The case company is concerned about the vanishing of the regional ICT expertise, and wants to support the employment of the professionals as well as the success of the growing cluster of ICT SMEs. The case company wants to encourage the growth of the networks, as they believe it could help the companies to overcome these challenges.

The results of this thesis research indicate that the public sector has a great opportunity to act as a catalyst and to create opportunities for natural networking between companies. The case company could act as a neutral party that creates concrete events for company representatives to meet each other and the key people of the industry. At the same time it can reinforce the atmosphere and create the positive "buzz", that is needed in order to networking to happen.

The public sector has resources to nourish the relationships that improves the trust, which in turn is the crucial basis for the networks. Organizing the activities requires also resources while the actual monetary outcome may result years after. However, the small companies who would benefit most of the networks do not have the time or the money to invest without clear potential of profit making.

The benefits of strategic networks for small companies include the ability to compete for larger contracts together rather than separately. This kind of networking, though, requires actually profound cooperation and collaboration. Additionally, as these companies are lacking marketing competence and apparently are hesitant about recruiting, the strategic network could provide new ways for competence adoption.

Managing strategic networks, as a company function or as a facilitator, requires managerial experience. Additionally, some characteristics need special attention, for example communication and evaluation of the project. In order to provide tools for the individuals participating strategic networks, the case company could organize training that could increase the success of the networks. After all, the networks are created between individuals whose capabilities either improve or impair the accomplishments of the strategic networks.

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APPENDICES

Appendix 1.   Cover letter

Appendix 2.   Questionnaire form

Appendix 3.   Questionnaire results

Appendix 4.   Interview with project manager Teuvo Heikkinen, Automotive round table

Appendix 1

Cover letter

Dear recipient,

KAATO supports ICT sector and catalyses actions on improving the conditions for success. We have been contacted by several investors interested in larger entities. In order to better serve you we would like to hear your views on competencies and alliances.

In order to proceed in this field we have generated a questionnaire which includes 10 questions and takes 6 minutes of your time. The responses are anonymous.

Please, provide the answer by 7ᵗʰ February.
Link to the questionnaire

Thank you for your time and cooperation
Arto Pussinen
Managing partner, KAATO

Satu Naula
Marketing ninja, KAATO

In case you are not able to open the embedded link copy the address https://docs.google.com/forms/d/1DoaaKmp4RcOP0hJPxxb0-GZlwtb-ZQ8U4upipN5LMVE/viewform and paste it to the address field.

Appendix 2 1(2)

Questionnaire form

Competence & alliance questionnaire

This questionnaire includes first 2 company profile questions, then 3 competence related questions, and last 5 questions related to alliances.

* Required

What is included in your company's business model? *

	Included to the business model	Not included
B2B products & services	○	○
B2C products & services	○	○
Subcontracting, Blackbox	○	○
Subcontracting, Resource hiring	○	○

Size of the company *

How many people is directly working for your company?

- ○ 1-10
- ○ 11-25
- ○ 26-100
- ○ 101-250
- ○ 251-

Have you recognized any missing competences that limit your company growth? *

- ○ Yes
- ○ No

If yes, please list the competencies limiting the growth. [Open question]

Which support actions you wish to see to overcome these competence challenges? [Open question]

Has your company been participating in alliance-type of cooperation? *

- ○ Yes
- ○ No

Appendix 2 2(2)

Would you consider participating alliance in the future in the following fields of expertise?

	Contribution to the alliance	Getting from the alliance
Research	○	○
Marketing & Sales	○	○
UI & Industrial design	○	○
R&D: Architecture	○	○
R&D: HW	○	○
R&D: SW, Embedded	○	○
R&D: SW, Internet	○	○
Production	○	○

If other, please specify

What are the reasons for considering participation / not considering participation? * [Open question]

Do you see that your company has competences and resources to manage alliances? *

- ○ Yes
- ○ No

Additional comments
If you wish to leave an additional comment, feel free! [Open question]

Appendix 3 1(7)

Appendix 4 1(4)

INTERVIEW WITH TEUVO HEIKKINEN, THE PROJECT MANAGAGER, WAS CONDUCTED ON 19TH MARCH 2015

Interviewer: - What was your role in the project?

