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## Survival competencies in SMEs in changing business environments

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# Survival Competencies in SMEs in Changing Business Environments

Doctoral thesis

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*Kyllikki Taipale-Erävala*

## ABSTRACT

The thesis examines the competencies that enable business survival in changing business environments from the perspective of Russian and Finnish micro, small, and medium-sized enterprises in the field of forest industry. Additionally, it studies the competence transformation necessary in SMEs for successful continuation of business operations when a firm considers transferring its business to another industry. The dissertation builds a holistic firm-level view of survival competencies for SMEs facing changes in their business environments. The holistic firm-level view of competencies includes both the individual-level and the firm-level perspectives, regardless of the position of the person in a firm.

The findings highlight the importance of high-level individual competencies and the ability to perform versatile tasks in a firm. In addition, continuous business environment scanning, self-evaluation of personal competencies, willingness to renew and change, open-mindedness, and a readiness to network, are competencies that belong to and need to be taken care of by everybody – employees and employers – in a firm. In addition to previous competencies, an ability to manage every-day business also needs to be embedded in SME owners/managers. Furthermore, Russian SMEs seem to be more proactive in change situations, when compared with Finnish SMEs, which are used to operate in a more stable business environment. In conclusion, it can be said that the thesis adds to SME literature by introducing the concept of ‘SME-level competencies’, a combination of previously discussed organisational and networking competencies which are needed in order to survive through change. Furthermore, the thesis concludes with new competence classifications, such as operational and change competencies, which offer new information concerning the required competencies by which a firm may reduce the resistance to change that can hinder business renewal.

For SME practitioners, the study suggests proper preparation and proactive operations in their business to reduce the influence of endless changes, and reminds SME owners/managers that changes are, however, a significant source of new business opportunities. For educational players, the study suggests upgrading educational and training systems by improving the training as regards attitudes towards work, and especially training in the comprehensive working abilities needed in SMEs to master diverse tasks. Finally, for public actors the study suggests providing stronger support to entrepreneurs by boosting SMEs entrepreneurial conditions and the existing business possibilities in change situations. This can be done by encouraging a legislative and entrepreneurial climate that responds better to the demands of SMEs.

Keywords: competence, competencies, SMEs, survival, Finnish, Russian, changes, forest industry

## REFERAT

Denna avhandling undersöker kunnandet som har möjliggjort ryska och finska mikro, små och medelstora företagens överlevnad inom skogsindustrin som möts av förändringar i sin affärsomgivning. Dessutom undersöks förändringar i kunnandet i mikro, små och medelstora företag (SMF) som är nödvändiga för fortsatt framgångsrik verksamhet då företaget överväger att överföra sin verksamhet till andra branscher.

Denna avhandling bildar en helhetssyn på överlevnadskompetenser på företagsnivå för SMF som möts av förändringar i sina affärsmiljöer. Denna helhetsbild av kunnandet omfattar både individers och företagets kunnande utan att ta hänsyn till personens uppgift i ett företag.

Forskningen betonar vikten av individuellt kunnande på hög nivå och förmåga att utföra mångsidiga arbetsuppgifter i ett företag. Kontinuerlig uppföljning av affärsomgivningen, självutvärdering av det egna kunnandet, vilja att förnya och förändra, och fördomsfrihet och beredskap för nätverkande, är kunnande som behövs och som skall tas hand om av alla i företaget, såväl arbetstagare som arbetsgivare. Utöver dessa kompetenser, behöver SMF:s ägare/chefer ha förmågan att leda och sköta de vardagliga affärerna. Resultaten ger också antydningar om att ryska SMF är mera proaktiva i förändringssituationer i jämförelse med finska SMF, som är vana att arbeta i en stabilare affärsomgivning.

Som slutsats bidrar forskningen bl.a. med formuleringar för en kombination av tidigare diskuterade organisatoriska och nätverkskunnande, dvs. "SMF kunnande", som behövs för att överleva förändringar. Därtill har avhandlingen tagit fram nya klassifikationer för kunnande, såsom verksamhets- och förändringskunnande, som erbjuder ny information om det nödvändiga kunnande genom vilket ett företag kan minska förändringsmotstånd som hindrar affärsförnyelse.

För aktörer inom SMF föreslår denna forskning ordentliga förberedelser och proaktiva åtgärder för att minska de ändlösa förändringarnas effekt på affärsverksamheten, och påminner de små och medelstora företagens ägare/ledare att förändringar är en viktig källa för nya affärsmöjligheter. För utbildningsorganisationer föreslår undersökningen en uppdatering av utbildningssystemen genom att förbättra fostran i attityd till arbete och framför allt utvecklandet av omfattande arbetskompetenser och förmågor som behövs för att bemästra olika uppgifter i små och medelstora företag. Slutligen, föreslår avhandlingen att de offentliga aktörerna skulle ge starkare stöd till företagare genom att förbättra förhållanden för företagare och befintliga affärsmöjligheter. Genom att påverka lagstiftningen och företagarklimatet kan man bättre svara på SMFs krav i förändringssituationer.

Nyckelord: kunnande, små och medelstora företag (SMF), överlevnad, finska, ryska, förändringar, skogsindustrin

## TIIVISTELMÄ

Väitöskirja tutkii osaamista, joka mahdollistaa liiketoiminnan jatkumisen toimintaympäristön muutoksissa venäläisissä ja suomalaisissa mikro-, pien- ja keski-suurissa yrityksissä metsäteollisuuden alalla. Tutkimus käsittelee myös osaamisen muutosta tilanteessa, jossa Pk-yrityksen harkitsee liiketoiminnan siirtämistä toiselle toimialalle jatkaakseen toimintaansa valitulla alalla menestyksellisesti. Väitöskirja muodostaa Pk-yritystasolla olevan kokonaiskuvan selviytymisosaamisesta, jonka avulla yritykset pystyvät kohtaamaan liiketoimintaympäristönsä muutokset. Kokonaiskuva muodostuu sekä yksilö- että yritystason osaamisesta riippumatta henkilöiden toimenkuvista.

Tulokset painottavat liiketoiminnan säilyttämisen kannalta tärkeinä korkeatasoista yksilöosaamista ja kyvykkyyttä suorittaa monipuolisia töitä yrityksessä. Lisäksi jatkuva liiketoimintaympäristön seuraaminen, oman osaamisen itsearviointi, halukkuus uudistua ja muuttua, ennakkoluulottomuus ja valmius verkostoitua, ovat kaikki sitä osaamista, joka kuuluu jokaiselle yrityksessä työskentelevälle, ja josta jokaisen on huolehdittava. Edellisten lisäksi, kyky johtaa ja hoitaa arkipäivän liiketoimintoja kuuluu lisäksi Pk-yritysten omistajille/johtajille. Vertailtaessa venäläisiä ja suomalaisia Pk-yrityksiä, venäläiset Pk-yritykset näyttävät huomiovien muutokset energisemmin kuin suomalaiset Pk-yritykset, jotka ovat toimineet vakaammassa liiketoimintaolosuhteissa.

Väitöskirja lisää Pk-yrityskirjallisuuteen mm. aikaisemmat organisaatio- ja verkosto-osaamisen yhdistävän termin 'Pk-osaaminen', jota tarvitaan selviytymään tapahtuvissa muutoksissa. Väitöskirja on päätenyt myös uusiin osaamislukitteluihin, kuten toiminnalliseen osaamiseen ja muutososaamiseen, ja tarjoaa täten uutta tietoa vaaditusta osaamisesta, jonka avulla yritys voi vähentää liiketoiminnan uudistumista estävää muutosvastarintaan.

Väitöskirja ehdottaa käytännön toimina Pk-yrityksille kelvollista valmistautumista ja ennakoivuutta vähentämään loputtomien muutoksen vaikutusta liiketoimintaansa. Lisäksi Pk-yritysten omistajille/johtajille muistutetaan, että muutokset ovat kuitenkin merkittävä uusien liiketoimintamahdollisuuksien lähde. Koulutusten järjestäjiä kehoitetaan parantamaan koulutusjärjestelmiä siten, että ne kohdistuvat työasenteisiin ja varsinkin kattavien, Pk-yrityksissä tarvittavien taitojen ja työtehtävien hallintaan. Julkisia toimijoita suositellaan kohdentamaan voimakkaampaa tukea yrittäjille parantamalla Pk-yritysten yrittämisen olosuhteita sekä olemassa olevan liiketoiminnan mahdollisuuksia. Toimet lainsäädännössä ja yrittäjyysilmastossa vastaavat parhaiten Pk-yritysten tarpeisiin.

Avainsanat: osaaminen, Pk-yritykset, selviytyminen, suomalainen, venäläinen, muutokset, metsäteollisuus

# Table of contents

Acknowledgements.....	i
Abstract .....	ii
Referat .....	iii
Tiivistelmä.....	iv
Table of contents .....	v
List of figures .....	vii
List of tables .....	vii
List of publications and Author's contribution .....	ix
Abbreviations.....	xi

## PART I OVERVIEW OF THE DISSERTATION .....1

1. INTRODUCTION .....	3
1.1 Motivations for the study.....	3
1.2 Background and research environment .....	4
1.3 Research questions .....	10
1.4 Positioning the research .....	12
1.5 Structure of the thesis .....	14
2. THEORETICAL ASPECTS OF THE STUDY .....	16
2.1 Entrepreneurial approach.....	16
2.1.1 Schumpeterian innovation theory.....	17
2.1.2 Entrepreneurial process and entrepreneurship .....	18
2.2 Competence and competencies.....	20
2.2.1 The definitions of competence and competencies .....	21
2.2.2 The role of competencies in business.....	23
2.2.3 Generic competencies supporting business.....	24
2.3 SMEs and their business survival by competencies.....	29
2.3.1 Micro, small and medium-sized enterprises.....	30
2.3.2 Survival components in SME.....	33
3. RESEARCH DESIGN .....	38
3.1 Research philosophy.....	38
3.2 Research approach and research method .....	39
3.3 Research process, selection criterion and sample objectives .....	42

3.4 Data collection approach and data collection method .....	43
3.4.1 Sample A, Russian SMEs .....	44
3.4.2 Sample B, Finnish SMEs .....	45
3.4.3 Sample C, innovative SMEs.....	46
3.4.4 Sample D, SMEs in competence transformation .....	47
3.5 Analysis approach and analysis methods .....	49
4. SUMMARY OF THE PUBLICATIONS AND REVIEW OF THE RESULTS .....	52
4.1 Publication 1 – A literature overview of competence identification in SMEs .....	52
4.2 Publication 2 – Survival competence in Russian SMEs in a changing business environment.....	55
4.3 Survival skills in SME - continuous competence renewing and opportunity scanning.....	57
4.4 Publication 4 – Entrepreneurial competencies in innovative SMEs .....	61
4.5 Publication 5 – SME competence transformation – a case study on industrial structural change .....	64
4.6 Main findings of the publications.....	67
5. DISCUSSION AND CONCLUSIONS .....	71
5.1 Summary of the results with discussion.....	71
5.2 Answers to research questions .....	80
5.3 Theoretical contributions and implications .....	87
5.4 Practical implications.....	90
5.5 The evaluation of the research.....	92
5.6 Limitations of the study and suggestions for further research .....	97
References .....	99
Appendices .....	111

PART II PUBLICATIONS.....	119
Publication 1 .....	121
Publication 2 .....	141
Publication 3 .....	161
Publication 4 .....	183
Publication 5 .....	211

## LIST OF FIGURES

Figure 1. Contribution of the publications to the research questions .....	11
Figure 2. The theoretical and empirical positioning of the thesis.....	13
Figure 3. Structure of the thesis .....	15
Figure 4. Entrepreneurial and competence approach in the thesis .....	16
Figure 5. A model of the entrepreneurial process (modified Shane, 2003: 11, 12) .....	18
Figure 6. Competence – competency interface (Sanghi, 2007: 8).....	21
Figure 7. Survival competencies in the literature.....	36
Figure 8. Item triangulation and separate group, sample D .....	48
Figure 9. Results of competence identification in the literature .....	53
Figure 10. Entrepreneurial process (Shane 2003; modified) and the difficulty of returning back to earlier phases .....	60
Figure 11. Theoretical and empirical survival competencies found in SMEs ...	73
Figure 12. Supporting competencies .....	83
Figure 13. Preliminary process model for a business transfer to another field of industry.....	85
Figure 14. Summary of the dissertation results .....	86

## LIST OF TABLES

Table 1. Generic competencies supporting business as presented in the literature.....	27
Table 2. Definitions of competencies applied in this thesis .....	29
Table 3. Definition of SMEs in EU, in euros (EC, 2014) .....	30
Table 4. Definition of SMEs in Russia, using turnover in euros (European Investment Bank, 2013: 6; Federal law #209-FZ, 2007) .....	31
Table 5. Selection criterion, sample C.....	47
Table 6. Summary of data descriptions related to publications.....	50
Table 7. Summary of the publications in the thesis .....	68

Table 8. Specific competencies enabling survival, their effects and the individuals involved.....	82
Table 9. The trustworthiness of the research process (modified Erlandson et al., 1993).....	94
Matrix 1. Empirical specific survival competencies in SMEs.....	229
Appendix 1 .....	112
Appendix 2 .....	113
Appendix 3 .....	114
Appendix 4 .....	115
Appendix 4 .....	116

## LIST OF PUBLICATIONS AND AUTHOR'S CONTRIBUTION

This thesis consists of an overview (Part I) and related publications (Part II). The publications included in Part II are listed below, together with information on their review processes and the contribution of the present author of this thesis. All publications are published (Publication 4 is in process) in international, double-blind, peer-reviewed journals or conference proceedings. In all publications the author was a corresponding author.

### Publication 1

Taipale-Eräväla, K. and Lampela, H., 2011. A literature overview of competence identification in SMEs, in IFKAD – 6th International Forum on Knowledge Asset Dynamics: Knowledge-Based Foundations of the Service Economy, Tampere, Finland, 15-17 June 2011, 2011, CD-publication, 18 pp., ISBN 978-88-96687-05-5.

The author designed the research plan, conducted with a co-writer the literature review, analysed the results, and drew the conclusions of the paper. The author was responsible for a coordination of writing the paper. The paper was jointly written.

### Publication 2

Taipale-Eräväla, K., Heilmann, P., and Lampela, H., 2014. Survival competence in Russian SMEs in changing business environment, *Journal of East-West Business*, Vol. 20, No. 1, pp. 25-43.

The author designed the research plan, reviewed with co-writers the existing literature, gathered the data in Russia and in Finland, and conducted the analysis and results. The author coordinated the writing process and was responsible for combining the texts with the coherent whole of the jointly written paper.

### Publication 3

Taipale-Eräväla, K., Lampela, H., and Heilmann, P., 2015. Survival Skills in SMEs: Continuous Competence Renewing and Opportunity Scanning, *Journal of East-West Business*, Vol. 21, No. 1, pp. 1-21.

The author designed the research plan, reviewed with co-writers the existing literature, gathered the data in Russia and in Finland, and conducted the analysis and results. The author coordinated the writing process and was responsible for combining the texts with the coherent whole of the jointly written paper.

## Publication 4

Taipale-Erävala, K., Henttonen, K., and Lampela, H. (forthcoming). Entrepreneurial competencies in innovative SMEs. Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

The data was gathered in Finland in a former project of NicheInno, where the author participated as a specialist. The author designed the research plan for the paper, reviewed with co-writers the existing literature, analysed the data, and conducted the results. The author coordinated the writing process and was responsible for combining the texts with the coherent whole of the jointly written paper.

## Publication 5

Taipale-Erävala, K., Heilmann, P., and Lampela, H., 2014. SME competence transformation – a case study on industrial structural change, International Journal of Business Innovation and Research, Vol. 8, No. 3, pp. 265-281.

The author designed the research plan, reviewed with co-writers the existing literature, gathered the data, and conducted the analysis and results. The author coordinated the writing process and was responsible for combining the texts with the coherent whole of the jointly written paper.

## ABBREVIATIONS

CC	Change competencies
CPV	Competence-based view
EC	Entrepreneurial competencies
EC	European Commission
EU	European Union
HRD	Human resource development
HRM	Human resource management
IC	Individual competencies
KBV	Knowledge-based view
MC	Managerial competencies
NC	Networking competencies
OC	Organisational competencies
OECD	Organisation for Economic Cooperation and Development
OpC	Operational competencies
RBV	Resource-based view
SMEs	Micro, small and medium-sized enterprises
TTEC	Template of typical entrepreneurial competencies
VET	Vocational education and training



# PART I

## OVERVIEW OF THE DISSERTATION



# 1. INTRODUCTION

This thesis focuses on business survival enabling competencies in changing business environments from the point of view of micro, small, and medium-sized enterprises. Therefore, the aim of the study is to offer new information on a holistic competence phenomenon for SMEs in order to survive in business. This section introduces the objective of the study in the form of the research questions, as well as the research background, and positions the study into the theoretical and empirical environment. Additionally, the section provides information concerning the structure of the thesis.

## 1.1 Motivations for the study

The researcher's motivation to study micro, small, and medium-sized enterprises (SMEs) firstly arose as an interest in how societies, politicians, and the public media have more or less disregarded the economic impact of SMEs despite their obvious positive impact on the economic situation and employment. Large companies dominate the news in TV, radio, and economic newspapers so that any news concerning SMEs is marginalised, which does not reflect their real economic impact. This minority share of the visibility in the media unfortunately generates a common image of which companies are worth reporting on, and which are not. This, in turn, influences the behaviour of politicians. The mental proximity of large companies, due to their active public relationships and their lobbying of decision-makers, can affect the enacting of laws, statutes, and taxation. In many countries, the associations of entrepreneurs constantly indicate that e.g. labour laws should be enacted to better suit smaller firms, instead of the general aptness of the laws for large companies. In addition, some societies, such as in Finland, favour energy intensive industries, which in practice means manifest disparity in electricity taxation between the business sectors. At the end of 2014, the Finnish government proposed new taxation on electricity, where the firms in the service sector would pay electricity taxes that are six times higher per kilowatt-hour than industry (Palta, 2015). This increase in taxes would significantly lower competitiveness in the service sector, which includes SMEs exploiting new business opportunities in areas like software and data services, logistics centres, and fields related to tourism. The example of the electricity taxation illustrates the institutional intentional or unintentional disregard of SMEs, which may also be seen in planning, land usage, etc. all these operations form the institutional image which influences the entrepreneurial environment. Therefore, all studies focused on SMEs are important in order to remind politicians, the media, and other forces in society that SMEs truly deserve their attention and actions, and that public measures should be tailored to the scale of SME operations.

Secondly, it can be noticed that in academic literature SMEs are mainly viewed from the perspective of entrepreneurs or managers with little attention being given to the effect of employees on a firm's performance. It is striking that the employees' input is so rarely observed in SME studies, although SMEs have limited human resources, and it is likely that all the individual employee's inputs are needed for sufficient performance. If all human resources in SMEs influence the business success, the next logical assumption is that fundamentally the competencies of all the individuals in a firm have an effect on the business success. Individual competencies are widely studied in the literature, but a holistic SME-level perspective is missing. Management theories, e.g. core competencies (Prahalad and Hamel, 1990) and dynamic capabilities (Teece et al., 1997) provide an organisational resource-based view to improve competitiveness and business success in change situations but are they really suitable for SMEs? Theories are usually developed to fit large-scale organisations, but in SMEs the number of staff is limited and thus organisations in SMEs are typically small. Therefore, it is important to study competencies enabling business continuity from a holistic point of view at the SME-level. This is in order to gain a better understanding of the need for various competencies for business success, which in turn also generates wealth in communities around SMEs. The aspect of competencies, in turn, may influence educational and training institutions so that they are able to teach and train individuals from the point of view of SMEs, and thus promote entrepreneurship, new innovations, and new jobs.

## 1.2 Background and research environment

In academic research and in public policy the interest in micro, small and medium-sized enterprises (SMEs) has increased in the 2000s because of their impact on global economic development, innovation, and job creation. The focus of interest has changed quite recently. A short time ago, in 1979, David Birch wrote about small firms, which had produced by the early 1970s over 80 % of new net jobs (Birch, 1979). Birch's implication was that small firms are the prime source of employment creation and thus are responsible for much of the economic growth. The publication brought about a considerable change in thinking, because the previously held common mind-set was that economic growth and jobs always came from large businesses, and small business only produced a minority. The change of interest in SMEs can also be seen in the literature. In 1970, 26 documents concerning SMEs (keywords small and medium-sized / sme) were published, however the number of documents in 2013 had increased to 2,298 (Scopus, 2015: Documents by year).

In the 2000s, SMEs are stated to have had a significant role in economic development. The OECD (Organisation for Economic Cooperation and Development) emphasises that SMEs are engines of growth, and the SMEs'

crucial position is highlighted in a very significant proportion of export and tax revenues in many countries (OECD, 2013). In the European Union (EU), more than 20 million SMEs represent 99 % of business, and SMEs are highlighted as key drivers for economic growth, innovation, employment, and social integration. (European Commission (EC), 2014a) One advantage for innovations is that small firms are considered more likely to introduce fundamentally new innovations than larger firms (Pavitt et al., 1987). In economic development a culture of innovation is strongly connected to entrepreneurship and thus SMEs are channels of new technology development and sustainable growth, thanks to their ability to develop and exploit innovations, and therefore to provide new employment. This instrument of employment is thus used as one of the practical indicators when measuring the success of SMEs in relation to the various innovation and business development supporting elements of different organisations and institutions. Furthermore, official economic and public institutions for development define SMEs based on employment and turnover. In the EU, SMEs provide employment for about 70 % of the private sector jobs and contribute to more than half of the total value-added created by businesses in the EU. (EC, 2013; SME facts) Although there is criticism of how different types of SMEs contribute to the economy (Nightingale and Coad, 2014), and thus contribute to job creation and quality of employment, e.g. wages (Butani et al., 2006), SMEs are, however, providing more jobs according to the statistics (de Kok et al., 2011).

In the large-company intensive countries such as the Finland, France, United Kingdom, Slovakia and Iceland (de Kok et al., 2011) where industrial structural changes have disturbed the economic structures, SMEs have become important drivers for new innovations and thus new employers. In Finland, for example, between 2001 and 2010 large enterprises reduced the number of available jobs by a total of 300 (the net loss of jobs compared to new employment), and SMEs, in proportion, employed 77 000 more people in the same period (Routamaa, 2013). The micro entrepreneurs have employed five times more people than large companies in the 2000s (Federation of Finnish Enterprises, 2013). The responsibility of employment seems to be transferring to the micro, small, and medium-sized enterprises (Federation of Finnish Enterprises, 2014) instead of large companies, as presented in the beginning of the thesis by Birch (1979). The changed positions of SMEs as significant innovation exploiters, strong employment players, and having an influence on economic development justify an examination of SMEs. This is especially true when it is noticed that all those businesses which start up as very small in size tend to introduce the majority of innovations (Radas and Bozic, 2009). Additionally, new innovations demand new knowledge and skills and thus it is crucial to know how SMEs will react and respond to changing business environments. This is important in order

to assist and promote SME business continuity, and strengthen the firms facing the challenges and possibilities presented by the environment.

In the global economy, the changes are constantly caused by the global economy reforming industrial structures and economies. Industrial structural changes are long-term, but the suddenness of changes might strongly impact various business fields. In change situations, firms need to struggle for business success against various challenges. In recent entrepreneurial literature, firms are investigated through the domains of their entrepreneurial ecosystem. For example, Isenberg's model of an entrepreneurial ecosystem introduces entrepreneurship constructed of items related to policy, finance, culture, supports, human capital, and markets impacting the entrepreneurs' decisions and success (Isenberg, 2011). The model serves as one of the various entrepreneurial theories including human capital, and its influence on business success. However, the basic idea of this study argues that competencies have the most forceful role influencing a firm's performance. For example, the influence of financial issues on a firm's performance; firstly externally, how and what kind of financing a firm is able to acquire outside the firm, and secondly internally, what are the persons' financial skills and abilities to use finances to the benefit to the firm. Thus, within many domains competencies govern and are embedded widely in a firm and its performance. Thus, there are many points of views and different theories to observe as regards the issues of success, but they do not exclude one another.

The previous literature, when examined more closely, presents the following external factors, as supporting SMEs business: institutional factors (Amin and Thrift, 1994; Bartlett and Bukvič, 2001; Dickson et al., 2006; Kolodko, 2000; Smallbone and Welter, 2012), public programs (Alvarez, 2004; Cooke and Wills, 1999; Vega et al., 2008) and assistance in finance (Berger and Udell, 2006; Hughes, 1997; Roper and Scott, 2009). The internal factors helping SMEs to survive changes and continue their business are e.g. innovation (Forsman and Rantanen, 2011; Hausman, 2005; Keeble et al., 1999; Massa and Testa, 2008), marketing (Gupta and Malhotra, 2013; Knight, 2000; Parry et al., 2012), networking (Kenny and Fahy, 2011; Meyer and Skak, 2002; Muzzi and Albetini, 2014; Rolón and Martínez, 2012) and internationalisation (Cheng and Yu, 2008; Coviello and Martin, 1999). However, the shape of the business supporting issues presented above show a scattered and disconnected view of SMEs survival, and hence creates a need to approach the phenomenon from a more comprehensive point of view.

According to the theory of economic development by Joseph Schumpeter (1934), structural changes offer new business opportunities. Discovering, exploring, and exploiting new business opportunities in changed business situations requires new information, and involves creation and innovativeness. These changed business situations challenge SMEs' previous skills, capabilities, attitudes, and behaviours, in other words competencies. When

economic situations change, competencies are likely to be changed as well. Therefore, this study focuses on exploring and describing how and what role competencies have in SME business continuity in changing situations. More specifically, the focus is on survival competencies, because the SME's primary objective is survival in order to avoid business failure (Storey, 2000). Generally, business survival is defined as the percentage of new firms that continue to operate when they reach a given age reflecting their productivity, innovation, and resourcefulness, as well as their adaptability to changing market conditions. This study concentrates on temporal business survival from the point of general business continuity, referring to business longevity – i.e. long-lasting business survival, and thus not limiting the study to a certain age of business.

The concept of competence is complex and is discussed in the literature with the terms 'competence' and 'competency'. Woodruffe (1991) contrasts areas of competence as aspects of the job that an individual can perform, with the term competency referring to an individual's behaviour that supports a competent performance. Thus, competence refers to functional areas and competency refers to behavioural areas, and the holistic model of individual competence, including both 'functional competence' and 'behavioural competency', is a combination of knowledge, understanding, functionality, mental and applied skills, behaviours, attitudes and learning to learn, all of which are necessary for particular occupations (Delamare-LeDeist and Winterton, 2005). Competencies in any firms have a positive or negative effect on the firms' performance. In addition to what has been disclosed earlier, SME literature presents the SME management (van Gils, 2005; van den Heuvel et al., 2006) and human resource management (Bacon and Hoque, 2005; Wu et al., 2014) as business supporting skills and competencies.

As presented above, the wide and multi-faceted literature on competence with regard to the skills and competencies influencing a firm's performance mainly examines special, separate skills or items, and a holistic firm-level view of survival competence is lacking. Additionally, the skills and competencies are generally studied from the perspective of managers, taking into account the influence of managers on SMEs' performance, but forgetting the holistic influence of the whole personnel, i.e. taking note of both managers and employees. The human resources in SMEs are usually limited; in Europe micro, small and medium-sized enterprises employ, on average, four people (Lukács, 2005). Therefore, the effect of employees' skills and competencies is significant for any firm's performance. The small number of employees means a low structure in the organisation. In such a low structured organisation, it is difficult to separate firm-level and individual-level issues. Thus, the holistic firm-level view of competencies also needs to include the employee –level view of survival competence as a force contributing to performance. Therefore, the dissertation takes into account both the individual

and the firm perspectives and in so doing fills the gap of a holistic firm-level view of competencies than currently available in the literature (e.g. Ng and Kee, 2012; Nurach et al., 2012). The supporting competencies are named survival competencies to emphasise the nature of the circumstances i.e. drastic structural changes.

The drastic changes studied as a background are industrial structural changes – changes which disturb and modify an entire field of industry, as well as economic crises or polity changes, which in turn modify societies; thus influencing the SMEs' macro-environment. The theoretical background examination is approached with Schumpeterian innovation theory and with one of its concepts: creative destruction - where the reconstruction of economic structures releases new knowledge and thus creates new business opportunities, which an entrepreneur may exploit as innovations. These benefits of creative destruction have been ignored in previous literature. The changes, especially structural changes are considered as disastrous situations, which in general are either local or global, causing for example closures of factories. The Schumpeterian innovation theory was therefore chosen among other innovation/entrepreneurship theories, as an innovation background to highlight newly released business possibilities and, moreover, as a reminder that although the economy is in constant change, the changes offer novel business opportunities for entrepreneurs, or for anyone wishing to start as an entrepreneur. Additionally, the theory combines innovations, business cycles, and economic development. Another notable innovation/entrepreneurship theorist, Kirzner (1973) emphasises passive opportunity alertness and focusing on balancing the market (De Jong and Marsili, 2011). Referring to the main focus of the thesis, i.e. competencies, the Schumpeterian active and dynamic approach of creating new information/knowledge and opportunity is more suitable than Kirzner's less innovative, market equilibrating approach with no need for information development.

As a framework to understand entrepreneurship and its operations, Shane's entrepreneurial process is used, which is "the nexus between enterprising individuals and valuable opportunities" (Shane, 2003: 9). The aforementioned statement includes an important point of view; an enterprising individual may be somebody else than an entrepreneur. Not all competencies in an SME are entrepreneurial, and Shane's entrepreneurial process also offers a possibility to examine a richness that is indicative of entrepreneurial competencies, and thus supports the holistic SME-level approach. The chosen entrepreneurial process model (Shane, 2003: 11, 12) comprehensively combines all the entrepreneurial phases (opportunity, its execution, and the firm's performance), when compared with other entrepreneurial process models (e.g. Stevenson and Jarillo, 1990) which mainly stress the opportunity phase, and thus only focus on opportunity, discovery, and exploring. In addition, business performance, i.e. business management, has usually been

separated into its own research area. However, an object of an entrepreneurial process model is to present only those phases that an enterprise has in its business lifecycle. However, the main focus of the study is the business supporting competencies examined as regards the extent to which they are presented in the literature. The target is on how supporting competencies internally influence SMEs and influence their relationship to the external environment. Both internal and external competence approaches are important to achieve the bottom-up view of competencies needed to meet the external business environment.

As an empirical research environment, the field of the forest industry was chosen, together with industries related to it, due to its strong economic influence for the countries in the northern parts of the globe. The impact of the forest industry has been important for the economy and employment in Canada, Sweden, Finland, and Russia. The industry has suffered from industrial structural changes because of the reduction in the use of paper in Europe. This has meant cost cutting and production transference to low cost countries such as South-America and China. In the forest industry and related industries, SMEs usually operate as subcontractors, and have an important local and regional influence on the economy together with their customers. In a situation where the production of a mill is shut down because of transference to low cost countries or due to old-fashioned technology, SMEs need to consider their options. They can either stay in the same field or renew their business and move to another industry. In the business transference situation, SMEs need a closer insight into the skills and competencies that are needed in business transference and also in operating in their chosen field of industry.

More specifically, the forest industries in Finland and in Russia were chosen as the research environment for studying firms which have survived through various changes. The economic profiles of the countries are quite different. According to the economic criterion of the OECD, Russia is described as a developing country, and Finland is described as a developed country (see the definitions OECD, 2005). However, the study focuses on business survival enabling competencies in business environmental changes, and not studying SME survival from the point of view of various development definitions as the OECD does. Furthermore, the designations “developed” and “developing” are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process (United Nations Statistics Division, 2014). Therefore, to obtain the richest data and to observe comparatively SMEs that encountered changes, it was decided to collect the empirical data from Russian and Finnish SMEs based on the import impact of the forest industry for both countries. Both countries, and thus the SMEs, have met drastic changes in the business environment, i.e. in 1991-

1992 Finland suffered a financial crisis, and later in the same decade Russia experienced its own depression. In Finland, the structure of the economy changed fundamentally. The former forestry and engineering industries lost their important position while high-tech sectors such as the mobile phones industry dominated the recovery process. (Kalela et al., 2001) The 1998 crisis in Russia caused the collapse of many banks and GDP decreased by 5 % (Komulainen, 2002). The polity changes in the 1990s in Russia and in Eastern Europe influenced Finland and Russia as did as the global economic crisis of 2008-2009. In both countries, the changes have negatively affected the economic development, and caused unemployment, and in such situations, SMEs are usually seen as being able to assist economic growth and provide new compensatory jobs.

### 1.3 Research questions

The main objective of the dissertation is to form a holistic view of the competencies enabling the business continuity and survival in SMEs in changing business environments. The holistic view of competencies is defined in this thesis to cover and include all competencies in an SME-level bearing in mind the limited human resources of SMEs, which is on average four people (Lukács, 2005), and comprising of SME internal competencies and competencies related to the external environment. Thus, firstly, the holistic view means a holistic competence approach. In literature, the terms competence and competency have their own contexts (see more Section 2.2.1), but due to such limited number of people in SMEs, there is a need to contemplate both competence-competency contexts at the same time. Secondly, the holistic competence view considers SME-level competencies both from an individual and firm-level perspective, regardless of an individual's position in a firm. Thirdly, the holistic view of competencies means a business continuity approach covering a situation where a firm considers changing its business to another field of industry, and thus needs to evaluate its competencies towards this change. The competencies are examined internally firstly to identify which competencies the SMEs already have or do not have. Secondly, to identify the competencies related to the external environments, which are needed to face and meet the demands of the changed situations. With well-recognised internal competencies, SMEs may develop existing competencies and acquire new ones to respond to the needs of external situations and business environment changes.

The main research question is:

*How do specific competencies enable SMEs to survive changes in their business environments?*

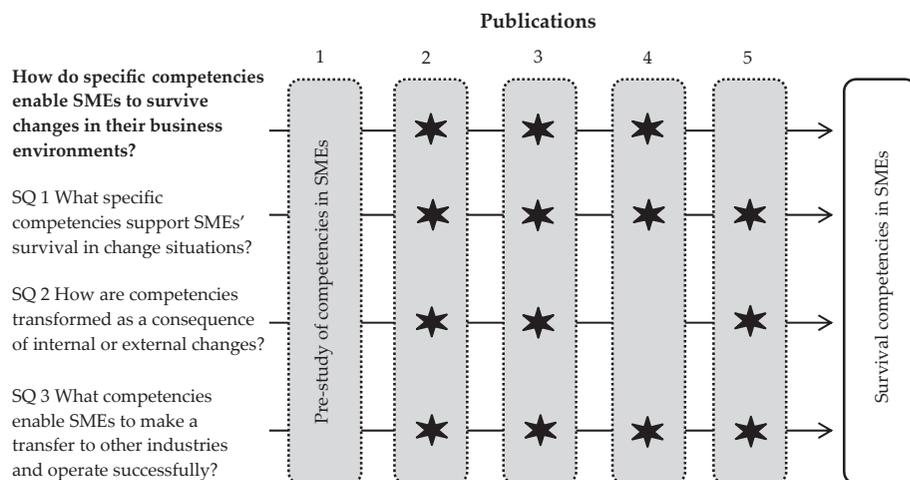
The main research question has separate endorsing sub-questions, which take into consideration the long-term continuity of the business. The sub-questions assist by providing the answers to the main research question, and additionally aid in forming a holistic view of the competencies an SME needs to face external changes operationally. To offer a comprehensive point of view the continuity of business operations, the sub-questions also consider the situation where either the firm stays in the same field of industry or renews its business and moves to another industry. The research questions are answered by the results presented in five publications included in the structure of the dissertation in Part II. Part I combines the results and continues the discussion related to the research questions. The sub-research questions are:

*SQ1. What specific competencies support SMEs' survival in change situations?*

*SQ2. How are competencies transformed as a consequence of internal or external changes?*

*SQ3. What competencies enable SMEs to make a transfer to other industries and operate successfully in these industries?*

Figure 1 below presents how the five publications are included and the research questions are positioned in this thesis. It also presents the contents of the publications related to the research questions of the thesis. The stars provide information on the contribution made by the research questions



**Figure 1.** Contribution of the publications to the research questions.

and the publications. Publication 1 is a pre-study offering a literature overview of what kind of competencies and competence needs are identified in SMEs in general. It highlights managerial and individual generic competencies, individual capital in social contexts and relationships, and competencies for the future in the form of research results. Publication 1 serves as an introduction to the competence theme in SMEs, and forms a basis for various competencies and their transformations. Publication 2 deepens the thesis objective by focusing on survival competencies, e.g. internal and networking competencies enabling Russian SMEs to conduct business in change situations. The third publication compares survival competencies between Finnish and Russian SMEs, and thus offers comparative information for the main research question. Additionally, it gives information on the second sub-question identifying how competencies are transformed as a consequence of changes. Publication 4, more specifically, focuses on entrepreneurial competencies identified in successful innovative Finnish SMEs in order to deepen and strengthen the point of view of entrepreneurial competencies as a survival issue. Finally, Publication 5 illustrates the perceptions of Finnish public actors and SMEs concerning business supporting competencies and competence transformation in business environment changes. Thus Publication 5 focuses on providing information on competence transformation while also dealing with the other sub-questions, as have all the other publications.

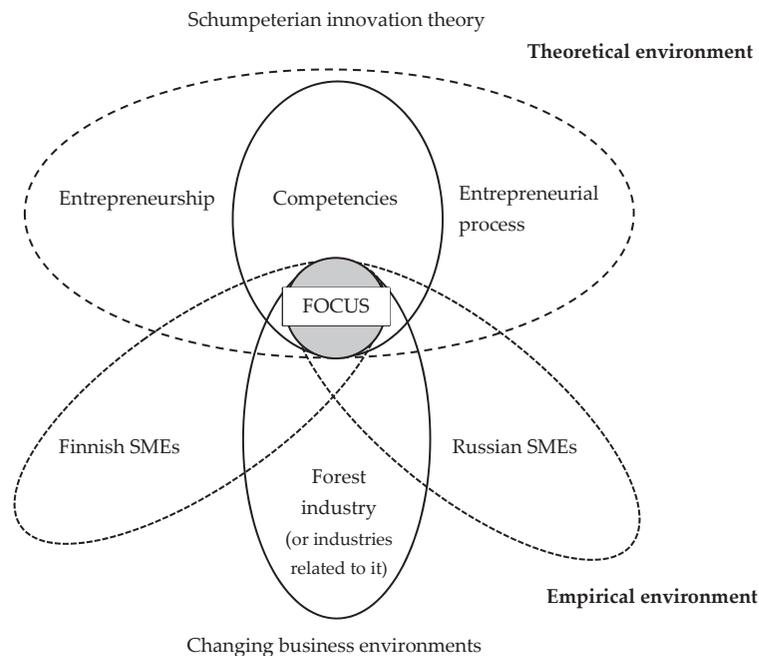
#### **1.4 Positioning the research**

The positioning is divided into two approaches; the theoretical and empirical environment positioning. The theoretical positioning starts from the assumption in the Schumpeterian innovation theory (Schumpeter, 1934) of how economic structures are reshaped. At the same time, within reshaping, new knowledge and information are released, and therefore new business possibilities for entrepreneurs emerge. These new business opportunities are discovered, exploited and executed for new products and services by entrepreneurs within the entrepreneurial process (Shane, 2003). The main focus of this study is to explore and describe the effects of competencies on business survival and continuity. The Schumpeterian innovation theory and entrepreneurship /entrepreneurial processes of Shane, create a background framework for the theoretical positioning, where competencies are at the centre. The study combines results from previous literature on business supporting competence and empirical SME findings on firms that have achieved business survival and continuity. While previous studies focused on separate supporting skills and competencies, the novelty of the study is in introducing the aspect of holistic, SME-level, business continuity and supporting competencies.

The empirical environment focuses on the changing business and economic environment in the forest industry or industries related to it. The studied entrepreneurship and reactions in entrepreneurial processes are limited to Finnish and Russian SMEs, and the observation of competencies is focused on competencies in micro, small, and medium-sized firms. The theoretical and empirical positioning is illustrated in Figure 2 below.

Due to the wide and complex approaches to competence and competencies, all human features, skills, abilities, capabilities, experiences, attitudes, and other traits, which influence SMEs operations, regardless of the position of the person, are used as elements of competence. Furthermore, in the text the word *competence* is used, in plural *competencies*, in order to portray a holistic view of skill-based competence and behaviour-based competency (see Section 2.2.1), and thus to harmonise and clarify the separate usage of the words competence-competences and competency-competencies. In original references, the spelling applied by the authors is used.

The dissertation perceives business continuity on a general level, without noticing turnovers, financing, debts, or other economic business indicators. The financial and economic indicators were excluded because the study does not measure how financially successful the survival has been, but focuses on investigating the effects of competencies related to changes in the business



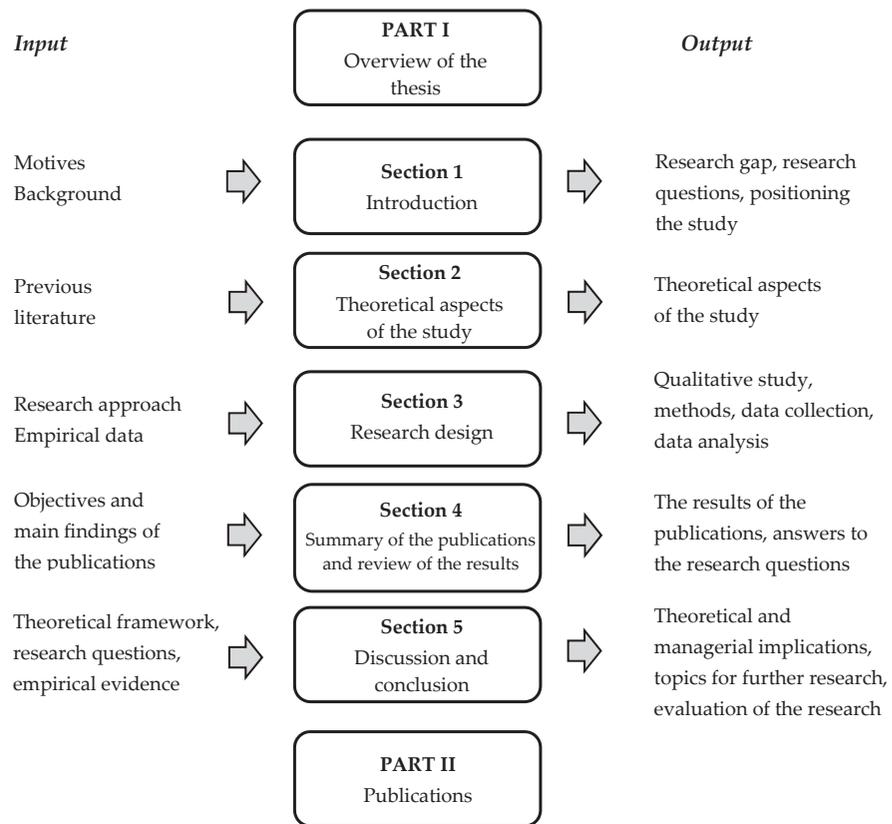
**Figure 2.** *The theoretical and empirical positioning of the thesis.*

environment. Additionally, the connection between survival enabling competencies and finance issues would be difficult to justify, because a firm's output depends on various factors, e.g. markets, support, finance and policies in its ecosystem (Mason and Brown, 2014). The business continuity and longevity is taken into account in the data collection when selecting the data.

High-income countries, such as Germany, France, Belgium, Italy and Finland, have relatively low levels of entrepreneurial activity (Acs et al., 2008). In Russia, private entrepreneurship has been possible since 1991, so it is relevant to study SMEs in low-entrepreneurial countries such as Finland (low level of entrepreneurial activity) and Russia (private entrepreneurship permissible since 1991). The forest industry is an important and common denominator for both countries' economies. Within this context, cultural aspects may have a certain role in the choice of competencies that enable survival and the business processes related to changed situations. Nevertheless, the thesis excludes cultural aspects, as it would require a separate focus and research design.

## 1.5 Structure of the thesis

The thesis consists of two distinct parts: Part I provides an overview of the thesis, and Part II includes five individual publications, which describe the research conducted in closer detail. Figure 3 below, describes the structure of the thesis through an input-output scheme for each of the sections of Part I. Section I includes an overall view of the thesis, introducing the background, motivations, and identified research gap as well as the objective and research questions covered. Additionally, Section 1 presents the theoretical and empirical positioning of the study. Section 2 illustrates the theoretical aspects of the thesis such as the Schumpeterian innovation theory, the entrepreneurial processes and competencies, and moreover, focuses on entrepreneurship and SMEs in Finland and Russia. Section 3 presents the methodological approach and empirical data collection. Furthermore, Section 4 introduces the summaries of the individual publications and the answers related to the research questions. Finally, Section 5 discusses the results together with the previous academic research regarding theoretical contributions, as well as the managerial implications, and suggestions for further research. Finally, Part II contains the full length versions of the five publications included.



**Figure 3.** Structure of the thesis.

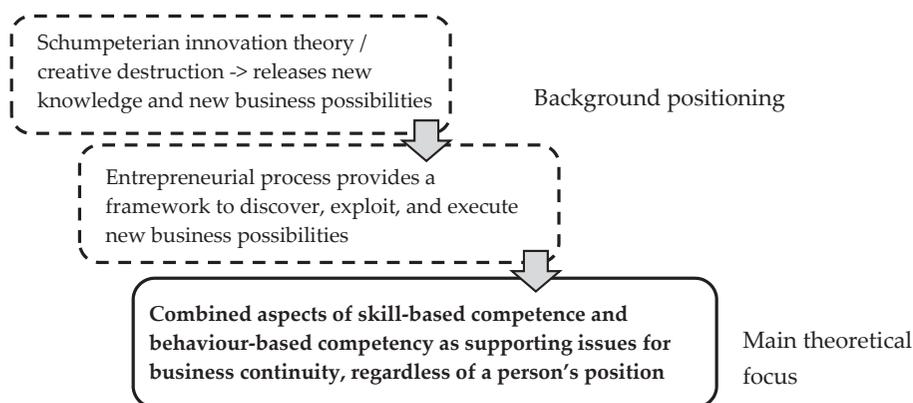
## 2. THEORETICAL ASPECTS OF THE STUDY

This section firstly presents general issues related to entrepreneurship and competencies, and secondly expounds on Finnish and Russian SMEs and survival competencies as expressed in literature. The entrepreneurial and competence approaches presented in Figure 4 below represents the structure of the section introducing firstly the Schumpeterian innovation theory as a starting point for generating new business new business possibilities and new knowledge from economic structural changes.

Secondly, this section introduces entrepreneurship and the entrepreneurial process which serve as a framework and a tool, and by which it is possible to illustrate discover, exploit, and execute new business possibilities, and the help survival competencies studied. Finally, competencies as main theoretical focus are highlighted as supporting issues for business continuity. The theoretical approach has been based on the grounded theory concept (Glaser and Strauss, 1967) without a particular theoretical framework. Thus, the study does not primarily concentrate on verifying any given theory or proving theories wrong, but is concerned with how research findings are to be connected to previous theories and results. Theoretical approach has been defined related to business possibilities - according to Schumpeterian innovation theory - and their implementation process - according to entrepreneurial process - but competencies in SMEs have been approached following grounded theory.

### 2.1 Entrepreneurial approach

The entrepreneurial approach briefly presents Schumpeterian innovation theory and the entrepreneurial process in order to present a framework where survival competencies can be examined.



*Figure 4. Entrepreneurial and competence approach in the thesis.*

### 2.1.1 Schumpeterian innovation theory

Joseph Schumpeter (1934) introduced an economic term 'creative destruction', which means how the structures of economy, old companies, products, and occupations disappear and are replaced by new, better, and profitable ones (Schumpeter, 1934). In creative destruction an entrepreneur introduces onto the market an innovation (product or service), which increases the overall demand in this market, and also, at the same time, gains markets from former dominant suppliers. The firm introduces a new innovation to the markets, expands its economic actions, and thus achieves more market share. Simultaneously, the market structures are destroyed, and will be destroyed once more, when next the new firms and new innovations substitute the former ones. On the one hand former structures, old technologies, and jobs are destroyed, but on the other, new innovations supply new business opportunities and create new jobs in the firms exploiting these opportunities (Aghion and Howitt, 2009). Because of this quality of creating new innovations and new jobs, and at the same time destroying existing jobs, 'creative destruction' is also called 'destructive creation' (Maliranta et al., 2010). Schumpeter himself was aware of the job reducing influence of his innovation theory, as were other researchers, who also expressed criticism towards this aspect of his theory by regarding it from a capitalist process perspective (Solo, 1951).

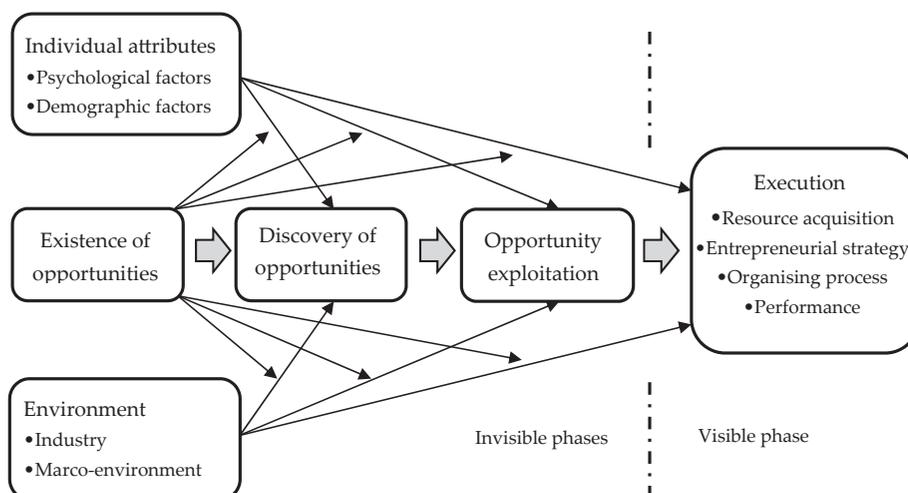
The imbalance in markets and economic structures offers new information and new knowledge, and thus offers new opportunities for entrepreneurs. Imbalanced circumstances often follow each other, and unstable situations generate different types of opportunities i.e. new opportunities open up and existing opportunities close down (Schumpeter, 1934). Schumpeterian entrepreneurial opportunities are rare, innovative, and break away from existing knowledge (Shane, 2003: 21). The sources of opportunities can be found in technological changes, in political and regulatory changes, and in social and demographic changes (Schumpeter, 1934). In the last decades, for example, digitalisation has produced an enormous step in technology; the green wave with sustainable energy has rewritten many laws and regulations, and as a result of ageing populations many countries are now investigating new welfare services for elderly people. Schumpeter defined the types of innovations in his era as being revolutionary, but gave little attention to small upgrades and updates. Since the 1990s, several researchers have elaborated on the innovation definition by using more categories based on innovation proportions (e.g. Freeman, 1992; Perez, 2010), and thus have broadened the content of innovation.

New entrepreneurial opportunities become innovations, if opportunities are discovered, exploited, and executed by utilising those people, called entrepreneurs. The next section is therefore concentrated on this utilising process – entrepreneurial process, and utilising entrepreneurs.

### 2.1.2 Entrepreneurial process and entrepreneurship

Entrepreneurs were first mentioned in literature in the 1730s by Richard Cantillon (Brewer, 1992), who called entrepreneurs brokers with the meaning 'to take between, go-between', a person who was a rational decision maker, a risk taker, and management provider for a firm (Kilby, 1991). At the end of 1990s, researchers shifted their attention away from identifying those people in society who preferred to become entrepreneurs towards an understanding of the nexus of valuable opportunities and enterprising people (Venkataraman, 1997). Furthermore, studies in the 2000s have redefined the focus from opportunity identification to opportunity development (Ardichvili et al., 2003; Corbett, 2007; Vaghely and Julien, 2010), and thus focus on entrepreneurial actions instead of the enterprising individuals.

Venkataraman (1997) and Shane and Venkataraman (2000) have defined entrepreneurship to be an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organising, markets, processes, and raw materials through efforts that previously had not existed. The comprehensive definition is illustrated in the entrepreneurial process (Shane, 2003, see Figure 5 below), where potential new entrepreneurial opportunities arise from changing business environments, from industries, and from the macro environment. An alert individual, an entrepreneur, with her/his psychological and demographic factors discovers the existence of opportunities or situations, develops ideas of how to pursue them, and exploits and executes these ideas into profitable innovations. Alongside individual attributes, the external environment, the industry in question and the current macro-environment, influences the



**Figure 5.** A model of the entrepreneurial process (modified Shane, 2003: 11, 12).

discovery of the opportunity as well as its exploitation and furthermore its execution – that is – its innovation. Because business opportunities are various and ubiquitous, their existence has a direct influence on the discovery, exploitation, and execution phases via the individual's attributes and environment. The first three phases (existence of opportunity, to discover opportunity and to exploit opportunity) in the entrepreneurial process are invisible to the external environment because in those phases an entrepreneur considers whether to proceed or not. In contrast, the execution phase is visible and observable externally. Although creative entrepreneurs recognise and discover opportunities, not all opportunities are exploited and executed because firms at different business stages may consider opportunity exploitation and execution in different ways. Start-up entrepreneurs must consider all the execution issues (resource acquisition, entrepreneurial strategy, and the organising process) in order to achieve successful performance when attempting to penetrate markets. Respectively, existing firms may have already acquired physical and human resources and have experience in the markets, but may be suffering from lack of finance and resources for growth, and thus need to carefully consider progressing further with an implementation. Furthermore, in the exploitation and execution phases an entrepreneur also needs to consider a suitable business model to achieve a successful value creation and/or competitive advantage. For example, open or boundary-spanning business models (Chesbrough, 2006; Wikström et al., 2011) are concerned with how firms interact with their business environment.

Selecting and identifying the right opportunities are the most important abilities of an entrepreneur (Stevenson et al., 1985). Additionally, entrepreneurial opportunities are generated by the locus of the changes, by the initiator of the change, and by the source of opportunities themselves (Eckhardt and Shane, 2003). Furthermore, entrepreneurial traits (Buzenitz, 1996; von Hippel, 1994; Kirzner, 1973; Shane, 1999) impact on the opportunity identification process (see e.g. Ardichvili et al., 2003). The literature conjoins some specific features such as the individual attributes (see Figure 5) of the executors of entrepreneurial opportunities – are the entrepreneurs. The successful features of an entrepreneur are widely described in literature using the trait approach (De Koning and Muzyka, 1999; Krueger and Dickson, 1994; Shaver and Scott, 1991), and by the alternative behaviour-based approach focusing on what the entrepreneur does instead of who the entrepreneur is (Gartner, 1988). This study focuses on entrepreneur-like features to the extent that features are connected to an individual's competencies focusing on successful and long-term operations, and thus a closer examination of entrepreneurial trait theories is excluded. Nevertheless, this study examines survival enabling competencies regardless of a person's position in a firm, and therefore Gartner's entrepreneurial statement (1988) related to the behaviour-based approach - what the entrepreneur does – corresponds with

the study approach. Some common personal qualities and characteristics can be connected to entrepreneurship; self-confidence, risk-taking, flexibility, need to achieve, a strong desire to be independent, an internal locus of control and innovativeness (Chell et al., 1991; McClelland, 1961; Meredith et al., 1982). However, the features do not automatically mean that someone will become an entrepreneur exploiting successful business opportunities.

Entrepreneurs as individuals are multifaceted in their skills and competencies. In practice, entrepreneurs are seen as jacks-of-all-trades who do not have only one skill, but are competent in many. Thus, entrepreneurs are not necessarily outstanding at anything, but they have sufficient skills in various areas to put together many ingredients, which are required in a successful business (Lazear, 2003). Recent literature takes note of the ability to learn entrepreneurship and the competencies it demands as a changing attribute rather than a stable state. In a changing business environment, creativity (Block and Koellinger, 2009; Finkle, 2013), opportunity recognition (Baron et al., 2012; Renko et al., 2012), and marketing orientation (Knotts et al., 2008; Ripollés et al., 2012) seem to determine the limits of a successful entrepreneur. The next section investigates the influence of competencies in business success in more detail.

## 2.2 Competence and competencies

In the 2000s, changes in business have occurred more rapidly than in previous centuries, and the frequency of change is high. Nowadays, firms must be fast, flexible, and agile in their actions to survive in these environmental changes. When the business environment changes, competencies are liable to change as well. Therefore, it is justified to study *what* competencies are needed and *how* competencies support SMEs in change situations. This is the fundamental basis of this thesis, and thus competencies are considered the most supporting issues for a firm to carry over into change situations. The firm consists of individuals and thus job-based and person-based competencies form the organisations' future-based and value-based competencies. These competencies help organisations to achieve a competitive advantage (Cardy and Selvarajan, 2006; Cardy et al., 2007), and are the individual's contribution to supporting the businesses survival. Furthermore, interpersonal understanding and customer service orientation skills are stressed (Yu-Ting, 2010) as assisting in business survival. In the following, after a brief history of the terms competence – competencies, closer definitions are presented of the use of competence and competencies in literature.

First, the history of the term 'competence' dates from 1596 when it was used to express the combined abilities of an individual to do a job properly (Webster Dictionary, 2015). However, in the 1900s, educational institutes and business organisations have, in general, used the term competence to

refer to educational methods and human resource management in the field of recruiting and selecting new employees. The term ‘competency’, in turn, was introduced by David McClelland in 1973 and he used it primarily as a criterion of assessment in the higher education system. McClelland (1973) focused on measuring successful performance, instead of the intelligence and personality tests used earlier, and thus a discussion was initiated that a competence assessment should be developed as an alternative to these tests. Moreover, in the 1990s, as a part of the competence movement (see Barrett and Depinet, 1991), competency was defined as the underlying characteristics of successful performers, and included knowledge, skills, traits, abilities, or beliefs, which were seen to be the features of competency (Rothwell, 1996: 263). Together with this movement towards competence, the concepts of competence and competencies often became to be used synonymously and thus it is necessary to study the various definitions of these terms.

### 2.2.1 The definitions of competence and competencies

First of all, there is no exact theoretical framework for competence (Stoof et al., 2002), and it has been seen as a fuzzy concept (Delamare-Le Deist and Winterton, 2005). Moreover, the words competence or competency are sometimes presented in literature interchangeably and identified differently by various authors, and with various meanings. The terms skills, experience, acumen, and competency are all connected with each other (Smith and Morse, 2005). However, the term ‘competence’ is mostly identified as a skill-based standard that is acquired, and is what people can do. ‘Competency’, in turn, is behaviour-based, i.e. the actions by which the performance is achieved, and focuses on how people do things (Delamare-Le Deist and Winterton, 2005; Sanghi, 2007). Figure 6 below presents a competence and competency interface, according to Sanghi (2007: 8) which connects both terms and represents them as acting with each other through interaction and integration. Referring to Figure 6, competence seems to be stable by nature, and competency, in turn, seems to reflect action.

Competence is commonly used in educational training and development activities within human resource development (HRD) or for acquiring new

Competence		Competency
Skill-based	➔	Behaviour-based
Standard of attained		Manner of behaviour
What is measured	➔	How the standard is achieved

**Figure 6.** Competence – competency interface (Sanghi, 2007: 8).

educational methods based on a country's educational and vocational policies (Biemans et al., 2004; Brockman et al., 2008; Colley et al., 2003; Mulder et al., 2007; Weigel and Collins, 2007; Winterton et al., 2005). The competence-based approach in HRD and in vocational education and training (VET) generates a generic competence approach, and focuses on improving the skills and qualifications of the labour force. The OECD targets, with its Strategic Approach to Skills Policies, better skills, better jobs, and better lives in order to help countries understand more about how to invest in skills in a way that will transform lives and drive economies (OECD, 2012; 3). Moreover, Boon and van der Klink (2003) describe competence as a useful term for 'bridging the gap between education and job requirements.' Hodkinson and Issitt (1995: 149) have argued for professional holistic approaches because competence resides within individuals who care about their professions and is achieved by integrating knowledge, understanding, values, and skills. Additionally, Keen (1992; 115) stated that competence is an ability to handle a situation (even an unforeseen one) and uses the hand as a metaphor for competence; competence is a compound of five different parts like the fingers of the hand; skills, knowledge, experience, contacts, and values (Keen, 1992: 112). Cheetham and Chivers (1996, 1998), in turn, include five inter-connected competence and competencies in their professional competence, such as cognitive competence, functional competence, personal competency, ethical competencies and meta-competencies (Cheetham and Chivers, 1996, 1998). As presented above, competence can be defined in multiple ways and can include specific elements that serve public educational policies as well as determine the professional competence required to face the different demands of societies and jobs. In the following, the definition of the term competency is presented.