Interviewee: - I took discreet, even a low-key, role right from the beginning. I see myself rather server than a director. One must keep in mind that the companies make their decisions independently and I do not have any decision power, only influencing power. Furthermore, it is important to understand that this project is not the most important thing for the companies. I have to take relevance and timing into account when contacting and engaging the companies. This project should not become burden for them. In addition of organizing the events I have visited all the companies in order to reflect their views on the project. In addition, these visits have helped me to improve relationships and to understand better the business of the participants.

Interviewer: - How you see the role of your organization?

Interviewee: - In my opinion the public sector can help to create the buzz and building the networks. The way I see it, there needs to be someone who organizes events and buzz, and puts the processes in place. Or for example it can help in organizing joint marketing.

Appendix 4 2(4)

Interviewer: - What were the tasks of the project?

Interviewee: - Initially there was only one task defined: Run the automotive round Table. As one sense you can call this a project, because it had time limit. But we could think that this was not a project but a process, in which companies shared information about their common interests. Also as such no definite objectives were set. The other tasks were created during the round table discussions. The first one: exploring training possibilities for automotive area: technology and business and the second one: exploring automotive related research in Oulu. Of course, the nature of task setting depends of the nature of the networks. We are trying to create general buzz around the automotive industry in the Oulu region, and that way to make this region lucrative. As long we do not have money involved from the participating companies, the commitment is not that strict. Consequently, I can only manage my own schedules as I only have influencing power.

Interviewer: - What were the means selected?

Interviewee: - Needed training areas were discussed within the round table team and summary document was created. Based on that some discussions were carried out with OAMK and Oulu University. To strengthen business understanding "automotive business seminar" was arranged and research update seminar from Oulu University was arranged (M group, Hilla- program).

Interviewer: - Why these means were selected?

Interviewee: - They were practical and could be arranged 1.9-31.12. 2014.

Appendix 4 3(4)

Interviewer: - What were the concrete outcomes?

Interviewee: - First, automotive seminar, with excellent speakers from automotive industry and smart traffic. 35 participants. Seminar was focusing on topics how automotive business operates and what are value chains, how small company can succeed, smart traffic business opportunities, and opportunities in special machinery. Second, seminar of Oulu area research took place, where research projects related to automotive SW development were introduced, Hilla program was introduced, and Stargate program was introduced. Third, M – group from Oulun University made a proposal to start Automotive Spice training (this effort continues during spring). And, this is perhaps not direct outcome of these activities, but OAMK adopted automotive as one area into Applab training programs. Companies which were part of round table are now looking ways to collaborate with Applab.

Interviewer: - What were the lessons learned?

Interviewee: - In Round Table we have quite many different size and type of companies and thus many topics are not in common interest. Especially small companies are really not aware what kind of research and development activities are going on. It is good to have regular sessions in which this information is shared, as they provide potential new opportunities and contact. This project seems to be important for the companies participating. However, when the project was ending and I proposed the participants to continue the work independently the response was that it will not happen. The participants have their duties that overdrive this kind of work.

Appendix 4 4(4)

Interviewer: - How would you evaluate the project?

Interviewee: - As said, this was not perhaps a project rather a process, because
no definite objectives were set. The objectives were set rather
general level. First, to strengthen the domain expertise. And sec-
ond, to create the networking opportunities, also with the speakers
in the seminars. It is difficult to evaluate Automotive Round Table
as a project, but we received good feedback, that there was buzz
around automotive and information was shared efficiently. I think
we were quite successful last autumn, taking into account the
short time and quite small amount of resources. We kicked off
quite much positive buzz. One evidence of the success was that
companies asked continuation for the work. Consequently, Invest
In Finland -team recruited me to continue the work during spring
2015 and also to contribute the automotive area related growth
program.

Interviewer: - Were the attitudes of the participants changing towards network-
ing? How?

Interviewee: - I was engaged to this project from 1st August to 31st December
2014, so it is too short period to observe attitude changes.