Spencer and Spencer (1993) linked 'competency' to those deep personality characteristics of an individual by which behaviour and performance can be predicted. They presented five competency characteristics: motives, traits, self-concept, knowledge, and skills. These were presented in an iceberg model, where skills and knowledge are the visible competencies most easily developed. The hidden competencies, such as traits and motive are the most difficult to develop, while self-concepts, attitudes, and values are in the middle area (Spencer and Spencer, 1993). Burgoyne (1993) approached competency from a functional perspective and defined competency as how the goals of organisations were best achieved by improving individual performances. The performance aspect of an individual's competency is also described by Boyatzis (1982) and Klemp (1980) who stated that 'job competency' included those underlying characteristics of a person which resulted in superior and/or effective performance in a job. Hoffmann (1999), in turn, has summarised three key points for competency: the underlying qualification and attributes of a person, observable behaviours, and the standard of individual performance outcomes. On an

individual level, the most important competencies are analytic skills, interpersonal skills, ability to execute, information processing, and capacity for change/learning (Finegold and Notabartolo, 2010).

When summarising the definitions of the terms, competence and competency, it can be said that both focus on the same issue but with variable aspects; those attributes individuals need to possess in order to be competent, and how to operate competently. As the current dissertation focuses on competencies enabling business survival in changes – demanding both specific skills and professional elements, and the abilities to achieve survival performance - it will be relevant to combine the content and terminology of skill-based competence and behaviour-based competency. The framework of Parry (1996) combines these terms and is therefore used as a suitable basis for the dissertation. Additionally, in order to reach a comprehensive approach to competence Parry's (1996) definition is modified, and thus contains: *human features, skills, abilities, capabilities, experiences, attitudes, and other traits*. Because of the various terms, in the text, the combined definition is entitled 'competence' and in the plural 'competencies':

*“Competence/competencies are a cluster of related **human features, skills, abilities, capabilities, experiences, attitudes, and other traits** that affect a major part of one's job (a role or responsibility), that correlate with performance on the job, that can be measured against well-accepted standards, and that be improved via training and development (modified from Parry, 1996: 50).”*

This definition by Parry (1996) indicates that competence is not a stable entity, and competencies can be improved if needed. The observation of the flexible nature of competence is significant in a changing business environment; as it follows that when the situation changes, competencies must change as well. Because of the independent role of specific jobs, this definition treats the individuals in firms in the same way regardless of the position of a person. After these definitions of competence, the study will next illustrate how competencies influence business.

### 2.2.2 The role of competencies in business

In a review of various management theories, it was found that in the 1980s, management researchers discussed a cluster of resources, and in the 1990s, the competencies of organisations became the key to strategic management thinking. Competencies were strategically targeted and developed on order to create competitive advantage and value creation success in the market. Prahalad and Hamel (1990) introduced core competencies in 1990, and turned from the specific competencies of an individual's work to the higher level of organisational competence, and to business units. To achieve competitive advantage both employee-level and organisational-level competencies have since been seen to be important (Hitt et al., 2005). Core competencies, specific sets of skills or production techniques, are not easy to imitate; with core

competencies a company may create and deliver value to its customers (Prahalad and Hamel, 1990) and thus competitive advantage. Core competencies provide a conceptual tool for large business corporations to achieve better synergies in their various functions. Core competencies are at the centre of the resource-based view (RBV), first introduced by Edith Penrose (Penrose, 1959), in which corporate competence is based on a bundle of valuable tangible or intangible resources and capabilities which offer a competitive advantage. Using this criterion, key resources are considered valuable, rare, inimitable and cannot be substituted (Amit and Schoemaker, 1993; Barney, 1991; Collis and Montgomery, 1995; Peteraf, 1993; Stalk et al., 1992).

When taking a closer view of management theories, the knowledge-based view (KBV) – one of the theoretical spin-offs from RBV – stresses knowledge as the most strategically significant resource of a firm. KBV provides competitive advantage and superior corporate performance (Alavi and Leidner, 2001; Grant, 1996) through the knowledge, which is embedded and carried through multiple organisational routines, policies, and employees. Another extension of RBV are dynamic capabilities. Teece et al. (1997) defined dynamic capabilities as ‘the firm’s ability to integrate, build, and reconfigure internal and external competences in order to rapidly address changing environments (Teece et al., 1997; 516). By using dynamic capabilities an organisation can purposefully create, extend, and modify its resource base in order to survive and prosper in changing conditions (Helfat et al., 2007). At the same time as KBV was introduced in the 1990s, the competence-based view (CBV) approach was also introduced to explain performance differences among firms (Rumelt, 1991).

As a summary of these various management theories, it can be concluded that competencies within and through different units and bundles, make it possible for companies to achieve competitive advantage and value creation success in the market. Referring to the theme of the dissertation, management theories support the basic statement of the thesis that competencies have a significant role in business survival. Therefore, the generic types of competencies connected with business are presented next. The following section focuses on generic competencies that support business, and is therefore entitled competencies supporting business.

### **2.2.3 Generic competencies supporting business**

In firms, there exist various business enabling competencies at different levels. Firstly, individual competencies (see e.g. Cheetham and Chivers, 1996, 1998; Hodgkinson and Issitt, 1995; Keen, 1992; Spencer and Spencer, 1993) substantially influence a firm’s performance (see Klemp, 1980; Boyatzis, 1982; Burgoyne, 1993).

Secondly, organisational competencies are built up from the individual competencies of all the competencies of the firm’s employees, including the

management, project teams, and project managers (Nurach et al., 2012).

Referring to the research environment of the dissertation, in SMEs the competencies are limited due to the limited number of employees (see more of SMEs in Section 2.3.1). Every individual's competencies are truly significant and the entrepreneur is usually involved in the productive actions, thus all individual competencies are highly necessary. In SMEs the organisational structures are low and the hierarchy flat. If the delivery process is short, e.g. in the service field, individual skills, knowledge, attitudes, motivations, and traits are stressed and have an effect on all of the firm's performances. Thus the firms' performance is a result of all of the competencies of the individuals and the small groups. According to Teece et al. (1997) organisational competencies are seen as firm-specific assets assembled in integrated clusters formed by individuals and groups, so that they facilitate the performance of distinctive activities that constitute organisational routines. Sanchez's five modes of organisational competence highlight the firm's value-creating processes, which are developed and maintained in its various activities to achieve overall competence, and thus to achieve a better market position (Sanchez, 2004). Furthermore, corporate competencies belong to the organisation, and are embedded in processes and structures that tend to reside within the organisation (Turner and Crawford, 1994). Thus, as a result of a comprehensive approach towards organisational competencies, individual competencies are built up and together they form the firm's performance which is embedded in processes and structures. Although Sanchez (2004) only focuses on achieving market positions, it is possible to achieve any desired goal with developed and maintained organisational competencies in general.

Thirdly, capable management (Sanchez, 2004) develops, utilises, and manages organisational competencies by using individual managerial competencies. With managerial competencies capable managers can create, communicate, and empower the firm's employees to realise the organisation's strategic vision (Hambrick and Mason, 1984). Lado et al. (1992) describe managerial competences as crucial, because with them the firms are able to develop other competencies. As a whole, managerial competencies can thus be considered as the internal strength of an organisation, which, in turn, assists the business survival.

Fourthly, from the point of view of the entrepreneurial process, entrepreneurial competencies are crucial, and are the basis of a firm's existence (Shane, 2003). With entrepreneurial competencies entrepreneurs can scan and discover business opportunities from different sources, acquire the resources demanded for the realisation of the opportunity, and successfully and increasingly take risks as regards the firm's future (Gibb, 2005; Man and Lau, 2005) in order to keep it alive in the long term. Because of the important role of entrepreneurial competencies in SMEs' success, the issue is studied further in the following.

The discussion concerning key entrepreneurial skills in order to succeed in

business started in the 1980s. The issue was presented with regard to the various psychological features of firm managers and the firms' end results. Gartner (1988) channelled the focus onto the decisions and actions of the entrepreneurs, and in 1992, Chandler and Jansen provided 21 skills categorising entrepreneurial competencies in three main blocks: entrepreneurial skills, managerial skills, and technical-functional skills (Chandler and Jansen, 1992). Bird (1995) defined entrepreneurial competencies as being positioned in separate venture phases: "underlying characteristics such as generic specific knowledge, motives, traits, self-images, social roles, and skills which result in venture birth, survival, and/or growth" (Bird, 1995: 15). Some authors connect entrepreneurial competencies with a firm's starting phase, and the managerial skills generally used and needed in the growth phase, or in both areas (Man et al., 2002).

In the light of the dissertation and its focus on SMEs, entrepreneurial competencies have a very close connection with entrepreneurship, and especially in small and new businesses (e.g. Colombo and Grilli, 2005; Nuthall, 2006). Additionally, the relationship between entrepreneurial skills and the firms' end result i.e. business growth, competitiveness, success, and performance are interrelated (Colomdo and Grilli, 2005; Davidsson, 2006; Man et al., 2002). More specifically, Mitchelmore and Rowley (2010) included the following entrepreneurial competencies as mega competencies: entrepreneurial, business and management, human relationships, and conceptual and relationship competencies. For clarity, they presented entrepreneurial competencies as a first sub-category, which included competencies focusing on identifying, for example, new business opportunities in markets, environmental scanning and idea generation (see Mitchelmore and Rowley, 2010). Loué and Baronet (2012) discussed entrepreneurial competencies consisting of the following: opportunity recognition, opportunity exploitation, financial management, human resources management, marketing and commercial activities, leadership, self-discipline, marketing and monitoring, and intuition and vision. All these extensive competencies are therefore founded on opportunity and environmental change recognition, and furthermore, their realisation in practice as business functions.

Additionally, Iandoli et al. (2007) comprehensively define entrepreneurial competence as 'the capability of entrepreneurs to face effectively a critical situation by making sense of environmental constraints and by activating relational and internal specific resources' (Iandoli et al., 2007: 17). As the combined entrepreneurial competencies above focus on the future (Baronet and Loué, 2012; Mitchelmore and Rowley, 2010), they can thus be defined as 'future competencies'. Such competencies include idea generation, opportunity identification, environmental scanning, possible opportunity positions in markets, and a means of attaining a life cycle continuity for a business. Additionally, according to Iandoli (2007), it is the active resources of entrepreneurs, which Mitchelmore and Rowley (2010) have connected to managerial competencies, which secure the continuity of the existing business. Thus, there is a partial overlap

between those competencies focusing on the future and those competencies securing every-day business. To clearly separate both of these meanings, the thesis compresses entrepreneurial competencies into including all competencies focusing on the business future and possible new opportunities, and managerial competencies into containing all the competencies dealing with the existing business – that is to say – the running of the firm.

As a summary, Table 1 below brings together the generic competencies supporting business that are presented in the literature with their authors, and the definitions/features of these competencies. Furthermore, the following Table 2 can be seen as bringing together the definitions/components of

*Table 1. Generic competencies supporting business as presented in the literature*

Type of competencies	Authors	Definition/components of competencies
<b>Individual, professional</b>	Sanghi, 2007	Competence: skilled-based, standard of attained, what is measured; Competency: behaviour-based, manner of behaviour, how the standard is achieved
	Keen, 1992	Competence hand model: skills, knowledge, experience, contacts and values
	Spencer and Spencer, 1993	Competency iceberg model: motives, traits, self-concept, knowledge and skill
	Burgoyne, 1993	Competency from functional perspective: the goals of organisations are best to achieve by improving individual's performance
	Boyatzis, 1982 Klemp, 1980	Job competency: underlying characteristics of a person result in superior and/or effective performance in a job
	Hoffmann, 1999	Competency: underlying qualification and attributes of a person, observable behaviours, and standard of individual performance outcomes
	Finegold and Notabartolo, 2010	Analytic skills, interpersonal skills, ability to execute, information processing and capacity for change/learning
	Hodkinson and Issitt, 1995	Professional competence: professions integrating knowledge, understanding, values and skills
	Cheetham and Chivers, 1996, 1998	Professional competence: cognitive competence, functional competence, personal competency, ethical competencies and meta-competencies

Type of competencies	Authors	Definition/components of competencies
<b>Organisational</b>	Nurach et al., 2012	Organisational competencies are built up by individual competencies
	Teece et al., 1997	Organisational competencies are firm-specific assets assembled in integrated clusters, formed by individuals and groups, facilitating the performance of firms
	Sanchez, 2004	Organisational competence is formed of five modes of firm's value-creating processes developing and maintaining in a firm various activities to achieve overall competence
	Turner and Crawford, 1994	Corporate competencies belong to the organisation, and are embedded processes and structures that tend to reside within it
<b>Managerial</b>	Sanchez, 2004	Capable management development, utilise and manage organisational competencies
	Lado et al., 1992	Managerial competencies as crucial for firms to be able to develop other competencies
	Mitchelmore and Rowley, 2010	Contains business and management competencies, human resource competencies and conceptual and relationship competencies
	Loué and Baronet, 2012	Contains financial management; human resources management; marketing and commercial activities; leadership; self-discipline; marketing and monitoring
<b>Entrepreneurial</b>	Shane, 2003	Entrepreneurial competencies are crucial from the point of view of entrepreneurial process
	Chandler and Jansen, 1992	Combination of entrepreneurial skills, managerial skills and technical-functional skills
	Mitchelmore and Rowley, 2010	Contains competencies focusing on the future (identify e.g. new business opportunities in markets, environmental scanning and idea generation)
	Loué and Baronet, 2012	Contains competencies focusing on the future: opportunity recognition and exploitation; intuition and vision

*Table 2. Definitions of competencies applied in this thesis*

Type of competence	Definition / components
Competence, competencies (modified Parry, 1996: 50)	Competence/competencies are a cluster of all related human features, skills, abilities, capabilities, experiences, attitudes, and other traits that affect a major part of one's job (a role or responsibility), that correlate with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development (Parry, 1996: 50).  People in firms are considered regardless of the position of the person.
Organisational competencies	Organisational competencies are built up by individual competencies; they form together a firm's performance embedded in processes and structures, and by developing and maintaining organisational competencies it is possible to achieve any desired goal.
Managerial competencies	Managerial competencies (existing leading business competencies) are developed, utilised and managed by capable managers; they are the internal strength of an organisation, and contain all competencies influencing existing business, and assisting its survival.
Entrepreneurial competencies	Entrepreneurial competencies (idea generation, opportunity identification, environmental scanning, and possible opportunity position on markets) include all competencies focusing on the businesses future and possible new opportunities.

the competencies applied in this thesis.

After describing the entrepreneurial and competence approach in general, the next section presents the more specific content of the dissertation: SMEs and the competencies enabling business survival as described in the literature.

### 2.3 SMEs and their business survival by competencies

This section focuses on informing the reader about Finnish and Russian SMEs, their impacts on societies, the general features of an SME, and their survival components introduced in the literature. Earlier in Section 2.2.3 generic business supporting competencies were presented, however, this section focuses especially on those studies considering the survival components for business in SMEs.

### 2.3.1 Micro, small and medium-sized enterprises

Micro, small, and medium-sized enterprises create the basis of the economy in nearly every country. The impact of SMEs is crucial for the EU's economy; 23 million SMEs account for 99 % of all companies in EU countries and employ about 75 million people. SMEs employ 67 % of the total EU employment and have created 85 % of net new jobs between 2002 and 2010 in the EU. (EC, 2014) Despite their obvious significant impact on the economy this observation about their importance is quite new. The importance of SMEs for the economy received broader awareness after David Birch's research (1979) implied that small firms had been the prime source of employment creation in the United States in the early 1970s, and had created over 80 % of net new jobs. After Birch's study (1979), the general economic mind-set also changed. Thus instead of the former belief that small businesses had a minority influence on economic growth and jobs creation, it was recognised that it was as strong as that previously held to be true for large business. In the 2000s, the industrial and economic changes have considerably altered employment and SMEs have become even more important job creators. In Finland in 2001-2010, large enterprises have been reduced by an average of 300 jobs, while SMEs, in comparison, have employed 77 000 more employees in the same period (Routamaa, 2013). Additionally, the impact of SMEs can be recognised by the simple fact that all large companies were once small.

The EU definition of micro-, small- and medium-sized enterprises (EC, 2014b), which is used in Finland, is presented in Table 3 below. The definition separates various firms based on the number of employees, the size of turnover, or on the balance sheet. In Finland, there were altogether 322 184 enterprises, of which 99.8 % were micro, small or medium-sized in 2012. SMEs employed 64 % of the total employment, which in practice means 1.5 million employees of a total of about 2.4 million employees (Statistics Finland, 2015). The share of SMEs contribution to the total GDP was over 40 %. (Statistics Finland, 2012) Thus the impact of SMEs is significant for the Finnish economy, especially from the perspective of their considerable job-creating influence.

*Table 3. Definition of SMEs in EU, in euros (EC, 2014)*

Company category	Number of employees	Turnover or	Balance Sheet Total
Medium-sized	< 250	≤ 50 mln euros	≤ 43 mln euros
Small	< 50	≤ 10 mln euros	≤ 10 mln euros
Micro	< 10	≤ 2 mln euros	≤ 2 mln euros

In Russia, the polity changed in 1991, when the Soviet Union collapsed and the Russian Federation was formed. The economic situation also changed after the polity change. During the Soviet Union period, private entrepreneurship was prohibited in Russia, but after the polity change in 1991, the need for a definition of SMEs appeared. Russian SMEs are hence defined according to a law adopted in 2007 (European Investment Bank, 2013: 6; Federal law #209-FZ, 2007) presented in Table 4 below. There are some differences between the EU and the Russian definitions. In the Russian defini-

*Table 4. Definition of SMEs in Russia, using turnover in euros (European Investment Bank, 2013: 6; Federal law #209-FZ, 2007)*

Company category	Employees	Turnover
Medium-sized	< 250	≤ 25 mln euros
Small	< 100	≤ 10 mln euros
Micro	< 15	< 1,5 mln euros

tion, the category of the employees and the turnover are similar in both.

At the beginning of 2013, there were over 6 million SMEs (OECD, 2014) in Russia. These SMEs employed 23 % of the total employment, which in practice means 16.1 million people. The SMEs' share of the GDP was estimated at 20-25 %, and the development of the SME segment is now one of the key factors in the sustainable economic development of Russia. (European Investment Bank, 2013) The membership to the WTO obtained in 2012, and the expected increase of SMEs to 30 % of the GDP (OPORA Russia, 2011) by 2020, indicates the growing importance of SMEs for the economy and for the country's competitiveness. This positive development is highly dependent on the political and economic development of the country, as the latest events have made the situation more unstable again.

When illustrating the characteristics of small firms, the definition of the Committee for Economic Development (CED) has stated that there are four features, of which at least two attributes need to be possessed by a small firm:

- o The management of the firm is independent. Usually, the managers are also the owners.
- o The capital is supplied and the ownership is held by an individual

- or a small group.
- o The area of operations is mainly local, with the workers and owners living in one home community. However, the market does not need to be local.
- o The relative size of the firm within its industry must be small when compared with the largest units in the field. This measurement can be in terms of sales volume, number of employees or other significant comparisons. (CED, 1978).

Although the description by the CED is over 30 years old, it forms a proper image of micro, small, and medium-sized firms and their internal and external outcomes. Usually, SMEs are small and have only a few employees, for example in Europe SMEs employ four employees on average (Lukács, 2005). In Finland in 2012, for example, of all the firms over 93 % were micro enterprises (employees under 10) (Statistics Finland, 2012), and in Russia this figure was about 85 % (employees under 15) (European Investment Bank, 2013). When the number of staff is limited, it requires the employees to have sets of skills and competencies to perform multiple tasks. Often the owner is also the manager, who oversees and controls all the business areas (Verhees and Meulenber, 2004). Thus the owners as well as the small group of staff perform the firm's hands-on functions on which the firm's performance relies.

Furthermore, Carson and Cromie (1989) have characterised SMEs through three limitations;

- o Limitation of SME impact (on markets). The limitation of impact means that the SME's production is for local or regional customers, or they are a subcontractor of a large company.
- o Limitation of finance. The lack of finance is generally well known, usually the owner finances the business with assets for which they give their personal property as collateral.
- o Limitation of physical resources. The physical limits stand for the production's estate, machines, and other tangible assets.

Although SMEs have limitations e.g. in financial and technological resources, the advantages are that they have internal flexibility and closeness. Typically, organisations in SMEs are flat. Flat structures refer to the levels of hierarchical management and correspond therefore to the minimal distance between the front-line or entry-level employees and the top management. As well as the flat hierarchy, the structures are additionally non-bureaucratic, which enables direct and flexible decision making and internal actions (Carson et al., 1995; Nooteboom, 1994). The simple and flat struc-

ture provides closeness between the firms as well as between the customers. Straightforward information sharing, good communications and personal relationships are, furthermore, typical of SMEs.

### 2.3.2 Survival components in SME

As concluded in Section 2.2.3, individual (professional), organisational, managerial and entrepreneurial competencies have a crucial effect on a firm's success and thus they can be argued to be survival competencies. This section endeavours to go more deeply into the competencies and other related issues influencing SMEs' business survival. Individual (professional) and organisational competencies form the basis for each firm, and have been discussed previously (see Section 2.2.3).

Firstly, entrepreneurial competencies and entrepreneurial attributes were highlighted as crucial attributes for success in the entrepreneurial process (Shane, 2003), and therefore were justified as business survival competencies. Entrepreneurial competencies assist the discovery of new business opportunities and thus assist the provision of new business possibilities to be executed if needed. New business possibilities may be based on innovations (see Section 2.1.1) such as new products or services, new geographical markets, new raw materials, new methods of production, or new ways of organising production. To discover new business possibilities some special individual competencies and features are demanded, such as better access to information, and superior cognitive capabilities to capture the opportunities when given the same information as everyone else. As attributes that contribute being able to discover new business possibilities better, the literature presents recent or former job functions (Freeman, 1982; von Hippel, 1986; Klepper and Sleeper, 2001), different experiences (Delmar and Davidsson, 2000; Lazear, 2003; Romanelli and Schoonhoven, 2001), and social networking (Johansson, 2000); these all help with the accessing of new information.

Additionally, in innovation the term is absorptive capacity – the ability to identify, assimilate, transform, and apply valuable external knowledge (Cohen and Levinthal, 1990), promote opportunity discovery (Gray, 2006; Yu, 2001) using knowledge about the markets (Johnson, 1986; Shane, 2000), and finally entrepreneurial talent (Baum et al., 2000; van Praag and Cramer, 2001) and cognitive properties (Gaglio and Katz, 2001; Sarasvathy et al, 1998). Furthermore, innovativeness and creativity (Ardichvili et al., 2003; Poorsoltan, 2012; Stevenson and Jarillo, 1990) are closely linked in entrepreneurship and are elements of entrepreneurial competencies. When a new business opportunity is recognised, an individual needs the capability to make the decision whether to proceed or not. These features such as the capability of risk-taking, determination, motivation, and other individual factors result in the willingness to execute a new venture. When summarised, all the personal features mentioned above are strongly linked to the

features of entrepreneurs, and thus highlight firstly the importance of entrepreneurial competencies, and secondly the importance of specific individual skills and capabilities as survival competencies.

Dynamic capabilities are considered to be useful aptitudes when operating under changing conditions. In the literature, the dynamic capabilities are similar to the organisational competencies that focus on creating and employing the means by which a firm will succeed. Additionally, dynamic capabilities enable an organisation to meet rapidly changing environments (Teece et al., 1997; Teece, 2007) and therefore enable them to survive in these changing environments (Helfat et al., 2007). However, dynamic capabilities do not seem to really fit SMEs because of their limited resources, and because of the high-velocity nature of the expected changes. Thus firstly, the field of industry needs to be taken into account when applying the theory of dynamic capabilities. The forest industry, being the research environment in this study, is globally quite a stable field of industry, and thus does not meet such radical continuous market changes as e.g. the communication industry does. Secondly, dynamic capabilities require multiple resources to purposefully create, extend, or modify a firm's resource base, and substantial changes in the limited resources of SMEs are, therefore, simply unrealistic. Dynamic capabilities such as survival competencies seem, therefore, to have limited relevance for SMEs in the context of this dissertation.

Managerial and business competencies, in turn, are observed to be crucial for SMEs' performance (Capaldo et al., 2004; Javidan, 1998; Sanchez and Levine, 2009; Vos, 2005; Walsh and Linton, 2011) and have an effect on the value creation processes (Barney, 1991; Grant, 1996; Prahalad and Hamel, 1990). Managerial competencies focus on planning, organising, controlling, and directing a firm, and are practically involved in resource acquisition, development, financial skills, business operational skills, and marketing skills as well as having an influence on organisational competencies. In SMEs, where a firm's resources (such as finances, labour, technology, and time) are limited, the impact of managerial skills is important for business success and for survival, and thus managerial competencies can be considered as survival competencies. To run a business owners/managers need appropriate managerial skills (Fatoki and Asah, 2011; Garcia, 2005; Pansiri and Temtime, 2008) and strategy implementation skills (Berio and Harzallah, 2005; Berio and Harzallah, 2007; Hambrick and Mason, 1984; Lado et al., 1992; Sanchez, 2004).

SMEs usually have limitations on their finance (Carson and Cromie, 1989), and they are dependent on functioning credit markets and the availability of venture capital in the starting and expansion phases. As a part of managerial competencies, financial skills are presented as crucial for business success and, furthermore, for the managers to understand the impact of their decisions on the firm's finance (Van Auken and Carraher, 2011; Cassar, 2004; Zarook et al., 2013). Good financial skills (Johnston and Loader, 2003) and effective

interpretations of financial statements have an effect on a small firm's success (Bressler and Bressler, 2006; Coleman, 2000; Carter and Van Auken, 2005; van Praag, 2003). The role of financial statements is central to maintaining a firm's competitiveness and solvency (Coleman, 2000; Wiklund and Shepherd, 2005).

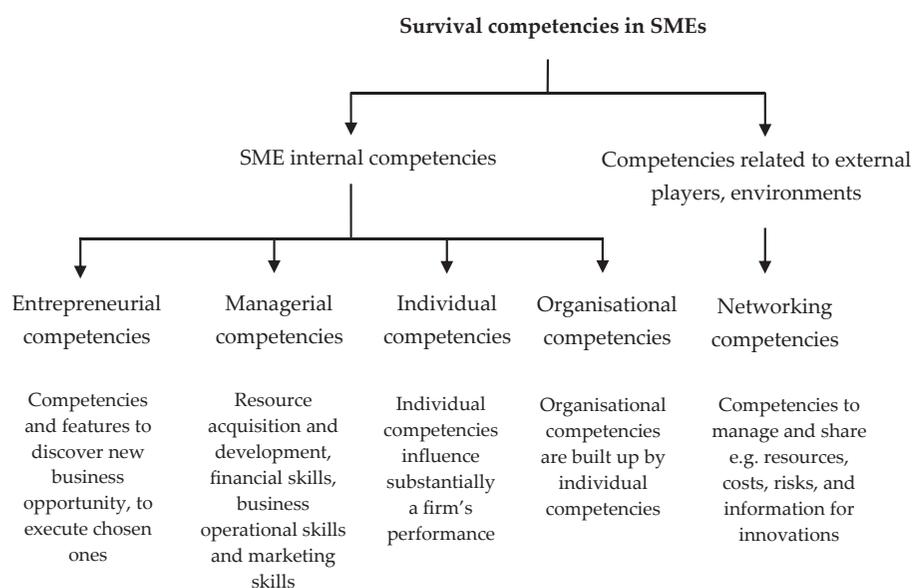
Furthermore, as a part of managerial competencies, marketing skills are recognised as having a significant role in an SME's constant success. Invention of new products or services is economically of little worth if customers do not know about them and purchase them. Marketing, therefore, seems to be a survival skill in SMEs (Hatonen and Ruokonen, 2010; O'Dwyer et al., 2009; Parry et al., 2012). Limited financial resources for marketing force SMEs to take care of their own marketing, distribution, and support for the finished products (Carson et al., 1995; Gilmore et al., 2001) using noncomplex marketing models (Hogarth-Scott et al., 1996). Despite simplistic, informal, reactive, and haphazard marketing styles (Carson and Cromie, 1990; Fuller, 1994) SMEs have certain marketing advantages, such as flexibility, the ability to respond rapidly to the customers' needs and environmental requirements, and to attain closeness with customers (Simpson et al., 2006; Storey, 2000).

Additionally, as a part of the managerial operational competencies, good human relationships and interactions are seen as one of the advantages that lead to better SME performance (Rubio and Aragón, 2009). Firms have both internal human relationships i.e. relationships between employees – and the firm's external human relationships with e.g. customers and suppliers. The firm's internal relationships are commonly the responsibility of human resource management (HRM). While in large companies human resources are managed with the help of an HRM department, in small firms human resource issues are mainly handled by an owner/manager along with his/her other tasks, even though human resource management generally requires different skills and competencies (Quader, 2008). Most SMEs do not have any particular system for personnel training (Hessels and Parker, 2013; Saini and Budhwar, 2008), and thus the lack of qualified and skilled employees detrimentally influences e.g. the innovation process (Kamalian et al., 2011; Kang and Lee, 2008). Therefore, the awareness of such a lack of competence can be considered as an important skill in itself, because when a lack of skill and/or a demanded feature is recognised, it is easy to acquire more training in order to obtain the requirements to perform the specified job effectively (Dubois, 1993; Gilgeous and Parveen, 2001).

In comparison with internal relationships, the firm's external relationships are linked to connections from outside the firm; connections between customers, links between people in R&D departments, firms delivering materials, subcontractors and so on. In other words – a firm acts via separate relationships in a network. Therefore, competencies related to external environments and actors in networks can be treated as a separate classification, because the networking has arisen globally as one of the firms' courses

of action for success in business. Network competencies connect firms to inter-organisational cooperation (Ferrer et al., 2009). Sharing competencies means that organisations manage and share resources, costs, risks, and information with customers and suppliers (Lampert and Cooper, 2000; Mentzer et al., 2000). Networking and innovation are linked together (Clifton et al., 2010; Gronum et al., 2012; Jørgensen and Ulhøi, 2010) as it is possible to acquire more innovation capacity through network relationships. Zeng et al. (2010) have studied cooperation networks in inter-firm, intermediary institutions, and research organisations, and they argue that inter-firm cooperation has a most remarkably positive effect on the innovation performance of SMEs. Additionally, networking is linked to globalisation, for example when SMEs search for new opportunities, business growth or development through internationalisation abroad.

As a summary of the competencies presented in the SME literature as regards business survival, it was firstly indicated that entrepreneurial features are strongly connected to opportunity discovery and innovation. Secondly, entrepreneurial competencies together with 'future competencies' have an effect on the continuity of businesses. Thirdly, managerial and business competencies together with financial skills and marketing skills are highlighted. Fourthly, human relationship skills and competencies lead to better company performance internally and externally. Finally, external networking competencies were identified as the new survival competencies of the 2000s. Figure 7 below combines the survival competencies identified with the generic



*Figure 7. Survival competencies in the literature.*

competencies supporting business (see Table 1) as reported in the literature.

To underline the direction of influence direction and the environments, the competencies are classified into categories such as internal competencies (competencies that have an influence inside a firm), and competencies related to external players and environments (competencies with which a firm interacts with external environments).

As a conclusion, it can be argued that the literature reviewed does not express a holistic, comprehensive account of the survival competencies needed for SMEs. The literature offers separate answers for separate actions, e.g. if a firm wants to increase its turnover by developing new products or services, then it can search for the demanded innovation skills and competencies in the literature. Additionally, the literature presents separate skills and themes from the view of managers/owners, and a holistic, comprehensive, firm level view of survival competencies is lacking. If an SME employs four employees on average (Lukács, 2005), it is surprising that only the manager/owners are considered to have an effect on the firm's performance. Of course managers/owners have significant roles in strategy, management and financing, but as regards shaping a well-balanced view of all SME competencies the image needs to be seen as a whole; thus it is necessary to encourage the skills and competencies of all the individuals that have an effect on the firm's performance, regardless of position. This dissertation adds to the literature a holistic, comprehensive picture of the survival competencies needed for SMEs. It also offers empirical data from Finnish and Russian SMEs (see Section 4), concerning their survival competencies during business change.

### 3. RESEARCH DESIGN

This section concentrates on providing information concerning methodological issues, the chosen research methods, and the analysis approach.

#### 3.1 Research philosophy

Research philosophy discusses how the existence of the world is perceived in general, and the relationships between the world, people, and society. The background beliefs, the role of the researcher, and the preferred methods precedes the actual research. Initially, a researcher has to decide the research approach and the methodology by which to study the targeted research problem. Alternatively, a reader has to acknowledge the researcher's beliefs and values in order to review whether the chosen methodology is suitable for the particular research problem (Easton, 1995).

First, the research philosophy of this research is based on subjectivism/social constructionism, building on the idea that reality is socially constructed within individuals, and knowledge is thus available only through social actors; this knowledge relies on the social actors' meanings and therefore forms a deep understanding of SME survival competencies in changing business environments. The scientific background is mainly classified as within the natural and social sciences. In social science, perceptions and descriptions of the world are mainly categorised into two ontological streams; subjectivism and objectivism (Eriksson and Kovalainen, 2008; Morgan and Smircich, 1980). Easterby-Smith et al. (2008) use the terms social constructionism and positivism for the same purpose, referring to the subjectivist or objectivist nature of the research. The term constructionism, describes the social nature of the reality (Eriksson and Kovalainen, 2008) – reality is socially constructed and thus knowledge is available only through social actors. In objectivism/positivism, reality is assumed to be a separate, distinctive, and objective reality, where social world exists independently from people, their actions and activities (Easterby-Smith et al., 2008; Eriksson and Kovalainen, 2008).

Subjectivism/social constructionism establishes the reality of individual experiences and perceptions, which may differ for each person, as does the context, and change over time (Easterby-Smith et al., 2008; Eriksson and Kovalainen, 2008). Therefore, epistemology illustrates the phenomenon based on how individuals interpret survival competencies in their reality. For the reader's clarity, the study is located within a social constructionism, interpretive paradigm. There are many forms of interpretivism and constructionism, but usually both are concerned with subjective and shared meanings (Eriksson and Kovalainen, 2008). The starting points are the meanings, of which a researcher has to make sense in the analysis in order to have an under-

standing of the phenomenon (Easterby-Smith et al., 2008). Thus a researcher interprets the data in order to discover the findings. Although there might be some minor differences between constructionism and interpretivism this study uses these words as interchangeable. Different individuals in different countries within different business environments experience situations differently. To illustrate a holistic view of survival competencies in Finnish and Russian SMEs in different business societies, subjectivism/social constructionism was chosen because it allows a comprehensive view of the phenomenon to be formed, i.e. the survival competencies, by aiming to understand the existing reality as it is experienced by the actors.

Additionally, subjectivism/social constructionism allows a researcher to create interpretations based on various data, and to establish the research with small samples based on the fact that in social constructionism there is no absolute truth, e.g. any instance of reality can be viewed as truth, from the perspective of a specific context. The benefit of applying social constructionism lies in the rich and in-depth interpretations of the phenomenon, which is not possible in objectivism/positivism (Easterby-Smith et al., 2008; 59, 63; *ibid.*, 1991; 27). Furthermore, as competencies are quite a specific human- or organisation-based phenomenon, in-depth contextual interpretations are therefore needed to understand this phenomenon, whilst also aiming to increase a general understanding of the situation.

### **3.2 Research approach and research method**

The research approach of the dissertation is qualitative by nature, and was chosen for many reasons. Firstly, the qualitative research approach gives richness to the data collected and thus the findings (Silverman, 2005). Secondly, it was chosen to promote a better understanding of people and what they say and do, and thirdly to allow the researcher to see and understand the context within which decisions are made and actions take place (Myers, 2009). The term qualitative places the emphasis on the qualities of entities and on processes and meanings, which are not experimentally measured in terms of amount, frequency, intensity, or quantity (Denzin and Lincoln, 2003). Qualitative methodology is commonly used in the areas of social science and business research to enhance understanding of reality as socially constructed, produced, and interpreted through cultural meanings (Eriksson and Kovalainen, 2008; Silverman, 2001). The concept of survival competencies in SMEs in changing business environments is complex by nature and is constructed of various skills, abilities, attitudes and individual features. These qualities are not easily measured quantitatively, consequently the qualitative approach can come closer to describing the real situation. Furthermore, qualitative research as a chosen methodological approach offers a researcher the possibility of focusing on this complexity, which includes various com-

petence perspectives and meanings in Finland and Russia; thus forming the multi-cultural concept. By employing qualitative research it is possible to illustrate the reality of SMEs in their real-life business environment and contexts in Finland and in Russia as well as discovering how they experience competencies as issues supporting business, and finally ascertaining how their competencies are changed due to environmental changes.

The research design applied is a combination of exploratory and descriptive designs. Firstly, an exploratory research design is particularly useful when the research problem is poorly understood, and a researcher wants to know what is happening in a particular context – here it is how Finnish and Russian SMEs act in changed business situations and what role competencies have in their business survival. Therefore, for this research an exploratory design offers more knowledge of the previously poorly studied survival competencies in SMEs. The business environment, the human resources, and society differ in Finland and Russia. The study approach is purely based on competencies in SMEs, and, therefore, cultural differences have been excluded from the study. However, during the study the researcher has been aware of the possible cultural effects, but due to the focus of the study, concentrated only on examining skills and competencies of SMEs for surviving the changes occurred. Secondly, descriptive design helps to structure the previously unstructured phenomenon by describing the existing understanding of survival competencies in SMEs, and as Ghauri and Grønhaug (2005) have stated, is therefore able to give well-structured descriptions of real-life cases. Thus, the research designs chosen comply with the constructionist epistemological perspective of interpreting people's experiences of competencies affecting business survival, as regards how they construct their world and what meaning they attribute to their experiences, and for the purpose of understanding how people make sense of their lives and their experiences (Merriam, 2009) in SMEs.

A case study and a literature review were chosen as the research methods for this research. The literature review is a rational assessment of the existing body of knowledge before bringing the researcher's contribution to the discussion (Tranfield et al., 2003). A literature review, conducted in a systematic way, significantly increases the transparency of the research, and therefore makes the analysis as unbiased as possible by being auditable and repeatable (Fink, 2010; Kitchenham et al., 2010). In the study, a systematic literature review protocol provided by Pittaway et al. (2005) is used. The protocol provides detailed conductive techniques and is also concentrated contextually on SME knowledge in literature. Publication 1 serves as a pre-study for SME competencies and is conducted with the help of a literature review in order to identify the general competence discussion and common themes related to human capital and competencies in SMEs. Publications 2-5 include specific literature reviews related to the research questions in the publications.

The case study is used as a research method for the empirical data, which was conducted within four samples in Publications 2-5. The case study was chosen because it allows an extensive examination of a single instance of a phenomenon of interest (Collis and Hussey, 2003). Additionally, it is a commonly used method in business research (Ghauri and Grønhaug, 2002) in order to assemble knowledge of individual, group-level, organisational, social, and related phenomena (Yin, 2009). Case studies may produce rich descriptions of every-day life (Stake, 1995), such as beliefs, opinions, and the views of individuals. Tellis (1997) stresses the production of holistic and detailed knowledge gained from the analysis of multiple empirical and context-rich sources. This study focuses on survival competencies in SMEs in changing environments. The changing business environments in Finland and Russia are likely to have various aspects depending on the personal experiences of an individual. In order to describe and portray the survival phenomenon better from the point of view of competencies, the case study approach offers the possibility of collecting in-depth knowledge from informants involved in the research, and acquiring a deep understanding of each individual's meaning.

Furthermore, the essence of a case study is to try to illuminate a decision or set of decisions; why they were taken, how they were implemented, and with what result (Schramm, 1971). It is a distinct advantage to use a case study as a research method, as the 'how' and 'why' questions are asked about 'a contemporary set of events, over which the investigator has little or no control' (Yin, 2009). From the empirical viewpoint, a case study provides an opportunity to study events occurring in the present, in real situations and in their own environment (Yin, 2003). The context of the study is multifaceted including economic structural changes in Finland and Russia, industrial structural changes in the forest industry, and additionally, a complex study of the issue of competencies in SMEs. Thus, various research areas and different individual aspects form the focus of the study, and the most suitable way to investigate the phenomenon is through a case study. In this study, the phenomenon of survival competencies is investigated in the environment of an SME in real operational situations and geographical locations.

The case selection is the most important methodological decision, when conducting a case study (Dubois and Araujo, 2007). Case study research has been defined by the unit of analysis, the process of study, and the outcome or end product, which are all essential to the case (Merriam, 2009). Yin (2009) especially stresses the selection of the unit of analysis. Initially, at the beginning the multiple-case study, a research design for defining the object of study was chosen: survival competencies in SMEs. The multiple-case design was chosen because within multiple-case studies only the relationships that are replicated across most or all of the cases are retained for analysis. The replication – an ability to replicate the results of a study – refers to the reliability (dependability) of the study (see Section 5.5). There is no expecta-

tion of replication in qualitative research, but a multiple-case study was chosen because of the possibility to replicate the features, and thus to promote the accuracy of the study.

The research data for the phenomenon - survival competencies in SMEs - consists of samples A, B, C and D (Publications 2-5). Publication 2 contains sample A the Russian SMEs and the other samples B, C and D include Finnish SMEs. The samples are constructed of various cases; sample A consist of 10 cases, B of 20 cases, and both C and D of 13 cases. Within each case – a firm – is the analytical unit (Remenyi, 2012). Furthermore, a firm is considered as an independent experiment and an analytical unit on its own (Eisenhardt and Graebner, 2007; Yin, 2003). The unit of inquiry is an SME, and the interviewee, considered the key informant, is embedded in the unit of analysis (Yin, 1994). As the key informants were selected individuals who established, or were members of the team who created the SME they had the best knowledge about the impacts of business environmental changes, and also, about competencies in the firm. In practice, most of the key informants were owners/managers who had been involved in the firm since its establishment. SME operations are person bounded, and SME operations are closely related to the entrepreneur. In some cases, the key informant/informants was a specialist employee who had the most comprehensive knowledge about the firm's development stages and operations. Detailed information concerning the key informants is presented in Part II of the publications.

The next section presents additional case selection criterion; the case limitations and research methods related to the publications and their objectives, as well as illustrating the research process.

### **3.3 Research process, selection criterion and sample objectives**

The study concentrates on survival competencies in micro, small, and medium-sized firms in changing business environments in Finland and Russia. The business environment is a field of industry, or one related to it. First of all, taking into account the complexity of the subject in focus, the main purpose of this qualitative research is to increase the depth of understanding in the specific area rather than to demonstrate a wide coverage and the representativeness of the issue. The objective of the study is approached by conducting and combining various sources with various data. This is first done by identifying competencies existing in SMEs with a literature review, and second by combining the results with the empirical data using four contextually different samples and thus different data cases.

In qualitative research, it is not necessary to have large samples in order to increase the depth of understanding in the specific area, but there is a need to reach acceptable data saturation for a test of sufficiency (Lincoln and Guba, 1985; Morse et al., 2002). The data saturation is achieved when the number of

interviews reaches the point where new data or relevant information, themes or categories no longer arise. In the thesis, the number of Russian SMEs was limited to 10 firms because of the problems in data collection (see Section 3.4.1); the researcher could not influence these problems. As a consequence, the comparative study between Russian and Finnish SMEs have similar research conditions, the number of Finnish SMEs was also limited to ten firms. Regardless of the limitations on the number of the firms, the data saturation was achieved because new information ceased to emerge from the data in each sample. Moreover, samples C and D reached data saturation based on this emergence criterion. Purposeful sampling, i.e. – choosing suitable informants who have the best knowledge of the object of the study - is one way to fulfil the criterion of content validity (Patton, 2001). The samples (firms) in the study, needed firstly to have met changes in their business environments, and secondly all the firms needed to fulfil at least one of the following criteria: 1) they operated in the forest industry or industries related to it, e.g. the metal industry, 2) they were subcontractors in the mentioned industries, or 3) their operations were otherwise connected to the forest or metal industries. The samples in Publications 2 – 5 consist of case studies that either complement each other or gave contrasting results (Yin, 2009). Secondly, from the cases (firms) the most suitable informants were chosen (see Sections 4.2 – 4.5) offering the best information about the object of the study.

The research progresses through four different empirical samples according to their business environment. Sample A includes the Russian SMEs that experienced polity change and economic collapses. Sample B comprises Finnish SMEs that operated in a network of a paper mill that have been shut down. Sample C involves innovative Finnish SMEs, and sample D Finnish SMEs and related actors that have experienced drastic structural change in industry. The case studies were used in Publications 2 – 5, and a systematic review was provided in Publication 1.

### **3.4 Data collection approach and data collection method**

Interviews were used as a data collection approach, primarily because it is not possible to observe an individual's thoughts, intentions, and actions conducted in the past (Patton, 1984). The purpose of the interview was to make it possible for a researcher to take someone else's perspective, and thus look at the world from the subjects' point of view including: the way in which they organised their world, their thoughts about what is happening, their experiences, and their basic perceptions. Burgess (1982: 107) summarises "(the interview) is ... the opportunity for the researcher to probe deeply to uncover new clues, open up new dimensions of a problem and to secure vivid, accurate inclusive accounts that are based on personal experience." In an interview, "the researcher and participants engage in a conversation focused on

questions related to the research study” (deMarrais, 2004: 55). It is important to obtain more in-depth information about perceptions, insights, attitudes, experiences or beliefs in order to describe and understand the reality the participants have lived through, and thus as a researcher to be able to form a comprehensive point of view of survival competencies.

The data was collected via individual and focus-group interviews. The focus-group interviews were those occasions when a group of individuals discussed and commented on a selected topic or issue from their personal experiences (Eriksson and Kovalainen, 2008). Thus, the focus-group interviews were chosen to produce experimental data by selecting interviewees who then discussed a selected topic/issue. The focus-group interview is used in all publications 2-5 where more than one interviewee participated an interview session. The individuals had all shared and discussed their experiences in relation to the topic in question.

The traditional types of interviews are structured interviews, semi-structured interviews, and open interviews. The flexibility of the individual types of conversation varies from a rigidly structured interview to a fully open, deep interview. In this study, a semi-structured interview was used, because the interview was guided by a mix of more or less structured interview questions, which still allowed flexible, complementary and clarifying questions from the interviewers as well as interviewees (Merriam, 2009; Silverman, 2005). The interviewer attempted to obtain information from the person by asking questions in the verbal interchanges comprised of the semi-structured interviews (Longhurst, 2010). More specifically, the selected type of interview is a themed interview, which is an organised way of conducting an interview. In a themed interview, participants know the main themes of the interview based on the information they have received containing a list of questions, however, the order of the questions may change and the formulations of the questions may vary according to the situation. In a themed interview it is also possible to contain several questions in one theme and formulate the questions during the interview (Eriksson, 1986). In this research, themed interviews were used in the semi-structured interviews in Publications 2 - 5.

Data samples A, B, C and D are presented in the following.

### **3.4.1 Sample A, Russian SMEs**

This sample includes the data concerning those competencies in the Russian SMEs that had enabled business continuity in changing business situations. The data-collection process started by collecting a database of Russian companies, and as a result of this preparation phase three separate databases with contacts and company information for 369 firms were compiled. The suitable SMEs (see the criterion in Section 3.3) were limited to North-West Russia and the area of St. Petersburg and Leningradskaya Oblast. This was because of the high geographical SME concentration in North-West Russia, and

because the area is considered to be Russia's gate to the European markets and vice versa. The suitable firms had operated long enough to reach the survival criterion, and have gone through at least one of the following changes: the change in the social system from socialism to democracy in 1991, the collapse of the rouble in 1998, or/and the economic crisis in 2008-2009. The firms that were suitable were contacted, but some Russian firms, operating in domestic markets, saw no value in being interviewed because they felt the enormous Russian markets could satisfy their ambitions. Thus, all of the SMEs interviewed operated both in the domestic and in international markets.

The primary data for sample A was gathered by a focus-group and individual interviews between October 9 and December 5, 2012; there were 10 interview sessions with 12 individuals. The selected informants (interviewees) were individuals who had the best knowledge of how the business environmental changes had influenced their firm's operations, and by which means the firm had responded to these changes. All the interviewees were given information before the interviews by sending a semi-structured written form to describe the aim of the research and the interview themes (see Appendix 1 and 2). The languages used in the interviews were Russian, English, and Finnish - with the help of a research assistant (Russian and English) and the researcher herself (Finnish, English and Russian). Any possible misinterpretation was controlled for by a translator, who listened to each tape and compared the transcribed and the translated text with the original version. In addition, the researcher herself checked the transcripts. The analysis approach was data driven, following the idea of grounded theory research where no prior theoretical framework exists. In the inductive analysis, the data was coded, and compiled into three Microsoft Word tables: firstly, the issues related to the research question were coded with a data driven approach; secondly, the main coded items related to the research question were gathered together; and thirdly, the items were grouped and categorised in terms of similarities. The process was iterative, each phase increasing the accuracy of the data. Finally, the results were organised in competence categories and divided into internal competencies existing within the firms, and external competencies referring to the external environment. This categorisation enabled a refined illustration to emerge of the survival competencies related to a firm, and its reactions to external changes.

#### **3.4.2 Sample B, Finnish SMEs**

Sample B contains data concerning the competencies and reactions in the Finnish SMEs to drastic changes in their business environment. All the selected firms in the sample operated as subcontractors in a network of a locally important paper mill that was shut down at the end of 2011 in the South-East of Finland. The data collection began by resolving which firms were involved in the network of the paper mill. The focus was not on examining the network

itself, but selecting suitable SMEs, which operated with the mill before it shut down, and thus met a drastic change in their business environment. The examination found that between 2009 and 2011 the mill had altogether 1,014 enterprises in its business network. Of these, 754 were SMEs having Finland as their main operation area. The primary data was gathered from 10 selected SMEs from the 754 firms. The selection criterion was that the mill had or has had an important impact on the SME's business in recent years in terms of turnover. In addition, secondary data was gathered from publicly available sources to build a comprehensive picture of the firm's operations.

A semi-structured form (Appendix 3) of the study and interview themes was sent to all interviewees, before the interviews, with the aim of preparing the respondents in advance to focus on change experiences. The primary data was collected in the spring of 2012 using focused semi-structured interviews in 10 Finnish SMEs with 12 of the most suitable informants for the themes. The informants mainly represented the management level of the firms. After the interviews, the transcripts were first coded and approached as an iterative, data-driven process. After which, the main coded items related to the research questions were collected together, and finally the data were grouped and categorised in terms of similarities based on modified grounded theory. The data from samples A (Russian SMEs) and B (Finnish SMEs) were used jointly in Publication 3. The data from both samples were coded and classified separately according to qualitative content analysis (see Section 3.5), and secondly, the common themes of both samples were identified, combined, and conducted by cross-case analysis (see Section 3.5).

### 3.4.3 Sample C, innovative SMEs

Sample C contains data concerning entrepreneurial competencies in innovative SMEs with an aim to explore entrepreneurial competencies in SMEs that have successfully exploited innovation. The data was gathered as part of the Niche-Inno research on the Forest Industry of South-East Finland in the winter of 2010. The project concentrated on finding new niche business opportunities outside the current mainstream pulp and paper production by focusing on innovative SMEs and on inter-industrial cooperation. In the data collection process, the selected SMEs had to fulfil at least one of three criteria for innovativeness, expressed in Table 5 below. The SMEs were peer-nominated by local small business centres, other entrepreneurs - or had been awarded publicly. The primary data was collected with 13 semi-structured interviews with 15 individuals from the innovative Finnish SMEs. Because the data was collected earlier in the Niche-Inno project, the author first had to evaluate the validity of the data in order to ensure that the firms operated as SMEs in 2012. The chosen informants represented either the managerial or/and entrepreneurial levels of the firm, and had been involved in the firm's operations for a long time, and thus possessed the best knowledge about the im-

*Table 5. Selection criterion, sample C*

Number	Criterion for innovativeness
1	It had introduced new products or significantly improved products, production processes, and/or services into markets.
2	Other companies in the field or local small business centre identified it as being innovative.
3	It had successfully commercialised the innovation.

pacts of the changes. The interview form is in Appendix 4. In addition to the primary data, secondary data was collected from publicly available sources to build a more holistic picture of the firms' activities. The interview questions focused on the firms' development since its foundation, and therefore the competence information collected covered all actions and operations during the firms' existence. Some of the firms had operated for many decades, and the interviewees were able to offer significant knowledge as regards the competencies that had enabled their business survival.

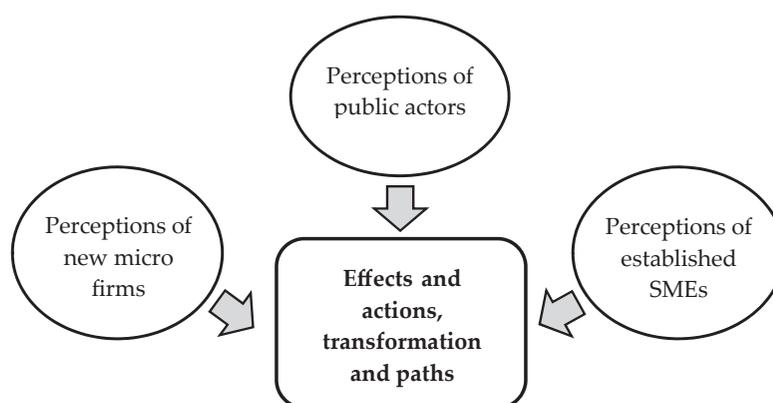
The empirical data were transcribed and coded by the Atlas.TI software, tailored especially for qualitative and explorative data analysis in order to organise and conceptualise the themes of entrepreneurial competencies. The template analysis, in turn, was used to create a template framework of entrepreneurial competencies based on the recent entrepreneurial competencies examined in the literature 2008-2014. Finally, all the types of entrepreneurial competencies that arose with the data driven approach were inserted into the template, and the similarities and differences were reported according to the classification of the findings.

#### 3.4.4 Sample D, SMEs in competence transformation

Sample D includes data from industrial structural changes and the resulting competence transformation in the SMEs. The topic of competence transformation was approached through an investigation of Finnish municipalities that had recently undergone industrial structural changes. Firstly, secondary data from public sources were used to create an overall picture of the change situation. Based on this analysis, the Southern-Finnish region of Kymenlaakso was chosen as the target area for the case study research because, since the 1980s, there have been considerable structural changes in important local industries, such as the marine, machine, forest, and paper industries. Within the timber and paper industry alone, it has been estimated that over 7000 jobs disappeared in the period 1990 – 2015, which is

70 % of the total job losses for the region (ETLA, 2012). The average unemployment rate in the area was around 13 % at the time of the research (Centre for Economic Development, Transport and the Environment, 2011), and according to the latest published statistics the unemployment rate is 16.8 % (Centre for Economic Development, Transport and the Environment, 2015: 4). This indicates that the area of Kymenlaakso and the enterprises in the region have faced drastic changes in the business environmental for many years, and therefore are the most suitable to study from the point of view of competence transformation. In addition, the proportion of entrepreneurs in the workforce is less than the country's average, and only a few growth enterprises exist in the area (Regional Council of Kymenlaakso, 2011).

The case includes three different views of structural change with an item triangulation, presented in Figure 8 below. The triangulation gives a versatile picture of the issue and attempts to ensure the most in-depth understanding of the phenomenon (Denzin and Lincoln, 2000). Firstly, those actors/operators were approached who operate in the office of the regional business service; this service mediates and can influence structural change from the point of the public sector. The chosen public actors used were, for example, local, regional, and to a certain degree national authorities within the five municipalities. These actors promoted and developed better business environments and conditions for enterprises. These development agencies were selected in order to gather their perceptions of the impact of the past regional development operations have had. Based on the secondary data and using the purposeful sampling and snowball selection method (Doreian and Woodard, 1992), the first group was asked to name some suitable participants from the established SMEs in the area who have been surrounded by structural changes over many years. This technique provided further relevant data and a multi-sided perspective on the issue in focus. Furthermore,



*Figure 8. Item triangulation and separate group, sample D.*

to complete the diverse perceptions of the impacts of structural changes on competencies, the public actors/operators were asked to name suitable new micro enterprises, which were founded by individuals who had been made redundant when the mills in the area shut-down. The primary data was collected through in-depth, semi-structured, thematic interviews that took place in August-October 2011. The perceptions on the changes were received from three public actors/operators, six managers of established SMEs, and from four new entrepreneurs. The interview form can be found in Appendix 5. The research data consists of interview transcripts and additional material in text format. The interviews were the primary data and they were first transcribed and then analysed by classifying them in categories based on the research questions, after which similarities and differences were sought. The data analysis results are reported in three tables which present the perceptions of public change management on structural change, the competence transformation in the companies, and views concerning competence transformation paths.

### 3.5 Analysis approach and analysis methods

Table 6 below summaries the data sources, the number of informants, and gives a description of the data collection and the analysis - as related to the publications in each sample. The analysis approach of the study is interpretative as the purpose is to explore in detail how the individuals made sense of their personal and social worlds (Smith, 2007) and to look for the meanings of the interviews and other data (Warren, in Gubrium and Holstein, 2001; 83-85). Based on the principles of case study research, the researcher must interpret the collected data by also taking into account the situations and subjects, and not only observe the information as such. The intention is often to interpret the implications suggested by the data, but the interpretation is always more or less speculative when examining in detail how the participants see their social and personal reality (Smith, 2007). Therefore, according to Alasuutari (2001), in qualitative research, the data should be examined through particular theoretical and methodological viewpoints, and during the analysis attention should be paid only to what is essential, on the basis of the theoretical framework, and the research questions. Concisely, the aim is to provide a thick description (an in-depth understanding considering the context) of the phenomenon.

There are a number of standardised techniques in qualitative analysis, and one single form of best practice does not exist. One analysis method for finding meanings from texts is qualitative content analysis, which is widely used in the social sciences, especially nursing research (Cavanagh, 1997; Elo and Kyngäs, 2008), and has recently been applied to management research (e.g. Beattie and Thomson, 2007). In this study, qualitative content

analysis was used as a data analysis method in Publications 2, 3 and 5 in order to classify and categorise the data. According to Cavanagh (1997), a qualitative content analysis is a suitable method to discover meanings and intentions by using a systematic classification of data. The analysis process may be conducted either by categorisation based on the data (inductive) or categorisation based on earlier knowledge (deductive) (Elo and Kyngäs, 2008). An inductive categorisation, where the themes arose primarily from the data, and these themes were grouped in terms of similarities after cod-

*Table 6. Summary of data descriptions related to publications*

<b>Publication</b>	<b>Data collection method</b>	<b>Data Sources / Informants</b>	<b>Analysis approach and method</b>
Publication 1	A systematic literature review using a keyword index on human resources, individual human capital, competence management process	Scirus, Web of Science, Google Scholar	Results of literature search; first round 300 semi-suitable articles, 22 was selected as a sample
Publication 2 Sample A	Empirical, 10 semi-structured interviews	12 individuals in Russian SMEs won through polity, and/or economic changes	Data driven approach, inductive content analysis
Publication 3 Samples A and B	Empirical, 20 semi-structured interviews Secondary data	12 Russian and 14 Finnish individuals at managerial level, all whom faced drastic business environment changes	Data driven approach, inductive cross-case content analysis
Publication 4 Sample C	Empirical, 13 semi-structured interviews Secondary data	15 individuals from innovative Finnish SMEs	Data driven approach, template analysis, Atlas.TI
Publication 5 Samples D	Item triangulation 13, semi-structured interviews Secondary data	3 individuals from the public sector of change management, 6 managers won through structural changes, 4 start-up managers	Qualitative content analysis

ing, was used in Publications 2, 3 and 5 based on grounded theory analysis (Easterby-Smith et al., 2008). Grounded theory approach, similar to the data driven approach, means that there is no prior theoretical framework to follow, but the analysis is holistic, being closer to the data and developing patterns (Easterby-Smith et al., 1991). Thus, the use of grounded theory analysis is based on achieving a more open approach to data in order to facilitate the analysis of a conceptual framework through classification of data related to the research questions (Merton and Kendal, 1957).

Furthermore, in qualitative data analysis, the structure used has to be derived from the data at the very beginning (Easterby-Smith et al., 1991). The studied phenomenon, survival competencies in changing business environments, is a complex issue, and thus to increase understanding of the issue it is justified to analyse the data with a method that brings out themes, possible patterns, and categories. In the cross-case analysis, used in Publication 3, the common themes of both samples were identified and combined by the pattern-matching technique (Yin, 1994). The usage of the cross-case analysis was beneficial for a comparison of the data from various cases, and to discern patterns or themes. In Publication 4, template analysis (Crabtree and Miller, 1999; King, 2004; Waring and Wainwright, 2008) was used, because template analysis is a particular way of thematically analysing qualitative data. With the help of the template analysis, it was possible to create a template for codes, summarise the themes identified by the researcher as important in a data set, and organise the themes in a meaningful and useful manner (King, 2015).

## 4. SUMMARY OF THE PUBLICATIONS AND REVIEW OF THE RESULTS

This section summarises the objectives and main contributions of the publications related to the thesis. The main points of each publication are presented in Table 7. The broader information concerning the research methods, data collection, and analysis is presented in Sections 3.2 - 3.5. Furthermore, the full text versions of each publication are available in Part II for closer inspection. The order of the publications is in accordance with the research questions (see Section 1.3).

### 4.1 Publication 1 – A literature overview of competence identification in SMEs

#### Objective of the publication

Publication 1, co-authored with Hannele Lampela, serves as a pre-study in order to investigate how competencies and human capital in SMEs are identified in current academic literature. In changing internal or external conditions, firms and their managers need to know their existing competencies in order to meet the changes properly. This is often a problem in SMEs, because generally SME managers have poor skills as regards reflecting themselves strategically (e.g. Vos, 2005). To help managers reach a better performance more easily, they need to know what competencies they already have in a firm and which they need to develop. The first focus was thus to search for existing competencies in SMEs, and additionally, the themes related to human capital and competencies were investigated. The study offers concrete examples of identified competencies and the relevant competence areas identified in SMEs.

The literature review was based on various scientific databases and the usage of keywords (see Table 6 in Section 3.5) to find examples of the concrete competencies existing in firms, or to identify a theme related to human capital in SMEs. The increase of the strategic importance of competencies and the discussion on the core competencies in the 1990s, was used as the basis for limiting the years specifically to 1990 to 2011. Finally, a total of 22 publications out of the 300 semi-suitable articles found, were selected for a detailed analysis. The competence themes in the most suitable publications were analysed in order to answer the research questions, and the very first classification was made by scanning for managerial and other competencies identified in the selected publications. The second classification summarises the themes related to human capital and competencies.

The study summarises the competencies needed to reach a better perfor-

mance and competitive advantage in SMEs. Referring to the thesis, the publication provides insights into what competencies exist in SMEs, and serves as a pre-study for the discussion on which competencies can be transferred into other contexts or into other industries.

### The main findings

The first findings, based on the literature, are presented in Figure 9 below. The figure highlights generic competence and job-specific capabilities, the social and relationship aspect, and competencies needed for the future – this is related to managerial competencies. In many models, managerial competencies as well as the identification of all competencies is strongly emphasised in the literature (e.g. Berio and Harzallah, 2005; Sanchez, 2004). Managerial competencies are crucial for enabling firms to develop other competencies (Lado et al., 1992), and therefore Figure 9 is based on these. Competence identification starts from the managers' ability to deal with the firm's strategy; managers must have the competence to identify resources, shape visions, and manage these in order to reach a good performance. All operations related to strategy, organising critical processes and resources in a firm aim, or should aim, towards a better performance and to improving the competitive advantage of a firm.

The existing competencies were divided into three categories based on the similarities found. Firstly, the generic competencies identified were related to the skill components, which are not expressed in the form of activities specific to a particular setting. Additionally, the other competencies

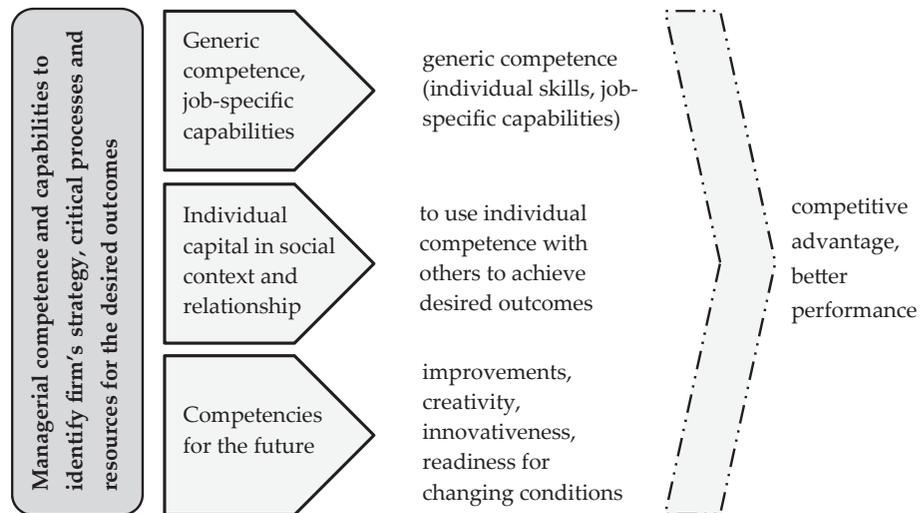


Figure 9. Results of competence identification in the literature.

found were an occupational competence (related to occupation), a task-specific competence (independent of specific jobs), a job-specific and enterprise-specific competence (related to a specific work system), and a person-specific competence (task or job in a specific work system). Secondly, a human individual capital competence in social and relationship contexts were highlighted. These competencies are needed, along with others, in, for example negotiations and in building alliance relationships. The third type of competence found in the literature review was 'competencies for the future', such as a continuous improvement climate, creativity, innovativeness and readiness for changing conditions.

The second set of findings, based on common themes related to human capital and competencies, summarises issues such as SMEs' characteristics versus the characteristics of large organisations, products versus service organisations, competencies and innovation, competence development, human and relational capital, and networks. Firstly, in practice, large and small enterprises differ in their entrepreneurial competencies and managing human capital is often neglected in SMEs. Secondly, service organisations have been less studied, but they have the distinctive characteristic of intellectual capital as related to practices. Service-oriented companies especially in the 2000s, need to focus on human assets, e.g. creativity and emotional intelligence, and on innovativeness, as well on strategic management; they also need to have the ability to manage employees' competencies. Thirdly, innovations and innovativeness are an important basis for future success, although not valued and recognised by all SMEs. Fourthly, individual competencies form the basis of organisational success, and their development through learning and training is also essential in SMEs. Finally, SMEs must also be able to utilise external networks for efficient competence management.

### **Main contributions**

Firstly, this publication adds to the knowledge on competence by providing SME literature with a concrete description of what the competencies in SMEs are, and will therefore help managers to identify possible and important competence needs and development areas. Secondly, the paper discusses common themes in SMEs related to human capital and competencies. This expresses a practical key message to SMEs to aid them in aiming for better performances. The entrepreneurial competencies differ when comparing large and small enterprises (Capaldo et al., 2004), and thus know-how about entrepreneurial competencies and entrepreneurial behaviour in SMEs has a strong effect on their performance when related to the external business environment. Furthermore, the growth of the knowledge economy and knowledge-based business emphasises value creation and financial interest based on knowledge and competence. As a final point, the competence of

individuals is emphasised in many publications and studied quite well at a general level (Walsh and Linton, 2011; Katzy and Crowston, 2008). However, this study shows that examples of specific competencies studied at a detailed level in knowledge-intensive companies are still quite scarce in the literature. The number of knowledge-intensive companies is increasing, but it has still not been possible to specify in detail the assets that are the basis for creating wealth and financial success, especially in terms of human capital.

## **4.2 Publication 2 – Survival competence in Russian SMEs in a changing business environment**

### **Objective of the publication**

Publication 2, co-authored with Pia Heilmann and Hannele Lampela, addresses those competencies that have enabled Russian SMEs to survive in conditions of unpredictable external change. Russian SMEs were chosen as the empirical context of the study because they have undergone several drastic changes in their operational environment in recent decades, and examples of such major changes elsewhere are rare. In addition to the polity and the economic changes (see more in Section 3.4.1), membership of WTO in 2012 has also brought challenges and opportunities to Russian SMEs.

The role of this publication in the thesis is to provide views concerning competencies as regards how to enable business survival, such as, what the specific competencies are that support business continuity, and how internal and external changes influence competence transformation. Additionally, the study begins with a discussion on the competencies needed for a business to transfer to another context and into other industries.

### **The main findings**

The findings are categorised into internal competencies (entrepreneurial and individual competencies) existing within firms, and external competencies (competencies related to external players, network competencies) referring to the external environment. Individual competencies concern all the people in the firm. As individual competencies, industry know-how, and a highly skilled staff constitute the basis for success and survival, and therefore continuous competence development is essential for everyone within the organisation. On the one hand, it was quite normal to find employees accepting voluntary, self-paid training, while, on the other hand, enormous difficulties were experienced when persuading employees to adapt to the new capitalistic working climate. The employees who were born after the introduction of the capitalist system seemed to adapt to the new methods and production models better than older employees, who were used to socialism and the old

attitudes. The findings especially highlighted the importance of proactively building internal entrepreneurial competencies in order to provide and recognise opportunities, while simultaneously having an open-minded attitude towards external partners - and building networking competence. Entrepreneurial competencies apply not only to entrepreneurs, but also to all SME employees, who also need to have an entrepreneurial mind-set.

Networking skills and the willingness to cooperate were emphasised as external competencies. Cooperation concerned, in particular, innovation and subcontracting in order to produce high-tech equipment abroad, because of a lack of the necessary high-level production skills in Russia, and the means to make offers with a reasonable price. An active networking function operates in two directions, both from the Russian SMEs to companies abroad, and to the Russian SMEs from the accumulated experience from their foreign partners. All network operations are based on open-mindedness and open and sociable communications; this increases customer interest and instils confidence. In their operations, all the firms were flexible, following and responding to the market changes and thus gaining economic leeway. We named this flexible trait 'amoebic' because the firms seem to be amoeba-like: they are continuously moving and changing their form in relation to the changes in business environments, e.g. as regards legislation. Additionally, SMEs seemed to have the capacity to move horizontally and vertically inside their customers' organisations. The vertical movement appeared as an ability to move on different levels from bottom-up to up-bottom and in horizontal positions. A strong and close relationship at the interface of firms and their customers imparts an ability to manage customers both within the customer's operations and between firms, based on trust and reliability on both sides. Courage and the ability to tolerate uncertainty are needed from entrepreneurs as well as from employees, in order to face late salary payments and uncertain markets, and to start to penetrate new markets. Organisational competencies are not as visible in this study as the other competence categories, but seemed rather to be more intertwined with the other types of competencies. Individual competencies create the organisational competencies, and network competence can be identified both with the individual and the organisational levels. Therefore, within an organisation, it is difficult to make a distinction between competencies that are purely individual or purely organisational, and to distinguish between organisational and network competencies is also challenging.

### **Main contributions**

The study contributes to the competence and entrepreneurial literature by presenting the fact that both internal competencies and network competencies are needed in order to survive in crisis situations. Recent stud-

ies in Russian SMEs have presented a top-down perspective related to, for example, institutional issues (e.g. Smallbone and Welter, 2012; Timofeyev and Yan, 2013), but the present study offers an alternative bottom-up view of competencies, i.e. the enabling competencies that are used as a means of business survival.

Furthermore, the study offers some practical implications in change situations for the SMEs and their managers, such as the fact that continuous change also demands change of personal attitudes and values and mind-set changes that allow new ways of thinking, especially in SMEs. This is because due to their small size, all competencies in SMEs are specific and highly person-dependent. Additionally, entrepreneurial competencies have been highlighted as important for all employees, which is somewhat opposite to recent studies that have tended to see entrepreneurial competencies as belonging only to the entrepreneurs (e.g. Mitchelmore and Rowley, 2010; Venkataraman, 1997). Entrepreneurial competencies acquired by everybody in the firm, an open-minded attitude towards external partners, and networking competence provide a future direction for managerial practice and public actors. The specific individual and entrepreneurial competencies discovered by this research will help SMEs themselves as well as public authorities and policy makers to guide and to develop vocational systems to produce skilled and qualified individuals for current business demands. Russia needs more SMEs to strengthen and diversify the economic structure of the country, and therefore the public actors may also increase individual readiness for entrepreneurship by influencing the institutional problems and by strengthening general entrepreneurial competencies through education.

The study contributes to the recent literature with the conclusion that the organisational competencies are not as visible in SMEs as the literature suggests (Nurach et al., 2012), but are more intertwined with the other types of competencies. Thus, a common competence categorisation for separate individual and organisational levels seems not to fit SMEs. Moreover, the study concludes that the competence basis in SMEs must be internally strong; allowing it to meet external challenges and changes successfully. Methodologically the study narrows the gap by a qualitative case study on entrepreneurship and small businesses in Russia (Ojala and Isomäki, 2011).

### **4.3 Publication 3 - Survival skills in SME - continuous competence renewing and opportunity scanning**

#### **Objective of the publication**

This publication, co-authored with Hannele Lampela and Pia Heilmann, uses a comparative approach and focuses on how Russian and Finnish SMEs react in drastic, business environmental changes, and what part compe-

tencies play in business survival. In the current literature, survival skills have been mentioned as separate items or skills, e.g. marketing (Parry et al., 2012), survival constraints (Okpara, 2011), internal factors (Hove and Tarisai, 2013), and types of financing (Bauchet and Morduch, 2013); consequently a holistic view on competence is lacking. Therefore, the study approaches the survival skills and competencies of the SMEs from a holistic viewpoint without separating the individual and organisational levels. In SMEs, this separation is difficult due to limited resources and a dependence on personal skills.

The publication compares the survival skills and competencies between two different data samples; Finnish SMEs and Russian SMEs. The research data was collected from 10 Russian and 10 Finnish SMEs (see Sections 3.4.1 and 3.4.2). The Russian SMEs had met polity and economic changes (see Section 3.4.1), and the Finnish SMEs had operated in a network where a paper mill was shut down in an area that had already suffered from various industrial structural changes (see Section 3.4.2).

The comparative study addresses the thesis by giving responses to how and which specific competencies enable business survival in changing situations, and furthermore, how and which competencies enable business to transfer to other industries.

### **The main findings**

The findings indicate differences in the entrepreneurial competencies of the SMEs between the countries studied, especially in relation to the external environment, which are essential in ensuring the continuity of the business. The competencies in Finnish SMEs were not adequate to survive change situations, nor did they allow strategic repositioning of the firm. In comparison, Russian SMEs have nearly always operated in unstable business environments, and have transformed their businesses according to the new requirements of the changing business environment.

The findings indicated that some Finnish SMEs have neglected entrepreneurial competencies, e.g. environmental scanning, and thus neglected the future development of their firm, meanwhile the Russian SMEs have had clear visions for the future. On the one hand, the Russian SMEs took insufficient note of individual competencies (see Section 4.2), while on the other hand some Finnish SMEs were caught in a situational competence trap (Vähämäki, 2005). This is a trap where individual competencies keep the enterprises locked into the current field of industry, and hinder a business transfer to another, possibly more successful industry. In addition, an unwillingness/ineptness to renew individual competencies and a passiveness towards change were indicated in Finnish SMEs.

In inter-organisational relationships, Russian SMEs stressed open-minded

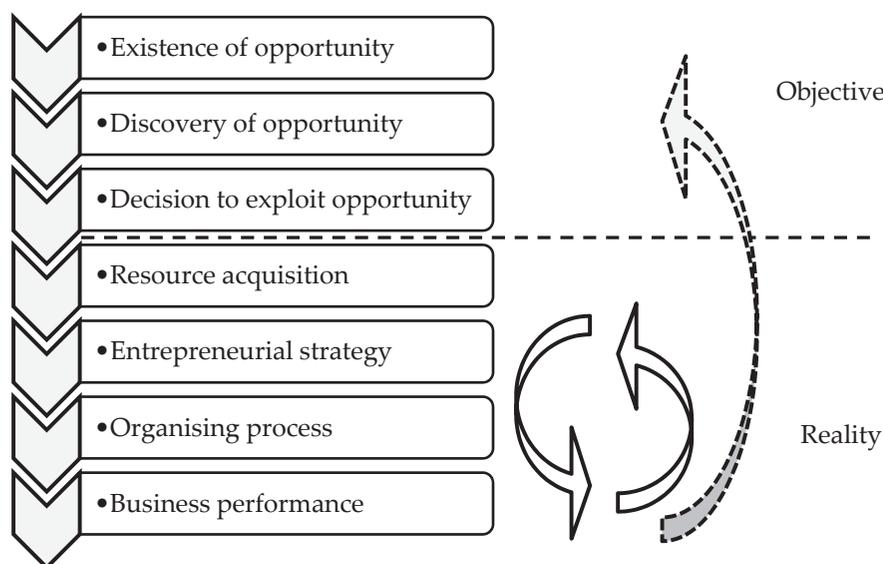
cooperation and network competencies (see Section 4.2). In turn, as regards relationship competencies that help to gain a business competitive advantage, the Finnish SMEs particularly illustrated reliability and familiarity with customer processes as the greatest reason to acquire new jobs (see more Publication 3 in Part II). In general, the Finnish SMEs had an expectant attitude to their customer operations, while the Russian SMEs operated smoothly in and out of customer interfaces. A resistant attitude towards external changes was polarised in some Finnish SMEs; this was seen as a longing for old, stable times and a form of security seeking rigidity within the business operation models, as well as a shortage of courage to break with former ties. However, industrial structural change seemed to be partly a good thing for the Finnish SMEs as it caused job revisions to be made in the face of mill closures, or it meant that former customers were replaced by new ones. Nevertheless, although some Finnish SMEs had realised that there was decline in the markets the firms still did not change their operations in order to prepare for the situation. Those SMEs who explored new directions, felt themselves positive and proud of their renewed concepts and models. Russian SMEs were evidently willing to cooperate and had overall an open-minded attitude, and flexibly in their search for new directions, and, for example, succeeded in opening new markets abroad.

### **Main contributions**

The study also indicates differences in the entrepreneurial competencies of the SMEs in the two countries, such as passiveness in environmental and/or opportunity scanning. It also highlights the need for SMEs to invest in competence renewal to avoid competence traps. Surviving SMEs also need to possess a forward looking attitude with opportunity exploration and exploitation. In addition, the study includes dynamic and multidimensional elements as regards the holistic perspective of competence, personal behaviour, and ethical values. In contrast to the literature on competence, which commonly identifies separate competencies in order to enable business survival (e.g. Forsman and Rantanen, 2011; Parry et al., 2012) this study adds a comprehensive SME-level view of survival enabling competencies.

In addition, the publication adds to current competence and entrepreneurial literature the skill of continuous competence renewal and encourages SMEs to actively conduct environmental scanning. Mostly, this is targeted at the SMEs' management and competence management in SMEs, but it also additionally emphasises the important role of every individual in a firm; because individual competencies form the organisational competence (Turner and Crawford, 1994). Individuals and organisations need to take care of their competencies to avoid competence traps, which are harmful to business survival (Vähämäki, 2005) and prevent opportunities being discovered and exploited (Senaratne and Wang, 2009).

Moreover, as a main contribution, the study contributes to the entrepreneurial literature by showing the difficulties of SMEs in returning to earlier phases of the entrepreneurial process (see Figure 10 below). According to Shane (2003) the entrepreneurial process covers seven phases, of which the three first are connected to business opportunities and thus to the creation of new products and services ensuring business continuity. The study concludes that some of the Finnish SMEs studied were passive in opportunity scanning, unwilling to make changes, and were nostalgic for stable times. Figure 10 below presents the seven phases of the entrepreneurial process (Shane, 2003), and illustrates the difference between observed reality and the ideal feedback circle. In the entrepreneurial process an objective and an ideal situation are that a firm returns to earlier opportunity phases in order to discover and develop new business possibilities that can meet the changed situations. As regards practical implications the study highlights the need for SMEs to invest in competence renewal in order to be able to avoid competence traps, from which some Finnish SMEs suffered. Therefore, competence traps, and neglecting the opportunity discovery and exploitation phases, led firms to only operate and modify the every-day business level. Without any internal and external development a firm may be forced to reduce its business operations. Moreover, surviving SMEs need to possess a forward looking attitude in relation to discovering and exploiting opportunities. Both implications are significant in ensuring the continuity of the business.



*Figure 10. Entrepreneurial process (Shane 2003; modified) and the difficulty of returning back to earlier phases.*

## 4.4 Publication 4 – Entrepreneurial competencies in innovative SMEs

### Objective of the publication

The conceptual publication 4, co-authored with Kaisa Henttonen and Hannele Lampela, was to identify the entrepreneurial competencies specific to SMEs that have successfully introduced innovations in the market. The focus is firstly on the entrepreneurial competencies, because there still does not seem to be an agreement in the entrepreneurial or competence literature as to what entrepreneurial competencies consist of. Secondly, the focus is on successfully innovating SMEs – that is – firms that have exploited successfully at least one idea in the market. The level of analysis is on personal competencies without separating them from professional positions within a firm, because it is likely that a team of entrepreneurs is often needed in order to possess all the required competencies to transform an idea into a value creating firm.

The empirical part of the research includes data from 13 innovative Finnish SMEs in the forest industry (see Section 3.4.3). The forest industry is very important to the Finnish economy, and the industry needs new innovations as a consequence of industrial production moving to low cost countries. The ability to exploit an idea – innovativeness - was judged, by peer-nominated criteria from other entrepreneurs or local small business centres, based on the SMEs' ability to commercialise innovations.

With reference to the thesis, the study firstly deepens knowledge about specific entrepreneurial competencies. Secondly, it touches on the discussion of how and which entrepreneurial competencies enable SMEs to survive, and furthermore which entrepreneurial competencies enable SMEs to transfer their business to other contexts or into other industries.

### The main findings

The study approaches entrepreneurial competencies by extending the recent entrepreneurial competence template of typical entrepreneurial competencies (TTEC) with empirical findings, based on research data, in order to refine the concept of entrepreneurial competencies, which will thus benefit SMEs. The entrepreneurial competencies that are found in Publication 4, are presented in an order which follows the entrepreneurial process (Shane, 2003), because entrepreneurial competencies have a focal position/status in the entrepreneurial process. In the early opportunity phases of the entrepreneurial process (Shane, 2003; see Figure 5), the study presents, as new approaches to opportunity competencies an open-minded ability and mental attitude towards developing entirely new trends and thoughts. The oppor-

tunity competencies are important for a firm in discovering and exploiting new business opportunities, and thus for the success of the business success and in order to transfer businesses into other industries. Furthermore, those competencies related to envisioning/seeing the future indicated that the innovative SMEs have clear, strong visions and goals for many years ahead; they are committed to operating according to their vision, and are additionally aware of the firm's position in the markets. Moreover, although the ability of risk-taking is important in SMEs (Dimitratos et al., 2014; Santandreu-Mascarell et al., 2013), the firms studied were aware of risks, but this risk-taking ability was not emphasised as a specific competence. This may be due to the study approach that was used; most of studied SMEs had already exploited their innovation in the market, and had quite stable customer relationships and no longer faced major finance threats.

In the entrepreneurial execution phase, the SMEs in the study had mainly exploited radical innovations, and 'innovative competencies' as presented in the literature (Hui et al., 2011; Morris et al., 2013), were covered in the study of the SMEs. These included opportunity competencies such as goal-orientation in order to successfully exploit an idea and introduce it into the market. In the business performance phase, in turn, the entrepreneurial competencies needed are naturally competencies related to running and managing every-day business, relationship competencies, and networking and learning. The business management themes such as financial and budgeting skills, business operational skills, and development ability were highlighted as important for business continuity as a part of daily life. However, the study emphasised marketing skills, because a purposeful public image competence was not discussed earlier in the literature. A purposeful public image competence means a proactive approach and functional competence as regards deliberately controlling a firm's public image, and the guidance of the firms' publicity. Publicity is managed as a purpose-oriented part of the firm's management, and as part of managing its future development. The image of an innovative, leading, and prominent firm is meant to result in acquiring more customers. The purposeful image skills seem thus to be one of the special entrepreneurial competencies enabling business success in innovative SMEs.

Furthermore, human relationship competencies, such as interpersonal skills, skills concerning knowledge of human nature, and the ability to manage customers were highlighted on a personal level. This means that every person at every organisational level must take a wider view and see himself or herself as being an essential part of the firm, and realise his or her job's influence on other people's jobs. The innovative SMEs show high industrial skill performance; therefore, they may have developed products that change laws and regulations, and therefore individual competencies and a development-friendly mind-set are stressed as crucial for business success

and greatly influence the competencies of survival. Additionally, having a novel aspect to the recent entrepreneurial competencies, networking competence appeared as a two-way competence that also benefits the partners. The networking competence in this study included an open-minded attitude, courage and strong confidence in one's partners, and they are important in developing new products with customers, subcontractors, and universities. Finally, the learning competencies in TTEC focus on the future and how to attain the desired business reality, e.g. learning from customers and competitors and learning about one's own field, however, the innovative SMEs seem to already know their present situation and possess wide familiarity with the field and a thorough familiarity with the market, customer needs, and their processes.

When combining previous results in shaping entrepreneurial competencies in SMEs to successfully exploit innovation, the common denominator of the competencies is extroversion. Usually, extroversion is combined with individual traits (Garcia and Moradi, 2011; Marjani et al., 2013), but the study shows that extroversion also covers actions on an organisational level.

### **Main contributions**

The study identifies specific entrepreneurial competencies with a novel approach and a more detailed level than earlier entrepreneurial literature (e.g. Loué and Baronet, 2012; Mitchelmore and Rowley, 2010). Innovation – the exploitation and execution of an idea – is important for all SMEs and the ability to utilise the entrepreneurial process successfully leads to better performance and business survival (Shane, 2003). If a firm is willing to transfer its business to other industries, opportunity competencies are especially crucial, as e.g. Man et al. (2008) and Ahmad et al. (2010) have stated. In the successfully innovating SMEs, new, in-depth competencies had been introduced to improve and ensure success such as: open-mindedness and the development-friendly attitude to new trends and thoughts based on the individual competencies of employees and managers; purposeful public image competence; and two-way networking competence with an attitude of beneficial cooperation with all partners. Additionally, the study illustrates a template of typical entrepreneurial competencies for the 2000's. Innovative SMEs are recognised to hold a crucial position as engines of growth (OECD, 2013) and as key drivers for innovation (EC, 2013). SMEs need new information to successfully exploit innovations and strengthen their knowledge of entrepreneurial competencies. By these means they can thus fulfil the economic expectations of societies and economic institutions.

The study is conceptual by nature, and does not offer direct implications for putting into practice, but some assumptions may be presented as to how the study results can be utilised. The study emphasises the importance of

company-level extrovert competencies in contrast to earlier entrepreneurial studies (e.g. Baron, 2002), which combine extroversion with individual features. The company-level extroversion competencies mean that even during the protected idea generation and start-up phases, successful SMEs maintain an open attitude towards networking, and thus enable business continuity. Although the research data from innovative Finnish SMEs was limited, the results can assist global firms that want to develop their entrepreneurial competencies in an effort to achieve greater success in innovation exploitation and business. The public educational and training institutes, in turn, should acknowledge more the behaviour-based aspect of competencies, as well as skill-based training. In addition, a development-friendly mind-set should be emphasised even in education syllabuses.

#### **4.5 Publication 5 – SME competence transformation – a case study on industrial structural change**

##### **Objective of the publication**

Publication 5, co-authored with Pia Heilmann and Hannele Lampela, illustrates how established SMEs and new micro firms transform their competence in industrial structural change, and how the representatives of the state and region (public actors) manage the change process. Concerning the structural changes, the Schumpeterian innovation theory and the concept of 'creative destruction' (Schumpeter, 1934) is used as a theoretical background, and the empirical context is provided by the firms' operations in the Finnish forest industry. As an important part of the macro-economic debate, a locally unpredictable structural change often reflects wider industrial restructuring, theoretically and in practice, and is a subject which has attracted attention in both the EU and the USA (EC, 2012; Janger et al., 2011). An SME view of change situations and the effects that changes have on the whole collaborating network of organisations is seldom presented, as the focus is mostly placed on the implementation and impacts of technological change (see e.g. Cragg et al., 2011; Koh et al., 2009). Here, the focus is on SME competence transformation as a result of changes in the business environment, which is a relevant viewpoint considering the number and importance of SMEs for local economies (Eurostat, 2011). The study presents, via three different perspectives, the effects, the actions, and the transformation, the paths of competence in the forest industry in Finland.

The empirical research includes data from 13 interviews including public actors – e.g. operators in offices of regional business services mediating structural change, established SMEs, and new start-up micro firms (see Section 3.4.4) from the area of the Southern-Finnish region of Kymenlaakso. Kymenlaakso was selected, because it has suffered considerable structural

changes in locally important industries, such as the marine, machine, and the forest and paper industry.

Concerning the dissertation, the research offers views on public change management and how competencies are transformed as a consequence of changes. The publication also evaluates the competencies which seem to support SME survival, and additionally provides an insight into competencies that enable transference to other contexts or into other industries.

### **The main findings**

The study demonstrated that SMEs develop their business in response to external changes and are able to transform their competencies to meet changed circumstances. Furthermore, start-up firms base their business on formerly acquired skills and competencies, but need more business skills. In both groups, positive attitudes towards the change process seem to affect the success of the SMEs, and systematic management of the change process leads to long-lasting effects. An important finding is that public actors manage structural change, but from the perspective of entrepreneurs, these actions do not appear to meet the needs of SMEs and micro companies.

Public actors have taken a strong role in managing industrial structural change in the long term. Their aim is for the economic structure to become diversified, with medium-sized companies in different fields, as well as an increase in the number of small companies. Two strategies were identified as regards the public support necessary to develop new competencies in organisations: first, attracting suitable, independent companies from outside the area, and second, supporting established SMEs' growth and competence development through public training programs and activities specifically targeted to individual companies. We found that many existing SMEs and new start-up entrepreneurs were not aware of the role of the public actors in strategic change management. Public actions specifically directed to regional SMEs were commonly seen as unsuitable, slow, bureaucratic and ineffective.

The studied established SMEs had operated over many decades, and thus they had met at least one change situation. The firms actively transformed their competencies and searched for new opportunities in the changed situation to secure the continuity of their business. The transformation of competencies had occurred through specialisation or expansion of existing competencies, or the change had enabled completely new operations. In addition, by combining resources they had achieved competencies which enabled innovations. The management of the SMEs had a vision to guide the development of their companies, and the employees had adjusted their skills to the changed environment by changing their attitudes, and developing and increasing their competencies. Moreover, the SMEs seemed to have experienced that effective job performance combines professional work, leisure skills, and other competencies, which thus form the holistic individual competencies.

The start-up firms were started by people who had been made redundant when the paper mill shut down. They saw structural change partly as a positive issue, because it enabled holistic development of the entrepreneur's competencies. All the new start-ups based their business on existing professional competencies from former occupations or hobbies. Some competencies needed to be up-to-date, deepened or extended when starting up a business, e.g. business competence, attitude changes for entrepreneurship, and the development of personal networks. As a joint finding in all groups, competencies needed to be extended from past and present activities to future strategic possibilities; the study highlighted the need for an attitude change for continuous learning at all levels: the employees, managers, and public actors.

The public actors trusted the national educational system when we explored the competence transformation paths, and additionally the public actors expected to receive specific training requests from the firms to improve and transform SMEs' skills and competencies. However, established SMEs preferred internal training of personnel in the utilisation of new machinery, the expansion of operations into new areas, and transmission of tacit knowledge. The development of managers, however, had been done through external training. Altogether, the SME managers felt that the transformation paths to the required competencies are easy to find, once the direction is known. In a new situation, a change of attitudes is required from everybody; managers in the practices of the organisation and employees in learning to utilise new machinery. The new start-up enterprises based their transformation on nurturing dormant competencies and emphasising personal interests that the entrepreneur believed in. The acquisition of a specific new competence is driven by personal interest, and is usually done by self-study on a need basis, either through the Internet or personal networks.

### **Main contributions**

The study complements existing SME innovation and change management literature by emphasising the competence transformation view of the change process. More specifically, the study presents a firm-level, bottom-up approach instead of the often discussed, macro-economic, industry sector point of view on structural changes and industrial restructuring. Firstly, as Boonstra (2004) states, the SMEs have actively transformed their skills and competencies and searched for novel opportunities in the change situations in order to secure the continuity of their business; however, new start-ups need more business competencies. Secondly, all the firms studied have transformed their competencies through specialisation or expansion of existing competencies, or the change has enabled completely new operations in order to achieve necessary organisational rapidity, flexibility, and focus on customers (Kanter, 1989). In addition to Kanter's statements (1989),

the study highlights, as an organisational demand, that the attitude towards changes needs to be positive, embracing the future, rather than clinging to the past. Furthermore, the public actors have followed a proactive entrepreneurship development policy (Bagchi-Sen, 2001; Bridge et al., 2003) trying to influence changes regionally (Robbins and Judge, 2007), but existing SMEs and new start-ups were not aware of the role of the public actors in change management.

The study provides several managerial implications. Firstly, SMEs seem to achieve a successful outcome by modifying their firm's operations on the basis of existing competencies and adapting them to new sectors. In addition, a positive attitude towards change and a systematic management of the change process seem to affect the success of SMEs and leads to long-lasting effects. In a change situation, organisations need innovative thinking and courage to see future possibilities on both organisational and individual levels. Secondly, the clear role of a leader is important in implementing the change in an organisational network. Thirdly, as a social and institutional implication, the public actors need to inform the private enterprises better about their operations concerning structural changes and to broaden common awareness of regional development operations.

#### **4.6 Main findings of the publications**

This section briefly collects the publication main findings, more information in Table 7 below.

The findings from previous research reviews indicate that to gain better performance and competitive advantage, proper managerial competencies are needed in the first place in order to identify a firm's strategy, critical processes, and resources for the desired outcomes. Secondly, findings from the literature review show that competencies on an individual and SME level consist of generic, individual, and job-specific competencies; they also require individual capital in social context and relationships, and competencies for the future of the business together with readiness for changing conditions.

Referring to the empirical research context – changing business environments - the findings stress that specific competencies were found in Russian SMEs such as entrepreneurial competencies embedded in every person in the firm, and individual and open-minded network competencies towards external partners in order to survive in a crisis. When comparing Russian and Finnish SMEs as regards entrepreneurial processes, it was indicated that some Finnish firms suffered various competence traps, which have led to neglecting the opportunity discovery and exploitation phases, and a lack of vision concerning the future. Operating only on an every-day business level without any firm internal and external development may result in reducing a firm's operations. In order to survive, firms need continuous compe-

*Table 7. Summary of the publications in the thesis*

	<b>Publica- tion 1</b>	<b>Publica- tion 2</b>	<b>Publica- tion 3</b>	<b>Publica- tion 4</b>	<b>Publica- tion 5</b>
<b>Title</b>	A literature overview of competence identification in SMEs	Survival competence in Russian SMEs in a changing business environment	Survival skills in SME - continuous competence renewing and opportunity scanning	Entrepreneurial competencies in innovative SMEs	SME competence transformation – a case study on industrial structural change
<b>Authors</b>	Kyllikki Taipale-Eräväla and Hannele Lampela	Kyllikki Taipale-Eräväla, Pia Heilmann and Hannele Lampela	Kyllikki Taipale-Eräväla, Hannele Lampela and Pia Heilmann	Kyllikki Taipale-Eräväla, Kaisa Henttonen and Hannele Lampela	Kyllikki Taipale-Eräväla, Pia Heilmann and Hannele Lampela
<b>Objective</b>	Describes how competencies are identified in literature in SMEs, and presents common themes related to human capital and competencies.	Explores the survival competencies enabling Russian SMEs to conduct business in change situations.	Studies how Russian and Finnish SMEs react in drastic business environmental changes and the part competencies play in business survival.	Identifies the specific entrepreneurial competencies in successfully innovating SMEs.	Illustrates how competencies are transformed and the role of public actors in industrial, structural change.
<b>Role in dissertation</b>	Pre-study of identified competencies in SMEs. Summarises the competencies needed for better performance / competitive advance.	Provides the internal and external competencies for SMEs to survive through changes, and how change influences competence transference.	Identifies by comparison the holistic survival competencies in SMEs, and requisite competencies in opportunity exploitation.	Deepens the concept of successful entrepreneurial competencies needed in entrepreneurial processes and in business transfer to other industries/contexts.	Shows the means and paths of competence transformation, and resources in industrial, structural, change situations.
<b>Level of analysis</b>	Individual, firm	Individual, firm	Individual, firm	Individual	Firm
<b>Research approach</b>	Literature review	Qualitative, interpretative	Qualitative, comparative, interpretative	Qualitative, template analysis	Qualitative, interpretative, triangular

SUMMARY OF THE PUBLICATIONS AND REVIEW OF THE RESULTS

	Publica- tion 1	Publica- tion 2	Publica- tion 3	Publica- tion 4	Publica- tion 5
<b>Empirical data</b>	Literature sample of 22 journal article	Focused, semi-structured interviews with 10 Russian SMEs in forest and Metal industries.	Focused, semi-structured interviews with 10 Finnish and 10 Russian SMEs (same sample as in publication 2) in forest and metal industries	Semi-structural interviews with 13 Finnish innovative forest industry-related SMEs	Semi-structured interviews with 3 public actors, 6 established SMEs and 4 start-ups in the forest industry in Finland
<b>Main findings</b>	Identifies generic competence, individual competence in social relationships, competencies for the future related to managerial competencies, and presents common themes related to human capital in SMEs.	Entrepreneurial competencies embedded in every person in the firm plus individual and open-minded network competencies towards external partners are needed for survival in crisis situations.	The results of the comparative study indicate open-mindedness and fluent external skills in Russian SMEs, and passive behaviour including difficulties in the entrepreneurial process in renewing business and competencies in Finnish SMEs.	In innovative SMEs the following were identified; open-minded ability and development-friendly mindset embedded in individual competencies; purposeful public image competence, and a networking competence attitude to cooperate beneficially with all partners.	Established SMEs develop competencies in response to external changes, start-ups base their business on formerly acquired, renewal of skills, and public actors manage change without meeting the needs of SMEs.
<b>Key contribution</b>	Inserts into the literature concrete descriptions of what the competencies in SMEs are, and helps managers to identify important competence needs and development areas. Provides common themes of human capital and key messages for better performance.	Offers an insight into the competencies needed for business to survive and those that can be transferred in changing conditions in Russian SMEs.	Stresses the skill of continuous competence renewal, activity in environmental scanning, and a forward looking attitude to opportunity exploration and exploitation in entrepreneurial processes.	Highlights that extroversion competencies dominate in innovative SMEs. Extends recent literature to a detailed level in entrepreneurial competencies and offers a framework for typical entrepreneurial competencies.	Provides insights into public actors, established SMEs and new start-ups as regards into structural change management. Prefaces how and what competencies can be transferred into other contexts or into other industries.

tence renewal, activity in environmental scanning, and a forward looking attitude to opportunity exploration and exploitation. Additionally, empirical research emphasises the important role of every individual in a firm.

Furthermore, empirical research contributes to the concept of the entrepreneurial competencies needed in successful and innovative SMEs. Extroversion competencies were highlighted as well as an open-minded ability and a development-friendly mind-set that are embedded in the individual's competencies. Furthermore, competence in creating a purposeful public image that can be used as a tool to accelerate penetration into the markets is recommended. In addition, a two-way networking competence indicates an ability to cooperate beneficially with all partners, and thus a consideration for other companies, which strengthens the trust between various partners.

As a consequence of changes, a firm may consider moving its business to another field of industry, and competencies must then be transformed in alignment with the change in business management. Competencies are transformed by updating, deepening, extending former ones, or acquiring totally new skills and competencies. The role of a positive attitude towards change process affects the success of the SMEs, and systematic management of the change process leading to long-lasting effects.

## 5. DISCUSSION AND CONCLUSIONS

The objective of the study is to provide new knowledge regarding SME survival competencies in changing business environments by exploring and describing the support competencies that enable long-term business operations. In the literature, SME survival competencies and skills are generally discussed as separate issues, and there is a need to address the more holistic, comprehensive, firm-level view of survival competencies, which is a novel approach, and is offered by this study. With these competencies, SMEs are able to perform their business continuously despite the various demands that changing environments bring about. The study has approached the phenomenon by studying the necessary survival competencies related to changing business environments, and furthermore, studied how specific competencies enable survival and their role in business transformation into other contexts or industries. The results are presented in five publications (see Part II), and as a summary in the following section in relationship to the research questions. This final section presents theoretically and practically a holistic view of survival competencies in SMEs with reference to the research questions. The thesis concludes with an evaluation of the study and suggestions for further studies are also proposed.

### 5.1 Summary of the results with discussion

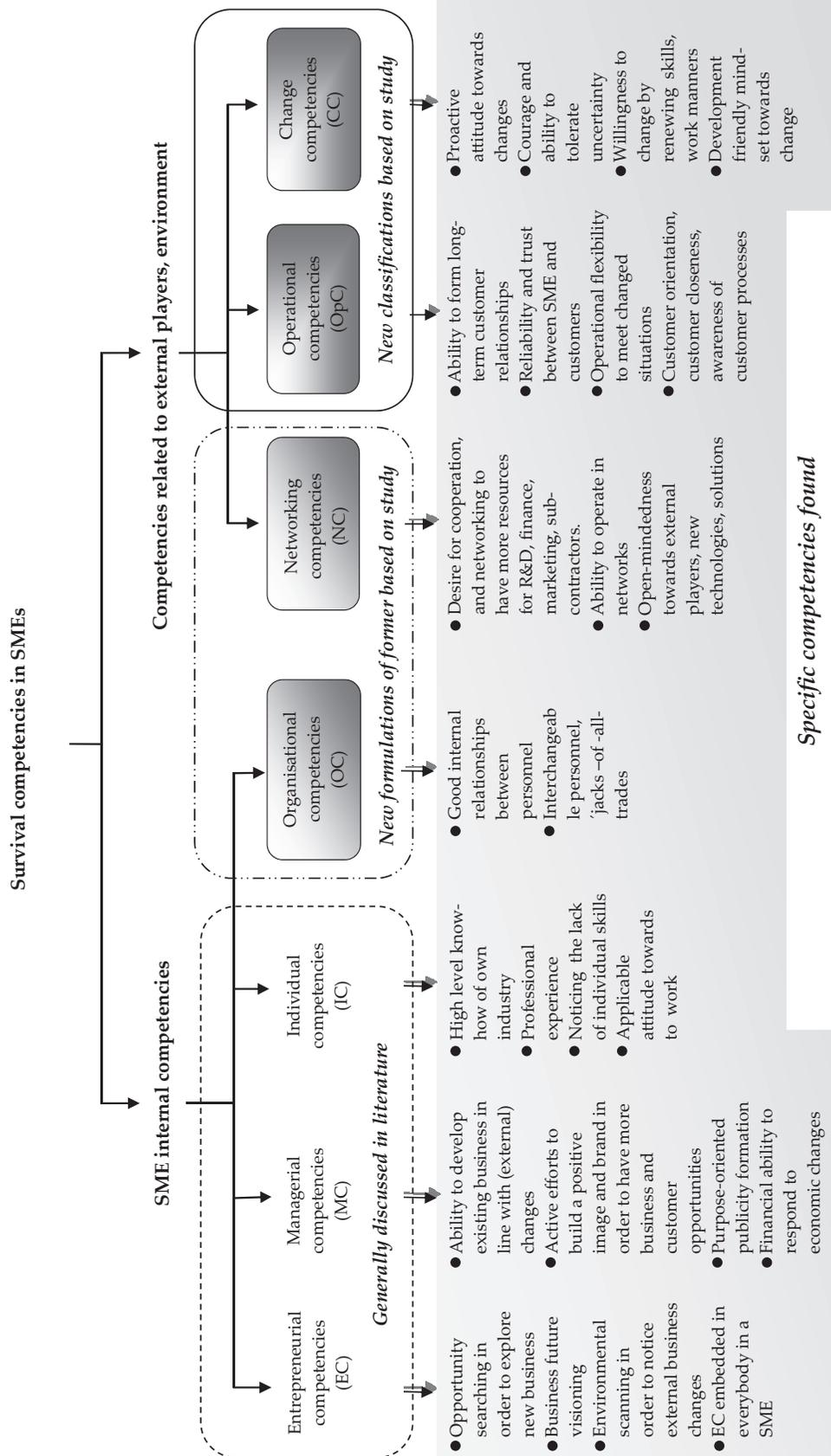
The theoretical summary of the survival competencies indicated as necessary for SMEs (see Section 2.3) concluded that some entrepreneurial attributes, entrepreneurial ‘future’ competencies, specific managerial competencies, and networking competencies lead to continuity in business operations. These competencies are connected in general to entrepreneurs/managers, but to form a firm-level view of survival competencies, individual and organisational competencies are discussed together as generic, business supporting competencies (see Section 2.2.3).

The study completes the theoretical summary with empirical findings, based on the publication results in Section 4. The survival competencies of SMEs found both from reviewing theoretical literature and from the empirical findings are presented in Figure 11 below. SME survival competencies are divided into two main classes (based on the classification in Section 2.3.2): 1) Internal influences the firm (internal competencies) and 2) External influences on a firm (competencies related to external players, environment). On the left of Figure 11, a framework for the survival competencies that are generally discussed in literature is presented, such as Entrepreneurial, Managerial and Individual competencies are identified as those competencies involved with the contribution of individuals to enable business continuity. In the centre is a framework for Organisational and Networking competencies,

identifying the firm-level survival competencies in an organisation. Classified competencies are commonly discussed in literature, although the cases have revealed specific new formulations for the former contents of these, and therefore they are categorised together. Finally, on the right is a framework of process oriented survival competencies, such as Operational and Change competencies, which have not been regarded in the previous literature in such formulations to the author's knowledge, and are thus a result of the present study. Operational competencies illustrate the operational abilities by which a firm may achieve continuity in the markets. Change competencies are competencies, by which firms have survived through different business changes. Additionally, the specific survival competencies found in the studied cases are expressed under each competence category.

To examine closer the specific survival competencies found, and also to deduce their influence on SME business survival and business continuity, the competencies are collected in the competence matrix (Matrix 1, *Empirical specific survival competencies in SMEs*, see the last part of the thesis). These competencies are from all the firms in the research cases, i.e. samples A, B, C, and D. The titles of the competence categories are similar to theoretical and empirical combination (Figure 11), and introduce the competencies of Entrepreneurial, Managerial, Individual, Organisational, Networking, Operational and Change competencies. The left column shows sample numbers and the identification number of each firm as well as the year establishment for each firm. To evaluate the business changes a firm has encountered, and successfully dealt with; the year of establishment, to a certain extent, gives information on the business environmental changes. The first sample (A) is a Russian SME (RU) that has undergone political and economic changes in 1991, 1998, and between 2008 and 2009. All the Finnish SMEs have generally suffered a financial crisis in 1991 and 1992, and industrial structural changes since the 1980s. In addition, a sample specific, selection criterion identifies the changes encountered. For example, firms in sample B of the Finnish SMEs (FI), operated with the closure of a paper mill in 2011, and additionally, have also operated in an area that has suffered from various industrial structural changes. Sample C (INNO) shows the competencies studied in innovative Finnish SMEs, and last sample D (TRANS) illustrates survival competencies in a Finnish SME going through various industrial and structural changes in the forest industry since 1990. For example, the firm A/2 RU has met all the selection criteria, and B/3 FI has operated since 1944 and faced several economic and structural changes. The identified competencies based on the data are highlighted in green indicating that the firm has emphasised the competence in question as having positive effects on the firm's ability to survive. The red cells, in turn, indicate that the firm saw this highlighted competence as not important for survival. If the interviewers or secondary data had no indication on the issue mentioned, the cell is colourless.

Figure 11. Theoretical and empirical survival competencies found in SMEs.



Firstly, SME internal competencies such as entrepreneurial, managerial, and individual competencies are discussed. The findings (Matrix 1) strongly highlight the importance of *entrepreneurial competencies (EC)* as survival issues in SMEs, and thus support the former studies (e.g. Loué and Baronet, 2012; Mitchelmore and Rowley, 2010). Shane (2003) also emphasises EC as being crucial to the ability to face continual states of change and disequilibrium in the economy, which, therefore constantly offers new business opportunities. EC are in general connected to individual entrepreneurs. The empirical findings, however, emphasise that in SMEs, which survived through changes, EC are embedded in all of its personnel, both the entrepreneurs/managers and the employees. Former studies (Loué and Baronet, 2012; Mitchelmore and Rowley, 2010; Shane, 2003) stress EC as belonging to the entrepreneurs, but the study contributes to this former literature by emphasising that for business survival all of the SME's personnel need to have EC. Naturally, the firm's vision for its business future belongs to entrepreneurs, but business environmental scanning; change observation and new opportunity recognition seem to be needed as the basic competencies of every person in an SME.

When looking closely at different samples, innovative SMEs (INNO) seem to be the ones that have mastered EC competencies the best, which explains their excellent ability to exploit new technological business opportunities offered via Schumpeterian innovation theory (Schumpeter, 1934), i.e. from changes in technological, political, regulatory, social, and demographic situations. Innovative SMEs have been successful in environmental scanning and opportunity searching, and furthermore, managed to execute opportunities profitably. The findings also underline the overall importance of these attributes for SMEs. Russian SMEs (RU) have also been active in scanning business environments, but when comparing Finnish SMEs (FI) in similar industrial situations, some of the Finnish SMEs are the opposite; they are very passive in opportunity searching. Operating in more hostile and dynamic business environments, as the Russian SMEs (RU) have done since the 1991 polity change, evidently enables better EC than when operating in a benign and stable environment (Ahmad et al., 2010) of the Finnish SMEs (FI). Some of the Finnish SMEs in the industrial transforming situations (TRANS) indicated that there was no need for opportunity searching, visioning, and environmental scanning. The field of the forest industry has a long history in Finland. As a quite stable field of business, it is considered in the forest industry that business movements take place slowly; changes occur locally, such as mills shutting down, rather than resonating within the whole field of operations e.g. in the communication industry. Despite the lack of awareness of EC in some of the firms studied, EC strength was found, in former studies, to have a great effect on business survival and EC significantly influence the recognition of new business opportunities. As an

addition to the previous literature, it seems that specifically the firm-level embedded EC such as continuous environmental scanning assist SMEs to recognise changes in business environment, and additionally assist firms to identify new business opportunities and exploit them. The earlier a firm recognises the changes, the more time it has to react to them.

When EC are focusing on a firm's future, the *managerial competencies (MC)* illustrate the skills and abilities to run the firm's everyday business and to maintain existing business, operations, finance, and marketing – that is to say- this has influence on the execution phases in the entrepreneurial process (Shane, 2003). Managerial competencies, focusing on planning, organising, controlling, and directing a firm, are perceived as crucial for an SME's performance (Capaldo et al., 2004; Javidan, 1998; Sanchez and Levine, 2009; Vos, 2005; Walsh and Linton, 2001) and positively affect value creation processes (Barney, 1991; Grant, 1996; Prahalad and Hamel, 1990). This study is in line with previous research indicating mostly positive findings on how to succeed, and especially highlighting the ability to develop existing business in line with external changes, which strengthens the business's strategic importance (see Berio and Harzallah, 2005; Sanchez, 2004). Furthermore, by examining the empirical findings in Matrix 1 it can thus be concluded that the ability to develop the business in a line with changes is a dominant survival ability for firms, and thus support managers' professional MC (see Hambrick and Mason, 1984; Lado et al., 1992). The matrix also presents competencies that were highlighted as not crucial by some Finnish SMEs (FI). SMEs either did not see managerial skills and capabilities as important for their business, or were unable to run and develop their firms in line with external changes. The firms were the same ones, which were already passive in environmental scanning and thus had neglected EC. One explanation for the passiveness might be the time of data collection, which fell soon after the mill was shut down and firms as subcontractors were confused about their business, which in turn describes their unpreparedness for the changes in the business environment.

Furthermore, in the Matrix 1 results there are some minor additions to MC as survival competencies. The ability to create a firm's publicity (i.e. image) as actively and purpose-oriented as possible was found to achieve more customers and therefore more markets, and to convince markets of the firm's existence and its products. This competence is a new addition to the theoretical discussion on SME marketing skills in the literature (O'Dwyer et al., 2009; Parry et al, 2012). It is an SME survival skill, especially indicated in innovative SMEs (INNO). Activeness and purpose-oriented publicity formation are logical in innovative SMEs, as they introduce their new products or services to markets, and thus position themselves into markets with the help of the publicity which the firms themselves create by their own actions. This ability was also indicated in SMEs that had, survived many economic

changes (TRANS). The firms in both samples either positioned or re-positioned themselves in the markets, and experienced that active and purpose-orientated publicity helped their penetration into markets. The ability seems thus to be connected to the market entry phase as a means to survive and successfully pass the critical penetration phase.

Similar with purpose-oriented, publicity activeness the study identified the financial ability to respond to economic changes as a business supporting skill (e.g. Carter and Van Auken, 2005; van Praag, 2003) and this was mostly highlighted in innovative SMEs (INNO). Innovative SMEs (INNO) introduce their new products/services to markets, and at the same time cover innovation costs. Thus, for the firms, it is important to acknowledge their financial ability to respond to economic changes to cover at the same time innovation costs and penetration costs. Overall, the study holds a similar view to that of previous research, which highlighted the importance of financial awareness as a business supporting skill. When summarising the influence of MC as business survival competencies, it can be concluded that MC have significant effect on an SME's ability to secure existing, everyday business in a line with external changes. Additionally, it can be concluded that active, purposefully-oriented publicity formation and financial awareness have supporting influences on business survival in the initial business introducing phases. Contrary to entrepreneurial competencies, which were highlighted as important for the whole firm including employees, managerial competences are crucial only for managers. The managers are alone responsible for MC, because they are responsible for SMEs' decisions, e.g. finance, publicity, etc. Therefore, managers need to acquire/have up-to-date high-level managerial skills, abilities, and attitudes to be able to support SME's business survival in any business phase a firm operates.

**Individual competencies (IC)** are widely discussed in SME literature. To separate competencies on an individual and firm level is difficult in SME literature, because of limited human resources and therefore overlapping, varied tasks. Generally, competencies seen on an individual level are related to a certain occupation and/or profession (Cheetham and Chivers, 1996, 1998; Hodkinson and Issitt, 1995; Keen, 1992), and additionally connected to a functional, behaviour-based competency (Burgoyne, 1993; Finegold and Nottbartolo, 2010; Spencer and Spencer, 1993). In SMEs specifically, individual competencies (skills and knowledge) are connected to performing a specified job effectively (Dubois, 1993; Gilgeous and Parveen, 2001). The results of the study are in line with former research, however, they determine the needed for a standard of individual competencies and raise the discussion onto the higher level in order to specify the necessary level of competence. In changing business situations 'the effective job competence' is not enough, because individual competencies need to be at an outstanding and technologically high level. As the implications of this study indicate, surviving in chang-

ing business environments requires a high-level of industrial know-how with appropriate attitude towards work, and professional experience. Highly skilled staff seem to constitute the basis for success and survival (Matrix 1). The technological and legislative changes offer new business opportunities (Schumpeter, 1934) in creative destruction and therefore a high standard of skills is needed to exploit new business opportunities. Within the forest industry, for example, the rise of biofuels has offered new business opportunities, but demanded at the same time high technological skills and abilities.

The empirical studies usually identified the lack of competencies in SMEs, and this study (see Matrix 1) agrees with former research. Nevertheless, the skill to acknowledge one's own lack of skills can be considered a positive skill of its own. Therefore, the study contributes to competence literature by introducing the concept of 'an ability to recognise gaps in knowledge, skills, attitudes'; acknowledging unskillfulness. This highlighted acknowledging of unskillfulness is an important feature, because by applying this competence it is possible to improve and develop proper skills and competencies to survive in changing situations - e.g. if a firm transforms its business into another field of industry, the industrial skills might be different than in its former field of operations. In sum, if the personnel in a firm do not know their lacking of competencies, it is impossible to improve the situation.

Secondly, competencies such as organisational, networking, operational, and change competencies are discussed (see Figure 11). Organisational competencies and Networking competencies, being partly internal competencies but also partly related to external players and the environment, are located in the same framework, due to their new formulations, which were found based on the empirical data. In the literature of competence-based management, *organisational competencies (OC)* highlight firms' value-creating processes with which market positions are achieved (Sanchez, 2004). Additionally, bundles of resources (Amit and Schoemaker, 1993; Barney, 1991; Penrose, 1959) and organisational core competencies (Prahalad and Hamel, 1990) enable large corporations to achieve competitive advantage. This study, in turn, shows that OC were not purely visible in SMEs, but were intertwined with the other types of competencies, e.g. networking competencies. The general discussion of organisational competencies seems thus better suited to large corporations where large amounts of resources can be re-organised according to various business operations and functions, and then face change situations with various resource units.

Additionally, due to the limited human resources in SMEs it is difficult to make a distinction between purely individual and purely organisational competencies as discussed in large companies, and therefore in SMEs we ought to discuss 'SME-level competencies'. When discussing organisational competencies in SMEs, there is a need to notice that an SME itself is one bundle of resources, which, due to the limited number of staff, seems to per-

form multiple tasks, and thus faces markets demands as a unity of multiple skills and abilities embodied in each employee. Therefore, it is suggested here that it is better to discuss 'SME-level competencies' rather than discussing organisational competencies in SMEs to achieve competitive advantage. To highlight the combination of competencies in SMEs the study outlined several specific 'SME-level competencies': good internal relationship between personnel; interchangeable personnel; and the need for 'jacks-of-all-trades'. Entrepreneurs are usually considered 'jacks-of-all-trades' (Lazear, 2003) being competent in many skills, but the study stretches the demand to address everyone in a firm. A limited number of competencies can be considered; on the one hand, a weakness for SMEs, but on the other hand the demand to be able to handle multiple tasks implicates mastering various and versatile competencies at the same time. The low and non-bureaucratic organisational structures (Carson et al., 1995; Nootboom, 1994) make interchangeable tasks and internal actions possible in SMEs.

**Networking competencies (NC)** consist of the desire to operate within networks, networking readiness, and an open-minded attitude towards external players that expand SME internal competencies in broader external directions. SMEs improve their limited competencies from outside the firm by acquiring the required skills and capabilities even for innovation and financing, which are considered the most central and sensitive issues for every firm's business. Innovation and networking are also combined in former research (e.g. Clifton et al., 2010; Gronum and Verreynne, 2012; Zeng et al., 2010) as features supporting SME business. This study offers a new dimension on to how to enable cooperation and networking. The mental expansion outside the borders of a firm is possible with an open-minded attitude; this is a dominating feature in innovative SMEs (see Matrix 1) and in firms that transformed their business under industrial structural changes (TRANS). When comparing Russian (RU) and Finnish (FI) SMEs it was found that the Russians, overall, are more prepared in networking with open-mindedness than the Finnish in similar conditions. The small business culture is quite new in Russia due to the polity change in 1991, and SMEs are keen to establish their product/services in the markets, and are therefore more open to establish new relationship to secure business success and survival.

Inter-organisational cooperation (Lambert and Cooper, 2000; Mentzer et al., 2000) and inter-organisational network competencies (see Ferrer et al., 2009) are both close to organisational competencies (discussed above) and concerned with resource and information sharing. As discussed above within OC in SMEs, inter-organisational network competencies are close to 'SME-level competencies' based on the limited resources and low structures in the organisation. This additionally confirms the study results that OC are not purely identified in SMEs, but may be intertwined with the other types of competencies, e.g. networking competencies. As an implica-

tion, the study introduces the term of ‘SME-level competencies’ in order to face external challenges as a unity. As was earlier presented, the high-level individual (professional) competencies were identified as crucial for SME success and survival, and implicated that ‘SME-level competencies’, consisting of OC/NC, determine, in turn, their coverage. Furthermore, combined OC/NC help SMEs to supplement their limited resources with resources from outside a firm, but the firms need an open-minded mentality and a readiness for networking.

The third framework includes Operational and Change competencies focusing purely on external players and the environment. Compared to previous literature these new classifications of competencies include the business operational issues (Operational competencies) enabling business survival, and competencies closely related to surviving in changes (Change Competencies, CC). **Operational competencies (OpC)** include flexibility in changed situations, ability to form long-term customer relations based on reliability and trust, and customer orientated operations. The identified specific survival competencies reflect the skills and competencies, which are discussed, in general, within SMEs operations (Simpson et al., 2006; Storey, 2000). Due to their small size, SMEs are considered to be flexible, agile, and fast when responding to changed customer demands, and thus responding to changed business environments. The study supports earlier research findings on the operations by which SMEs are likely to achieve business longevity and, adds to the literature by presenting the classification of these needed operational competencies to succeed. ‘SME-level competencies’ form the specific *internal* operational competencies of a firm, and the operational competencies (OpC), in turn, set the specific *external* operational competencies of a firm – competencies mainly related to customers.

**Change competencies (CC)** focus directly on crucial survival competencies to tackle changes in the business environment. Change competencies are a combination of features of entrepreneurship (courage and toleration for uncertainty), managing entrepreneurial process (see also Shane, 2003) and personal willingness to renew. Personal features like risk-taking and self-confidence (see McClelland, 1961; Meredith et al., 1982) express the courage to face an ignorance of the future. These features were connected to a proactive attitude to influence and shape the future as much as possible. The interesting finding is the willingness to change by renewing skills, and adopt work practices with a development-friendly attitude. More specifically, employees in some Russian SMEs (RU) (Matrix 1) having development-friendly mind-set were keen to advance their personal skills and competencies even in their personal time and at their own costing so as to be personally competent in the labour market. Respectively, employees in some Finnish SMEs (FI) counted on SME owners/managers’ to be concerned with developing employees’ skills and competencies, and thus did not voluntarily

renew their own skills to any high degree. On the other hand, Finnish SME (FI) owners/managers did not put any effort into developing competence and thus, experienced various lacks in competence (Ahuja and Lampert, 2001; Danneels, 2007; Senaratne and Wang, 2009; Vähämäki, 2005), which prevented the business from renewing and executing new business opportunities. Thus, some of the Finnish SMEs (FI) appear to be in such a situation where the firms themselves are not interested in renewing employees' skills and abilities, and employees themselves are not willing to change either. Due to a lack of competence and an unwillingness to change, the Finnish SMEs (FI) operate only in everyday business action without repositioning and renewing the firm (see Section 4.3). The incomplete circulation without returning to the opportunity exploration phases in entrepreneurial process (see Section 4.3, Figure 10) means in practice a lack of new business opportunities, and thus may complicate a firm's business continuity in the future. Therefore, for SMEs it is significantly crucial to be willing to change and possess development-friendly mind-set towards change. The attitude towards change needs to be proactive; a firm needs to be able to take charge of change rather than the change taking control of the firm. The CC, as behavioural competencies, are furthermore crucial for all of the personnel in a firm, both for owners/managers and for employees, in order to enable business survival by up-to-date competencies. In sum, CC seem to assure constant competence renewing and prevent SMEs from experiencing a lack of competencies. The owners/managers are responsible for developing skills and attitudes related to their business operations, but employees are also responsible for the foundation of their own professional competence, so that both sides together aim at developing the firm.

When analysing the competencies within other categories (Matrix 1), some of the Finnish SMEs (FI), along with having poor change competencies, were passive in environmental scanning (EC) and were additionally incapable of developing existing business in line with external changes (MC). In practice, their business seems to be at high risk of collapsing, based on both the theory and empirical findings for business survival. To ensure the accuracy of the arguments, a further longitudinal study is needed.

## 5.2 Answers to research questions

As a summary of competencies dealt with in the above, it is indicated that the phenomenon of specific survival competencies in SMEs includes various competencies that need to be utilised together;

- to assist the recognition of changes in time to prepare for the changes, and assist further the discovery of new business opportunities and to exploit them if needed;
- to secure smooth running of existing business;

- to determine the required standard and coverage of competencies embedded in each individual;
- to form specific internal operational competencies to complement limited resources as a unity;
- to set external operational competencies to success in changes with customers;
- to assure constant competence renewing in order to avoid deficiencies in competencies.

In other words, specific competencies enable SMEs to survive changes in business environments, firstly by monitoring external changes and their possible effects towards internal business, and secondly, by adjusting internal firms' competencies towards business environmental changes. To express at more detailed level the competencies supporting survival in changing business environments and how they enable business survival, Table 8 below summarises the answer to the main research question of the dissertation (i.e. *How do specific competencies enable SMEs to survive changes in their business environments?*). Table 8 additionally presents the importance and effect of specific survival competencies in question, and furthermore the individuals to whom the competence in question belongs or who is in charge of taking care of it. The final column highlights the importance and effect of every individual in an SME, and concludes that everyone needs to be aware of various competencies. Furthermore, the study highlights the importance of versatile skill-based and behaviour-based competencies within SME staff. In the current literature, competencies are in general viewed as influencing business from the point of view of managers and what they are required to possess, but this study, in contrast, raises the importance of all individuals influencing an SME's successful performance by their competencies.

Secondly, the study answers the first sub-question of the research: *What specific competencies support SMEs' survival through change situations?* Figure 12 below presents supporting competencies in interactions between internal and external environments. The changes are dynamic by nature and therefore the competencies supporting survival need to be dynamic as well. As discussed earlier, in the centre of Figure 12 are the high-level (professional) individual competencies regardless of the position of the person. The proper, modern SME internal competencies and ability to perform interchangeable, versatile tasks in business operations create the competence basis of a firm; interchangeable personnel with versatile skills and abilities enables constant operations during e.g. sick leave and the balancing of production loads. The competencies thus form an internally strong firm with which to face challenges of the external environment. Furthermore, by continuous environment scanning an SME observes the business environment and changes, safeguards new opportunity identification, and thus safeguards possibilities

*Table 8. Specific competencies enabling survival, their effects and the individuals involved*

<b>Category of survival competence</b>	<b>Specific survival competence</b>	<b>How they enable business survival?</b>	<b>Importance and effect</b>	<b>Competence embedded in/ in charge to take care</b>
<b>Entrepreneurial competencies</b>	Continuous environmental scanning.	Assist the recognition of changes. Assist the discovery of new business opportunities in order to exploit them.	Enables a firm to prepare better and in time for business changes. Create a cluster of possible new innovations to exploit when/if needed	Owners/ managers and employees
<b>Managerial competencies</b>	Ability to develop existing business in line with external changes.	Secure smooth running of existing business.	Secure every-day business, and its adjustment according to changes	Owners/ managers
<b>Individual competencies</b>	High-level individual (professional) competencies.	Determine the necessary standard and coverage for SME-level competencies.	Are the bases of a firm's competencies	Owners/ managers and employees
<b>SME-level competencies</b>	The combination of competencies. Open-minded mentality and readiness for networking.	Form specific internal operational competencies.	Form the competence power of a firm. Enable to complement limited resources.	Owners/ managers and employees
<b>Operational competencies</b>	E.g. flexibility, customer closeness.	Set specific external operational competencies.	Respond to external demands to establish long-term customer relationships.	Owners/ managers and employees
<b>Change competencies</b>	Willingness to change and renew.	Assure constant competence renewing values and skills	Avoid the firm to falling into competence traps.	Owners/ managers and employees

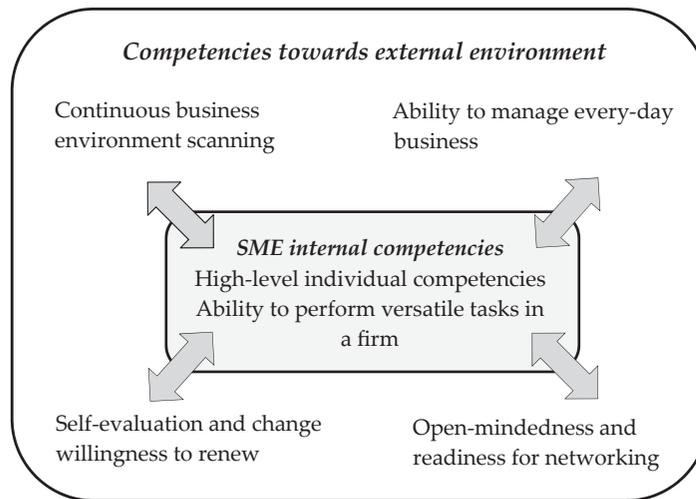


Figure 12. Supporting competencies.

for new business exploitation for the future. Additionally, with the ability to manage every-day business, an enterprise responds to customers' orders and wishes, and therefore builds trust and closeness between the firm and the customers. Moreover, with 'an ability to recognise gaps in knowledge, skills, attitudes' - that is to say self-evaluation - and with the willingness to renew, a firm takes care of proper, continuous, and up-to-date individual competencies. Finally, an open-minded attitude, and a readiness for networking open up to SMEs external possibilities to improve and complete internal resources and competencies.

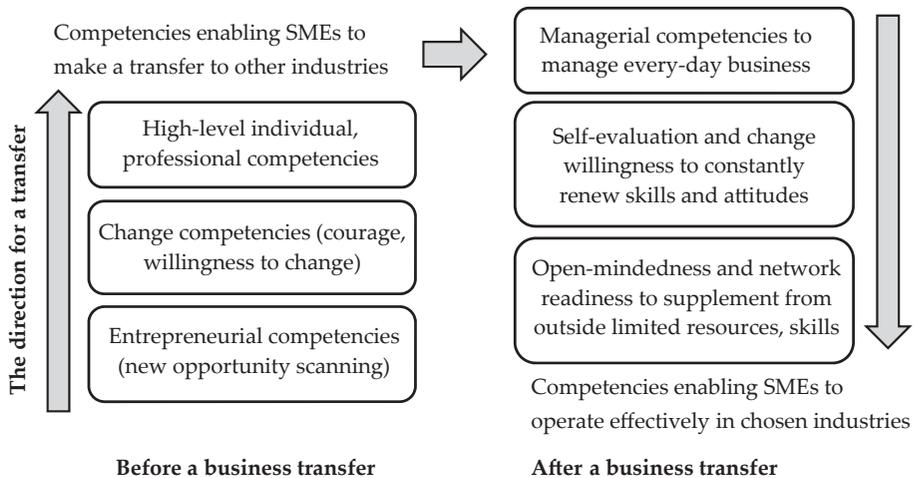
Thirdly, in the following, the study answers the second sub-research question of how competencies are transformed as a consequence of internal or external changes. In constant business environmental changes, competencies have to change as well. Internal innovation, new production methods, new customer needs, and institutional changes; all of these need new skills and competencies. The study found that competencies are mainly transformed through specialisation or expansion of existing competencies by refreshing (updating, deepening and extending former ones), or acquiring totally new ones (see Section 4.5). Basically, competence transformation demands an ability to recognise gaps in knowledge, skills, and attitudes. After noticing the deficiencies in competencies, competence transformation (i.e. specialising, updating, deepening, extending the competencies, acquiring new ones) needs to be organised. Based on empirical studies, individual skills and competencies were refreshed based on former skills, so that new, up-to-date professional skills and abilities were obtained through specialised training inside the firm for employees, and new skills for owners/managers were acquired through external training operators (TRANS). The compe-

tence transformation is thus organised based on training needs, which in turn, are based on the chosen new business in question. The competence transformation process needs to be, therefore, well organised and managed within a firm, or it may be an individual choice to improve personal qualifications. The employees in Russian SMEs (RU) have had to acquire totally new professional skills based on new operations in the post-socialism era in order to succeed better in the labour market. Some qualifications and skills were so modern that educational institutes in Russia were unable to teach and train students in their academies e.g. information technology skills, and individuals were forced to look for training choices from alternative sources at their own cost. In addition to systematic management by clear role of a leader in implementing the change, a positive attitude towards the change is needed. As Spencer and Spencer (1993) stated in their iceberg competence model, the self-concept, attitudes, and values as hidden competencies are semi-difficult to develop. Nevertheless, attitude development is possible, if an individual has a positive attitude towards the change. However, the educational schools and training institutes seem to underestimate the importance of attitude development by focusing mostly on educating and training skill-based competence (see Brockmann et al., 2008; Winterton et al., 2005) instead of including behaviour-based competencies (see Spencer and Spencer, 1993) in teaching programs. The employees themselves and additionally the owners/managers are thus responsible for developing positive attitude and willingness to change. Moreover, to think innovatively and to face bravely future possibilities is necessary both on the SME level and individual levels. The thesis thus encourages educational and training institutes to include the concept of attitude development in their syllabuses, and to teach and to train change competencies (CC).

Finally, the study answers: *What competencies enable SMEs to make a transfer to other industries* and operate successfully in these industries? Sometimes a field of industry meets such drastic local or regional changes due, for example, to the closure of a mill or changed customer demand that the entrepreneur faces a situation to either go out of business or to transform the business into another field of industry. Some of the SMEs studied had changed their operations from the forest industry into the energy industry with great success. Referring to Figure 12 (*Supporting competencies*) it can be concluded that firstly, continuous opportunity scanning offers possibilities to exploit new business opportunities, and thus highlights the importance of entrepreneurial competencies in order to prepare for changes. Secondly, as specific competencies, change competencies, proactive attitude towards changes, courage, tolerance of uncertainty, and willingness to renew skills, make it mentally possible for a firm to break away from the past. Thirdly, SMEs' internal, high-level individual, professional competencies are specific in a certain field of industry and therefore they need to be renewed

in order to be suitable for the chosen field of industry. If the chosen industry is close to the former one, the demand for the renewal of competencies is smaller. As an answer to the third sub-question, firstly, the study introduces a preliminary process model (Figure 13 below) of competencies helping an SME to make a business transfer to another industry or to other contexts.

The same preliminary process model additionally describes the competencies that enable SMEs to operate efficiently in a chosen industry or in a chosen context. Thus, the process model combines competencies enabling a transfer as well as competencies enabling SMEs to operate efficiently in other contexts or in other industries. The initial model is based on the dominant supporting competencies (see Figure 12) in change situations. Firstly, on the left the competencies enabling SMEs to make a transfer to other contexts or into other industries are presented: entrepreneurial competencies (new opportunity scanning), change competencies (courage, willingness to change), and high-level individual, professional competencies. All of the specific competencies are necessary as a basis for the transformation phase, and on the right-side of the model the competencies are outlined that are needed to run the business in the chosen field of industry: managerial competencies to manage every-day business, self-evaluation, willingness to constantly renew skills and attitudes, open-mindedness, and network readiness to supplement limited resources and skills, if needed. Because this is a preliminary model, validating it needs further research, and thus offers an opportunity for a proposal for further research.



*Figure 13. Preliminary process model for a business transfer to another field of industry.*

Finally, the figure concerning survival competencies below (Figure 14) summarises jointly the research questions and answers based on empirical studies and former research. The purpose of the thesis was to explore and describe survival competencies in SMEs in changing business environment. To complete the main research question three sub-research questions were addressed concerning competencies supporting business in SMEs, the transferring features of those competencies, and the transferability of supporting competencies to other context or field of industry.

The answers to the research questions in this thesis form a continuum of survival competencies referring to situations not only when transferring to a new field, but also when simply going through changes in the industry of operation.

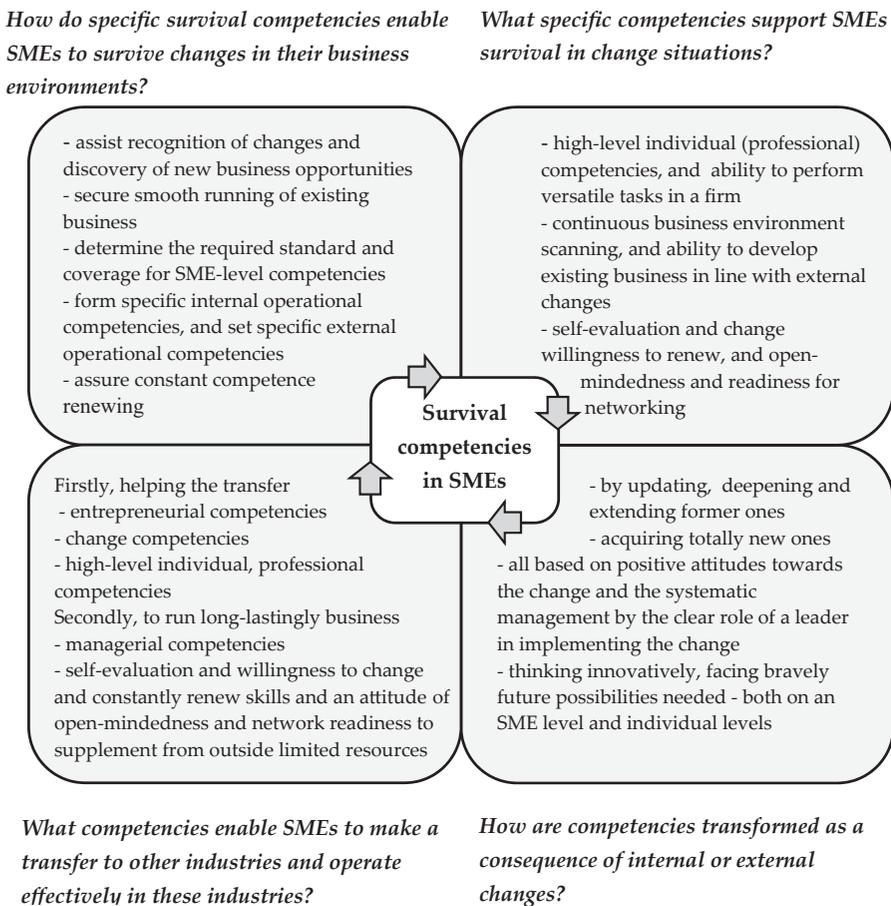


Figure 14. Summary of the dissertation results.

### 5.3 Theoretical contributions and implications

The topic of the thesis has been approached from an individual and a firm-level perspective to reach a holistic competence approach to SMEs. Competence and competencies dominate the theoretical background, entrepreneurship and entrepreneurial processes (Shane, 2003) set the basic framework features for SME business, and thirdly Schumpeterian innovation theory (Schumpeter, 1934) offers new business opportunities via economic changes.

Firstly, referring to the discussion on competence, the thesis adds to SME literature a versatile and rich picture of comprehensive survival competencies in small firms. In contrast to previous studies, which regarded competencies as business supporting skills and abilities (e.g. Forsman and Rantanen, 2011; Parry et al., 2012; Verhees and Meulenbergh, 2004; Zarako et al., 2013), this study combines separate business supporting skills and abilities, and presents a holistic perspective on SME survival competencies, and thus fills a gap in the literature. Initially, the study combines previously viewed educational, skill-based static competence (e.g. Biemans et al., 2004; Winterton et al., 2005) and behaviour-based, functional competency (e.g. Burgoyne, 1993; Spencer and Spencer, 1993); both equally targeting a firm's constant operations. Additionally, in contrast to earlier research concerned with the superior/effective performance aspect (Boyatzis, 1982; Klemp, 1980) this study determines the needed competence level of individual competencies for staff members to be able to perform various over-lapping tasks in SMEs regardless of their position. Individuals form together SME-level competencies, the internal survival competencies to face external changes in typically low organisational structures.

Previous literature introduces dynamic capabilities (Helfat et al., 2007; Teece et al., 1997) for organisations as a tool to successfully face external business changes, but this study, in turn, found the unsuitability of the concept of dynamic capabilities for SMEs because of the nature of the industry and its velocity. Dynamic capabilities seem to be more suitable in industries of the high-velocity. In addition, the requirement of multiple resources to face changes is unrealistic within the limited resources of SMEs (see Carson and Cromie, 1989). Therefore, it can be theoretically assumed that SMEs need a specific size-based approach when reviewing their embedded skills and competencies. A size-based approach mainly means focusing on firms employing on average at least four people (Lukács, 2005), and inspecting actions related to that scale. At the same time, the size-based approach thus challenges organisational competence theories, such as Prahalad and Hamel's (1990) core competencies by business units, based on a harmonised combination of multiple resources and skills, which is not suitable for the scale of SMEs' limited human resources.

Furthermore, the study maintains the view that many specific competencies need to be possessed and to be renewed by employees as well as the entrepreneur. Where as the previous SME studies have mainly stressed the importance of the entrepreneur's influence on a firm's development (Berio and Harzallah, 2007; Sanchez, 2004), this study contributes an important addition that of the whole personnel influencing the survival of the business. Conceptually analysed this study brings entrepreneurship and entrepreneurial features closer together, and to some extent broadens the concept of entrepreneurship to the employee level. Moreover, the study also stresses the shared responsibility of everyone in an SME to take care of their own competencies and thus keep the firm's competencies up-to-date. Responsibility is generally only associated with the entrepreneurs. However, an SME needs to be seen as a team of people who possess entrepreneurial-like features and skills for business success, instead of being focused only on the entrepreneur, who is seen as taking care of everything.

Secondly, referring to competence classification, the dissertation introduces new perspectives into the generally discussed survival items in literature, such as entrepreneurial (Loué and Baronet, 2012; Mitchelmore and Rowley, 2010), managerial (Lado et al., 1992) and individual competencies – as discussed in the previous section. For individual competencies especially, the research emphasises the importance of 'an ability to recognise gaps in knowledge, skills, and attitudes'; i.e. acknowledgement of the lack of skills. Although some academic studies focus on the gaps as reasons for SME business failures (Hambrick and Mason, 1984; Sanchez, 2004), the ability to acknowledge the lack of skills helps SMEs to identify shortages of skills, capabilities, and attitudes, and thus enables them to develop and improve competencies, before falling into a competence gap.

Thirdly, the study proposes new formulations for previously discussed organisational and networking competencies, and combines them as SME-level competencies to include inter-organisational competencies and competencies towards external players to acquire and complement missing resources from networks. The previously discussed organisational competencies (Prahalad and Hamel, 1990) and networking competencies (Ferrer et al., 2009) focus mainly on inter-organisational cooperation highlighting resource and information sharing, and additionally concerning organisations divided into multiple bundles of resources (Amit and Schoemaker, 1993; Barney, 1991; Penrose, 1959) in order to achieve competitive advantage. In contrast to previous studies, the SME-level competencies present better internal functionality as a multiform combination of competencies, and additionally portray the important behavioural characteristics, such as open-mindedness and desire for cooperation, as a tool to strengthen missing internal competencies from external sources. SME-level competencies, in other words, face the external environment as a competent unity together with a desire to extend and acquire resources externally if needed.

Finally, the study concludes with new competence classifications, such as operational and change competencies in SMEs. Operational competencies contain the operational features with which a firm succeeds in business: long-term customer relationships, reliability/trust, flexibility, and customer orientation/closeness. In the SME literature, the customer orientation, amongst other things, is regarded as a critical determinant of performance (Sexton and Van Auken, 1982). All of these features are familiar in the former literature as separate survival items that characterise operations in SMEs, but in this study they have been classified under specific operational competencies. Therefore, this category is comprised of the combined critical operational competencies for SME survival, and enables SMEs to adopt successful operational abilities and features at the outset. Change competencies, in turn, are rarely identified in theories, and are presented here as a totally new competence category. Change competencies embody familiar features of entrepreneurs, such as courage and the ability to tolerate uncertainty, but at the same time highlight a demand to be embedded in everyone in the firm. As an addition to the previous literature, the study offers new information concerning the required competencies by which a firm may reduce possible change resistance (see Cray, 2002) from hindering business renewal.

As illustrated above, SME survival competencies are various and are embedded deeply and broadly in a firm. With these competencies, the firms studied have succeeded in continuing their business activities for a considerable time, even for several for decades. However, there were some cases where the case study businesses might have to cease in the future. As demonstrated in Matrix 1, some firms, mostly local or regionally operating Finnish sub-contractors in the forest industry, have neglected the continuous returning back to the business opportunity discovering phases in the entrepreneurial process (see Shane, 2003). Neglecting the need to constantly look for new business opportunities leads inevitably to decreased business over time, and is likely to cause the closure of the business. Storey (2000) states that "SMEs primary objective is survival" referring to how new firms are able to continue their operations within a given time (see Storey, 2000; 114) limiting the age of business. This study, however, has observed SMEs that have operated for a long time, and have given emphasis, from the point of view of business continuity, to the importance of constantly discovering new business opportunities and exposing them to evaluation in order to exploit new possibilities and business opportunities. In reference to the previous sentence, it is indicated in the study that these results are similar to those stated by Shane (2003) and Storey (2000). Consequently the study adds to the growing amount of literature emphasising the importance of discovering new business opportunities.

The forest industry and related industries, have suffered drastic business changes in the last few decades. Both the closure of mills and the moving

of production sites to low cost countries in South-America and China have had a strong influence on SMEs' operations locally and regionally. However, there is a need to perceive that these collapses are the consequences of economic development caused by structural changes, which simultaneously offer new business opportunities (Schumpeter, 1934). When a field of industry declines, new business opportunities arise, probably in other industries or in other contexts. For this transformation in business areas, the dissertation offers as transformational actions a method of how competencies can be transformed. It additionally presents a preliminary process model for a business transfer from one industry or context to another. The notable basic issue is business continuity; if one field of industry collapses, a firm may continue its business in another field of industry.

#### **5.4 Practical implications**

Firstly, the dissertation offers practical implications for SMEs, educational players, and institutional actors. Firstly, for the SMEs and individuals considering entrepreneurship, the study offers versatile and rich information concerning the competencies enabling continuous, long-term business. Figure 12 offers practical detailed knowledge of specific business supporting competencies. Additionally, a preliminary process model (Figure 13) shapes the framework of competencies enabling a business to transfer to another industry or into other contexts, if the business is in danger of collapsing due to too many drastic changes in the present business environment. As regards managerial implications, the study highlights the significant importance for SME owners/managers to constantly look for new business opportunities in conjunction with the overall scanning of the changes in the business environment; this is in order to be more prepared for possible business changes. The changes are constant, but proper preparation and proactive operations reduce the influence of the changes, and as a most important note, economic changes offer endlessly new business opportunities for exploitation.

Moreover, the study highlights the important part that the competencies of SME employees' play as notable influencers of a firm's performance. Previous studies have also highlighted this fact (e.g. Dubois, 1993; Gilgeous and Parveen, 2001), but SME managers need to be more conscious of employees' holistic competencies as having an influence on business results, and therefore develop/renew their employees' skills and abilities for the benefit of the whole firm. However, SME employees need to note that the responsibility for competence renewal should be as much on the employees as the employers. This may cause confusion in SMEs in situations where both employees and employers believe that competence renewal only starts from the employers' side. Additionally, managers and employees need to notice the holistic survival competencies embedded broadly in the firm. The most divergent contri-

bution of the study, i.e. the extending of some entrepreneurial competencies to be also embedded in employees, may be met with reservations. Entrepreneurs may feel their entrepreneurial position threatened, and employees may ignore the suggestion as inappropriate to the employee's side/requirements. However, the suggested competencies are related only to business environmental scanning in order to give a firm time to prepare for changes, and therefore, assist the SMEs' long-term operations and all employees' jobs. The deepest characteristics of entrepreneurship, such as risk taking and entrepreneurial independence still remain the prerogative of the entrepreneurs. Additionally, managerial competencies are the only competencies embedded in managers, the other remaining competencies or parts of other survival enabling competencies need to be embedded in all the individuals.

Secondly, the study raises the fact for educational players that there exists at many workplaces a lack of individual skills and capabilities. More specifically, there seems to be a lack of professional skills and suitable work attitudes, in addition to an unwillingness to renew individual skills and capabilities in many firms. Many countries have education and training systems of a high-standard that are well-appreciated, but the view of this thesis is that the schools and academies train and teach incomplete skills by neglecting to teach suitable work skills. Based on the empirical studies conducted in the study, the educational players, vocational schools, polytechnics and universities, seem to teach basic visible skills (see more Spencer and Spencer, 1993) without adequately training the hidden competencies such as behavioural features, attitudes, and values. Therefore, together with teaching basic professional skills, the educational players need to foster an ability for open-mindedness in e.g. new technologies, and a readiness to renew and refresh skills – that is to say – to promote a holistic view for competencies, including both skill-based competencies and behaviour-based, attitudinal competencies.

Furthermore, educational players need to notice that working in SMEs demands comprehensive working abilities and the ability to master diverse tasks. Educational programmes seem to be better able to meet the training expectations of large companies and seem to have neglected the needs of smaller ones. Therefore, the organisations of professional education and training need to change their syllabuses in order to offer a balanced education to all enterprises. As Penrose (1959) pointed out, the difference between small firms and large companies is like a comparison between a butterfly and a caterpillar, and therefore the difference in firm sizes needs to be noticed in educational forums as well. Along with educational reforms to accommodate different firm size requirements, the educational players have to be prepared to robustly increase the training of entrepreneurship and entrepreneurial skills, in order that more people will become interested in entrepreneurship.

Thirdly, the study suggests that public actors and regional entrepreneurship service offices need to change their operations to satisfy the needs of dif-

ferent firms and entrepreneurs (see Section 4.5). According to the empirical studies, the new start-up firms receive suitable and appropriate services, but established firms, when trying to modify their businesses and make changes, do not experience that they receive the necessary information and support from public entrepreneurship offices. Because SMEs are significant new job creators and employers, and therefore important for any country's economy, the public entrepreneurship offices need to target their support better in order to face the needs of established SMEs, and thereby assure the business continuity of these businesses. Public actors and institutions should allocate more general attention as well as financial resources to SMEs, and by focusing on supporting their operations, the public actors may achieve better and quicker profitable outputs for those actions that are maintained by tax revenues.

Moreover, public actors and institutions need to give stronger support to improving the existing SMEs' business possibilities, so that SMEs are more capable of meeting the expectations of societies. SME business possibilities and business development are connected to issues such as legislation and the entrepreneurial climate. Societies are responsible for developing a mentally favourable entrepreneurial climate and taking care that SMEs have favourable legislative, financial, and economic circumstances. Some of the SMEs studied were unwilling to renew their business, and one reason for this reluctance to change might be the various bureaucracy regulations and unsuitable demands made on SMEs. When a firm has established its operations in a field of industry, has applied for the many different permissions and qualifications needed for their operations and has finally broken into the market, the firm might be unwilling to renew its business because they have no wish to repeat the demands made by the bureaucratic jungle. Therefore, societies need to proportion their demands and legislation to an SME size.

## 5.5 The evaluation of the research

Lincoln and Guba (1985) have used the term trustworthiness to evaluate qualitative research. Particularly in constructionist research, such as this study, trustworthiness is the criterion used for evaluating the 'goodness' of the research (Eriksson and Kovalainen, 2008). A researcher needs to assure the readers of the validity of his/her research, and the trustworthiness offers a framework to support the argument that the research findings are 'worth paying attention to' (Lincoln and Guba, 1985). To examine and prove trustworthiness is especially important in inductive content analysis when the categories are created from the raw data instead of a theory-based categorisation framework (Elo et al., 2014). The empirical data in this thesis is processed mainly inductively, as a data-driven approach, and therefore trustworthiness is selected as a tool to assure the validity of the research.

Four components are used to assess trustworthiness: credibility, trans-

ferability, dependability, and confirmability (Lincoln and Guba, 1985). The trustworthiness components related to this particular study are presented below, and the following table, Table 9 provides information on the particular means by which the quality of the study has been secured. Table 9 presents the trustworthiness criteria and the method of addressing it.

### ***Dependability***

In natural sciences the reliability – a similar term used to dependability - means replicability, so that the research ought to be replicable under the same conditions, in other places, and during another time (Lincoln and Guba, 1982). In social sciences, however, dependability refers to the stability of the data over time and under different conditions (Elo et al., 2014). Therefore, it is important to give clear information about the principles and criteria used when selecting the participants and their main characteristics so that the transferability of the results to other contexts can be assessed (Moretti et al., 2011 in Elo et al., 2014). Thus, the researcher has to assure the reader that the research process has been logical, traceable, and documented. However, qualitative research accepts variations in the stability of the data and the consistency of the findings (Petty et al., 2012); a possible variation may originate from the passing of time, the researcher, and the research process itself when the interpretations were developed. It is therefore suggested that researchers provide an audit trail – a continuous documenting chain of the whole research process - of methods, documentation of data, and decisions about the research in order to enable a dependability judgement on the research process.

### ***Confirmability***

Confirmability refers to the quality of the results and the extent to which the interpretations of the study by the different researchers are the result of the interviewees, and the congruence of the study is confirmed or corroborated by other independent individuals (Elo et al., 2014). Qualitative research tends to assume that each researcher generates, unintentionally, a unique perspective as regards the study. However, the research results need to be based on the scientific nature of the study rather than depending on the researcher's opinion. In addition to independent reviewers, Guba (1981) states that triangulation (use of complementing methods and researchers), reflexivity, and a confirmability audit are needed to appropriately trace the findings from the original data and to assure that the interpretations of data clusters are meaningful and reasonable. Confirmability and an external audit involve tracing the research products; the interpretations, the conclusions, and the recommendations, to their sources and ensuring that they are supported by the data used (Erlandson et al., 1993).

*Table 9. The trustworthiness of the research process (modified Erlandson et al., 1993)*

Criteria	Method of addressing trustworthiness
<p><b>Dependability</b> (reliability, audit trail of research process)</p>	<p>The research process is described and reported systematically and logically so that the findings are traceable from the interviews. Preliminary data of samples is documented systematically including contact emails, interview forms, diaries kept by the interviewer/researcher and collections of secondary data. Selected interviewees (mainly owners or/and persons on managerial level) represent suitable informants for SMEs in the field of forest industry. Interviews were conducted with the assistance of a native speaker, recorded, transcribed and translations were checked by an outside translator in order to ensure the validity of the texts. The transcripts were sent to the interviewees for comments on the interview sessions. Publications 2-3 and 5 are peer-reviewed by journal reviewers of international journals. Publication 1 is peer-reviewed by conference reviewers at an international conference. Publication 4 has been sent for peer-reviewing to journal reviewers of an international journal.</p> <p><b>Conclusion:</b> The research process is logical, traceable, and documented.</p>
<p><b>Confirmability</b> (quality of the results, audit trail of the research products)</p>	<p>The evidence chain is transparent describing the interviewees, the firms and their conditions are identified as far as possible to ensure the data used is adequate for the purpose. Research data is based on various multinational samples, and the findings are considered with other academic studies. The interpretations can be traced in the data used, so that the researcher's perspective was taken into the interpretation of the interviews as little as possible. The publications are jointly written with several researchers specialised in various field, which avoided too much subjectivity and bias in the interpreting phases. The findings of different samples were presented in seminars conducted in a forest industry context and thus discussed and reflected on various experts in the field. The interviewees had a possibility to comment on the interviews afterwards, and also after they had received the publications in which they were involved.</p> <p><b>Conclusion:</b> The interpretations are based on data and are objectively linked to the findings.</p>

Criteria	Method of addressing trustworthiness
<p><b>Credibility</b> (internal validity)</p>	<p>Prolonged engagement: The researcher has over thirty years educational, industrial, and SME experience, which ensures the vocabulary used both verbally and written has consistent meanings and content. The Finnish culture is familiar as the researcher is a native Finn; the Russian culture and language are also familiar based on practice and the qualification of a commercial degree.</p> <p>Persistent observation: Former experience and five years of intensive collection of up-to-date, publicly available information; as well as observation of SMEs in the field in question.</p> <p>Triangulation: Usage in data collection (Finnish and Russian), in item triangulation (Publication 5) and in data analyses (Publication 4; template analysis, Publication 3; comparative analysis).</p> <p>A case study, as sampling method of primary data, is appropriate in order to produce rich descriptions of every-day live. Secondary data was collected via various sources (internet, magazines, and newspapers in both countries), authentic quotations by the interviewees' are presented in all publications. The saturation of the data was achieved with purposeful samplings and a reasonable number (46) of informant SMEs.</p> <p>Peer-debriefing: Discussions with multinational and co-researchers within the same field of interest, presentations of findings in seminars and workshops to acquire various aspects and views.</p> <p>Member checking: Receiving feedback and questions from informants and entrepreneurs.</p> <p><b>Conclusion:</b> The credibility is justified based on iterative processing of the study and personal factors (long-term experience, qualified and fact-based education).</p>
<p><b>Transferability</b> (external validity)</p>	<p>Collection of purposive samplings representing the best knowledge in SMEs in the field of the forest and metal industry.</p> <p>Thick descriptions of data are provided throughout the samples, firms, and informants in Publications 2-5 and in the thesis text.</p> <p>The contexts of the Finnish and Russian SMEs in their field of industry were described in detail.</p> <p><b>Conclusion:</b> The results are transferable to other fields of industry in SMEs, if those applying the theoretical or practical are aware of the study background and context.</p>

### ***Credibility***

Credibility (internal validity) refers to the extent to which any research claim has been shown to be based on the data used (Silverman, 2005), and how well the data addresses the intended focus (Polit and Beck, 2012). Guba (1981) and Guba and Lincoln (1981) have defined credibility in this way: ‘do the data sources (usually humans) find the inquirer’s analysis, formulation, and interpretations to be credible (believable)?’ - is the study credible or believable from the perspective of the participants, and does the study measure or test what is actually intended. The researcher has to provide information about his/her adequate familiarity with the topic and the adequacy of the data to merit the claims made (Eriksson and Kovalainen, 2008). The evaluation of the credibility may be conducted by various strategies. Guba (1981) proposes lengthy and intensive contact with the phenomenon (prolonged engagement), persistent observation of the focal issues of the phenomenon, and the use of peer debriefing in order to receive diverse feedback from various sources and directions. Member checking is critical for establishing credibility and, reporting whether the findings portray the participants’ true impressions (Petty et al., 2012). The saturation of data is another element to justify the adequacy of the data, and thus to indicate its credibility. Firstly, a researcher needs to choose the best sampling method with suitable informants to form a ‘purposeful sampling’ having the best knowledge of the research topic (Kyngäs et al., 2011). Secondly, qualitative research allows a limited number of selected interviews and cases in order to reach saturation (Seale, 1999). Saturation is the point in data collection when no new or relevant information, themes, or categories can be obtained. It is therefore possible to achieve saturation of the data by concentrating on a limited number of cases, and thus to provide in-depth, rich descriptions of the cases by evaluating the quality of the data.

### ***Transferability***

Transferability (external validity) refers to the degree to which the findings of the study can be generalised or transferred to other contexts, settings, or groups. The suitable means of ensuring transferability are purposive sampling (see the section about Credibility) and a thick description of the data (Guba, 1981). A thick description includes offering enough information about the research context and presenting the assumptions that were central to the research. In naturalistic science, the transferability depends on similarities between the sending and receiving contexts (Erlandson et al., 1993) – i.e. the sending context in this study is the forest industry and the receiving context, for example, would be the energy industry. A researcher needs to describe and report data about the context at sufficient level of detail in order to allow a judgment by other people who are considering the

transferability to other contexts or usage for further research. By the nature of qualitative constructionist research, the transferability to all contexts cannot be guaranteed. Therefore, researchers who apply the study results to their own settings are responsible for whether or not the results are trustworthy in other contexts (Lincoln and Guba, 1985). Additionally, the limitations of this study need to be taken account of when applying the results of the research into other contexts (see Section 5.6).

### **5.6 Limitations of the study and suggestions for further research**

The study offers theoretical and practical implications on how SMEs can survive in changing business environments. However, although the phenomenon has acknowledged limitations, suggestions are made here for further research. First of all, according to common qualitative research practice, the results of the dissertation must be tailored when applied to a new context. In the study, the research environment was limited to focusing on the forest industry, and related industries. However, the rigorous descriptions of the findings might help researchers and practitioners to transfer the study results to other contexts or industries, e.g. industries close to the forest industry, such as the energy industry. Additionally, I suggest further quantitative studies to test the qualitative findings of this research in other contexts (field of industry, country, etc.).

Although the study was conducted in a Finnish-Russian context, the cultural aspect was excluded from this study. Therefore, studying differences in the cultural behaviour between Russian and Finnish SMEs from the point of view of operating in business is also suggested as a further topic of research. Open-mindedness, for example, was recognised as a dominant feature in Russian SMEs (RU) compared with Finnish SMEs (FI) operating in similar change conditions. Is the open-mindedness a dominant feature within Russian businesses, or in Russian SME businesses? How does cultural behaviour generally effect the conducting of business within SMEs? Furthermore, all the Russian SMEs (RU) studied, operated in the international business market, and SMEs operating only in domestic markets were not included. To eliminate this limitation, I suggest expanding further studies concerning competencies to include domestically operating as well as internationally operating SMEs. This will allow a comprehensive understanding of SMEs operating both in domestic and in international markets. Operating only in domestic or in international markets may limit SME business competencies, and thus inhibit business development. The cultural behaviour of businesses and only operating in particular markets could be combined so that the further study would offer new information on business behaviours and competencies that are needed when operating only in domestic markets versus operating in both domestic and international markets. Thus, the study would

benefit entrepreneurs who want to consider starting a business or an SME wishing to expand its business into international markets.

Moreover, I further suggest studying SME competencies from the employees' perspective and competence formulation from the bottom to the top. This study highlighted the important role of employees for SME performance, but one interesting question would be how employees experience their own skills, abilities, attitudes, and features as affecting a firm's result. The research could also cover what new educational needs the employees might have noticed in their skills and attitudes in the context of change situations. The findings would help educational institutes to reform their teaching and training programmes by including crucial SME-level competencies in syllabuses and preparing their students to acknowledge the SME working conditions and the demand of SMEs that employees should be able to master many versatile tasks at the same time. Furthermore, based on the resultant SME survival competencies, I propose to combine all specific competencies found (see Matrix 1) into a framework of survival enabling competencies (human features, skills, abilities, capabilities, experiences, attitudes, and other traits influencing SMEs operations) to serve as a checking model for SME competencies. In the model, all the survival competencies found would be detailed so that the entrepreneurs, employees, and educational institutes could utilise the SME competence checking model in their operations. This model after being created and tested would help in a very practical manner. SME owner/managers could, for example, firstly map the existing competencies in their firm and secondly after comparing these to the required ones in the model, acquire/develop/renew existing competencies in order to face external business challenges better.

In conclusion, the preliminary competence process model (Figure 13), in order to be transferrable to other industries or contexts, needs further empirical studies to test the accuracy of the model. The business environment is a living ecosystem, where some fields of industry may decline, and thus SMEs need new business opportunities to continue their business. An empirical study could provide valuable knowledge as regards those firms that have successfully transferred their operations into another field of industry, and simultaneously could also theoretically help to re-formulate the preliminary competence process model presented in this study.

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# APPENDICES

APPENDIX 1

Лаппеенрантский технологический университет  
Факультет технологического менеджмента  
Кафедра экономики и управления производством

Менеджмент знаний в предприятиях малого и среднего бизнеса

**Что подразумевается под понятием менеджмент знаний?**

Менеджмент знаний (англ. knowledge management) — это систематические процессы, благодаря которым создаются, сохраняются, распределяются и применяются основные элементы интеллектуального капитала, необходимые для успеха организации; стратегия, трансформирующая все виды интеллектуальных активов в более высокую производительность, эффективность и новую стоимость.

Система управления знаниями — это набор повторяемых на регулярной основе управленческих процедур, призванных повысить эффективность сбора, хранения, распространения и использования ценной информации с точки зрения компании.

**Вопросы для интервью**

**1) Основные сведения о компании**

- Сфера деятельности;
- Дата основания;
- Число сотрудников, оборот, ресурсы и т.д.;
- Навыки персонала, накопленный опыт и квалификация.

**2) Изменения во внешней среде**

- Как изменения, происходящие в обществе, влияют на жизненный цикл компании?
- Какой вы находите социальную атмосферу для предпринимательства?
- В чьи обязанности входит наблюдение за внешней средой, и каким способом это осуществляется?
- Каким образом начинается процесс разработки новых продуктов/услуг?
- Каково влияние местных законодательных органов на рабочий процесс предприятий малого и среднего бизнеса?

**3) Знания и ноу-хау (внутренняя среда)**

- Как отражаются изменения во внешней среде (например, экономический кризис, изменения в общественной структуре) на ноу-хау сотрудников компании?
- Какого рода новые знания необходимы для вашей компании, и каким образом они могут быть приобретены?
- Как зарождаются новые продукты/услуги внутри компании?
- Поощряет ли компания изобретательность своих сотрудников?
- Что вы думаете об имидже компании?

Lappeenranta University of Technology  
Faculty of Industrial Engineering and Management  
Information and Knowledge Management

[At the beginning is a text concerning the aim of the study and general information of knowledge management.]

### **Interview questions**

#### **Basic information**

- Field of operation.
- When the company was established?
- Number of employees, turnover, resources, etc.
- Staff education, training and experience.

#### **Changes in the external environment**

- How do the changes in society affect company's lifecycle?
- How do you find the social atmosphere for entrepreneurship?
- Who monitors the external environment and how?
- How the development process of new products or services starts?
- How the local legislation influences SMEs operations?

#### **Knowledge and know-how (internal environment)**

- How do changes in the external environment (e.g. social structure, economic collapse) affect company's personnel know-how?
- What kind of new knowledge the company needs and from where it can be accumulated?
- How new products/services are developed inside the company?
- Does company encourage its employees' creativity?
- What do you think about the company's image?

APPENDIX 3

Lappeenrannan teknillinen yliopisto  
Teknistaloudellinen tiedekunta  
Tuotantotalous/tietojohdaminen

Pk-yritysten osaamisen muuntuminen

Haastattelurunko; puolistrukturoitu haastattelu

pe 18.5.2012 klo xx.00 XX / Yritys X, haastattelija Kyllikki Taipale-Erävala

Taustalla on Myllykoski Oy:n ja sittemmin UPM Myllykosken yritysverkosto vuosina 2009–2011, jossa on yritykseltä saatujen tietojen mukaan 1014 yritystä. Näistä suomalaisia (=päätoiminta-alue) ja Pk-yrityksiä on 754 yritystä. Edellisistä Pk-yrityksistä on valittu tutkimuksen kohteeksi noin 20 yritystä, joihin tehdään osaamisen alkukartoitus vuoden 2012 alkupuolella ja yrityksiä pyritään seuraamaan tulevaisuudessa seurantatutkimuksilla. Teoriataustoina ovat yrittämiseen liittyvät innovaatioteoriat ja yrittäjyyden kognitiiviset teoriat tietojohdamisen teorioiden lisäksi. Tutkimuksen tarkoituksena on selvittää millä tavoin osaaminen muuntuu yrityksissä. Yritystä tarkastellaan tässä haastattelussa taaksepäin ja tilannetta nyt = tilanne X (mahdollisissa seurantatutkimuksissa = Y havaitaan muutokset X:n ja Y:n välillä)

**Perustiedot yrityksestä**

- toimiala?
- perustamisvuosi?
- resurssit (kiinteät, henkilömäärä, liikevaihto, jne)?
- Myllykosken osuus liikevaihdosta 3 viime vuoden aikana?
- henkilökunnan taidot, kyvykkyydet + henkilökohtaiset ominaisuudet, kontaktit/verkostot ja asenne/tahto

**Makroympäristön havainnointi**

- miten ja kuka havainnoi ulkoista ympäristöä?
- yhteiskunnallinen ilmapiiri, yrittäjyyden kehittymisen havainnointi?
- miten uusien tuotteiden/palveluiden kehittäminen alkaa, mistä tulee impulssi?
- mistä ja miten tietoa hankitaan, kuka hankkii tietoa, säännönmukaista, sattumanvaraista?
- lainsäädäntö mitä muu ohjaa?
- mitä toimenpiteitä yrityksessä on tehty ulkoisten muutosten takia osaamisen kehittämiseksi? Miten julkiset toimijat tukevat näitä?

**Mikroympäristön havainnointi**

- tehdäänkö tuoteparannuksia, kuka ja miten tekee??
- prosessiparannuksia, teknologiaparannuksia?
- panostetaanko kekseliäisyyteen, miten?
- osaamisen huomiointi, johtaminen, kehitetäänkö osaamista, miten?
- hiljaisen tiedon hyödyntäminen, siirtäminen?
- yrityksen imago, maine? Yrityksen brändi?, laatu?
- **mistä koostuu yksilön osaaminen?**
- **organisaation osaaminen?**

## Niche Inno, interview questions

- **Taustakysymykset (Mitä hän on? Mitä yritys on?)**

- "Taustalomake" – Kehittymis-, innovaatio-, kasvumittaristo??? Valmiit mittarit!
- Kasvuhakuisuus? Kasvuhakuisuus? Liikevaihdon kehittyminen?
- Henkilöön liittyvät: Kuka olet, mitä teet? Kokemuksesi alalta? Työhistoria? Kokemuksesi yhteistyöstä metsäteollisuuden kanssa?
- Haastattelija kertoo lyhyesti, mitä tietää yrityksestä → Pitääkö tämä paikkansa, miten täydentäisit
- "Aasinsilta" mielenkiintoiseen uuteen caseen: "Teillä kun nyt on tämä xyz ..."
- Tämä ehkä myöhemmäksi → Kehitystoiminnan organisoituminen? Ketkä teillä miettivät uutta liiketoimintaa?
- Missä määrin panostatte uusien tuotteiden ja palveluiden kehittämiseen? Montako henkilöä? Paljonko uusia tuotteita ja palveluja? Montako projektia? Miten rahoitatte / resurssoitte uuden kehittämisen?

- **Nykyinen toiminta**

- Miksi teette nyt sitä mitä teette? Miksi päätitte lähteä mukaan tähän liiketoimintaan / tuotteen / palvelun kehittämiseen? Mitkä syyt johtivat päätökseen käynnistää liiketoiminta? Mitkä näette olevan vahvuutenne? Osaamis pohja? Käytössä olevan teknologian kilpailukyky? Heikkoudet / haasteet?
- Miltä markkinat näyttävät? Miten näette markkinoiden kehittyvän? Onko markkinoiden kehittyminen vastannut odotuksianne? Trendit / kehityssuunnat? Asiakkaat / asiakassegmentit? Mitä asiakastarpeita yrityksenne palvelee?
- Mitä täydentävää / ulkopuolista osaamista hyödynnätte? Kenen kanssa teette yhteistyötä? Asiakkaat? Toimittajat? Kilpailijat? Partnerit? Oman toimialan sisällä / ulkopuolella? Mitä kautta partnerit löytyvät?

- **Toiminta tulevaisuudessa (aikajänne 5-10 vuotta)**

- Missä liiketoiminnassa näette olevanne mukana tulevaisuudessa? Mitä teette tulevaisuudessa? Miksi?
- Missä määrin nykyiset tuotteenne ja palvelunne ovat relevantteja tulevaisuudessa? Missä määrin uusi liittyy nykyisiin tuotteisiin ja palveluihin?
- Ketkä ovat asiakkaanne? Kenen kanssa teette yhteistyötä?
- Tsekkaa tulevaisuuskysymykset Delphistä!

- **Miltä näyttää toimintaympäristönne tulevaisuudessa?**

- O + T

- [Ulkoinen ympäristö (PESTE(L), SWOT, MOTs, 5-forces)] – Kuvien käyttö yrityksen positionimiseksi arvoverkkoon – nyt ja tulevaisuudessa.

APPENDIX 5

Lappeenrannan teknillinen yliopisto  
Teknitaloudellinen tiedekunta  
Tuotantotalous/tietojohtaminen

Pk-yritysten osaamisen muuntuminen

Haastattelurunko; puolistrukturoitu haastattelu

ma 17.10.2011 klo 8.30 Yritys X, haastattelija Kyllikki Taipale-Eräväla

Taustalla elinkeinorakenteessa tapahtuneet muutokset 1980-luvulta lähtien, suurteollisuuden rakennemuutoksen aiheuttamat muutokset Pk-yrityksiin, ja kuinka muutos on vaikuttanut osaamiseen.

**Tilanne yleisellä, paikallisella tasolla – MUUTOKSEN ESIINTUOMINEN**

Miten yrityselämän rakennemuutos (ulkoinen muutos) on näkynyt (telakat, Voikkaa, Summa, jne..)? Yritystasolla? Onko tapahtunut jyrkkiä yritysten sisäisiä muutoksia?

Miten yhteiskunnalliset toimet ja päätökset ovat huomioineet rakennemuutoksessa Pk-yritykset?

Miten voisi kuvailla paikallisia Pk-yrityksiä? (tässä kuvailu niiltä paikkakunnilta, mitä tuntee)

**Osaamisen muutos – OSAAMISEN MUUTOKSEN ESIINTUOMINEN**

Miten muutos vaikuttaa / on vaikuttanut yritysten osaamiseen?

Millaista uutta osaamista tarvitaan, on tarvittu? Miten sitä on hankittu /voi saada? Mihin osaamistarpeet liittyvät? (esim. yhdessä vaiheessa tietotekniikan osaaminen oli tärkeää..)

Kenellä yrityksen osaamisen on, millaista? Mistä osaaminen koostuu?

**Lakkautetut tehtaot versus Pk-yritykset**

Millainen yritysilmasto on ollut paikallisesti? Muutoksia? Mikä/kuka muuttunut ja mihin suuntaan?

Onko ao. toimialoilla ollut muutoksia? Jos on, niin millaisia? Miten osaaminen on muuttunut? Pk-yritysten tilanne jyrkässä muutoksessa?





PART II  
PUBLICATIONS



# 1

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## PUBLICATION

### A literature overview of competence identification in SMEs

*Taipale-Erävala, K. and Lampela, H., 2011*

Proceedings of 6th International Forum on Knowledge Asset Dynamics:  
Knowledge-Based Foundations of the Service Economy, Tampere, Finland,  
15-17 June 2011.

This paper was presented in IFKAD - 6th International Forum on Knowledge Asset Dynamics: Knowledge-Based Foundations of the Service Economy, Tampere, Finland, 15-17 June 2011, 2011. The publication is available to IFKAD members at <http://www.knowledgeasset.org/>.

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## A literature overview of competence identification in SMEs

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### Structured Abstract

**Purpose** – The purpose of this literature overview is to create a competence identification of small and medium-sized (SME) companies (when they are developing new business, services or products). Companies operate according to their resources, which can be classified as physical, monetary and knowledge resources. Economic value is created through intangible resources and capabilities (Kianto et al., 2010). The aim of this paper is to find out how the competences of SMEs are described in the literature. Competences are understood here as connected to either individual or an organization's internal human capital. The cornerstones of intellectual capital are competence, information and creativity (Stahle and Gronroos, 2001).

**Design/methodology/approach** – The literature search was conducted by going through academic journal databases. The searched databases included ISI Web of Science, Scirus and Google Scholar. The search was limited to journal articles, books, theses and dissertations from the years 1990 – 2011. The search produced altogether about 300 different results, of which 22 were identified to best fit the criteria for the literature overview. In the analysis phase, the chosen articles were analyzed in detail by searching for descriptions of competence areas in companies.

**Originality/value** – The contribution of the paper to the existing literature is that the literature overview helps to improve the current understanding on SME competences, by offering concrete examples and descriptions of identified competences in the literature and identifying competence areas that are relevant to small companies in different operating environments, as well as by finding

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common themes in the literature concerning human capital and SMEs that can help in designing future research.

**Practical implications** – The literature overview shows that there is a gap in the existing research on SME competences on a detailed level. There is a need to extend the research to a more detailed level of what these competences are. Thus, one conclusion of the study is that the research on knowledge-based assets and competence in SMEs needs to reach a concrete level. As practical benefits and implications, the current work helps managers to identify possible and important competence needs and development areas. When they know what competencies they have or need to have, it is easier to reach better performance and competitive advantage.

**Keywords** – competence, human capital, SMEs, competence identification, competence management

**Paper type** – Academic Research Paper for a Doctoral Consortium

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## 1 Introduction

In the economy and in firms' value creation, competitive advantage and better performance are the aims of every-day business. A firm matches up its own internal resources to fit the external environment. Companies have strategies, critical processes and resources for reaching the desired outcomes. The focus of modern economy has transferred from traditional industrial economy into knowledge economy, and greater emphasis is put on knowledge to achieve welfare and benefits. Knowledge and intellectual capital have been evaluated to be the critical resources for a firm's viability and success (Bontis, 1998). Economic value is often created through intangible resources and capabilities (Kianto et al., 2010). Knowledge and intellectual capital are embedded in individuals and are exploited via humans and their individual human capital. But to use, develop and take advantage of individual human capital, it has to be identified first. In real life, individual human capital exists as competencies and capabilities. In this study we have followed a trail from showing conceptual benefits to concrete identification of competence.

Companies need various competences to function and to produce services or products effectively. Competences and the need for competences may change constantly, and especially when the whole business changes. The reasons for changes are either internal or external: the company might develop a new business model, product or service, or buy production technology from others, or other internal changes are reflected as changes in the needed competences. Externally, changes in competence needs may occur due to e.g. new market conditions.

To be able to develop the required competences that are needed for building competitive advantage in constantly changing conditions, companies and their managers need to know their existing competences. This is often a problem in SMEs, because generally SME managers have poor skills to reflect themselves strategically (e.g. Vos, 2005). However, SMEs' welfare is significant to the economy, since SMEs represent the majority of all businesses and employment. In the OECD area approximately 99 per cent of all enterprises and two-thirds of employment are accounted for by SMEs (OECD, 2010), and to promote SMEs' welfare and to increase their awareness on human capital and competence - related issues, the aim of this paper is to find out how competence identification in SMEs is described in literature. Our main research question is:

“How is SMEs' competence identification described in the literature?”

To focus the study and to get a better overview of the topic, our sub-questions are “Which types of competences have been identified?”

“What kind of themes related to SME competences are presented in the literature?”

“What kind of differences are there between large and small firms' competence identification?”

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“What kind of differences are there between product-oriented and service-oriented SMEs?”

We see competences as human capital, and the research focuses on individual human capital. For the paper, we have searched in former literature how SME competences are identified. Managers have to manage employee's competences, but they also have to have some managerial competences and skills of their own for their firms to reach beneficial performance.

Looking from a traditional classification of intellectual capital; human, organizational and relationship capital, (Roos et al. 1998, Johnson 1999), it can be said that human capital is increasingly important, and from the viewpoint of competitiveness, the traditional physical resources are losing their importance (Marr, 2005). Knowledge-based assets have an important role especially in the service sector (Kianto et al., 2010), and thereby at the same time human capital and competences are emphasized. Furthermore, in developed countries, the share of production-oriented companies is decreasing, and the share of new innovative service companies is increasing (The Global Competitiveness Report 2010-2011).

The literature overview presented below helps to improve the current understanding on SME competences, by identifying competence areas that are relevant to small companies, and it also helps managers to identify possible development areas and needs. When they know what competencies they have or need to have, it is easier to reach better performance and competitive advantage.

The paper is organized as follows: after the introduction, in chapter 2 the theoretical concepts used as a background to this study are defined. In chapter 3, the methodology of the literature search and analysis is explained, and chapter 4 presents the results of the analysis. In chapter 5 the findings are discussed, and finally in chapter 6 conclusions are made on the basis of the findings.

## **2 Definitions of theoretical concepts**

The theoretical background of the paper is mostly built on the core competence theory to gain competitive advantage in a firm's chosen markets. The core competence theory (Hamel and Prahalad, 1990; Javidan, 1998) is based on different resources (physical, human, financial), capabilities, competences and core competences. Resources, capabilities and competences are associated to the functional level, and actions and core competences act on the business level. The value creation processes of a firm are based on individual competences, but capabilities request the existence of a network of links among competences, within business processes, and between different processes.

Also the resource-based view (RBV, Barney, 1991) highlights a firm's resources, such as assets and capabilities. Only those resources are relevant which are valuable, rare, imperfectly imitable and non-substitutable (so called VRIN characteristics). The human aspect in RBV includes especially human assets and capabilities. The dynamic capability perspective has extended the RBV to the realm of evolving capabilities. Dynamic capability is defined as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments (Teece et al., 1997).

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Different types of competences and capabilities may exist in a firm. According to the knowledge-based theory of the firm, knowledge is the most significant resource of a firm (Grant, 1996). Knowledge-based resources are connected into human intellectual capital and social complexity, and are therefore usually difficult to imitate. The knowledge-based theory defines knowledge and capabilities as major determinants of sustainable competitive advantage and superior corporate performance.

Human capital is one part of intellectual capital, among other intangible assets, structural and relationship capital (Magrassi, 2002). Deploying human intellectual resources offers profitability. Knowledge is a critical resource for business and individuals (Thurow, 2002) in the current knowledge-based economy and in SMEs individual competencies represent the cornerstone of a firm's intellectual capital (e.g. Nahapiet and Goshal, 1998; Stewart, 1997) and are a key competitive factor. The link between intellectual capital and competitive advantage has to start by the identification of skills and competencies. The individual level of analysis is important in understanding and interpreting a firm's intellectual capital.

In the existing literature, competences have been researched especially from the core competence view, both from the managerial viewpoint and the functional competence aspect. In the 1970s and 1980s, the research in this area emphasized the strategic strength of firms' internal environments. The influential link was to competitive advantage. Prahalad and Hamel (1990) introduced the term core competence, and in their core competence hierarchy resources are the lowest form of the block, and are direct contributors to the second form, business level, which has a direct link to the level of strategy. Resources and capabilities act on the functional level of the firm. Resources can be physical, human or organizational by nature. The third form is competences and the fourth core competences. The competences reside at the functional level and the core competences at the business strategy level (Bhamra et al, 2010). In the paper we focus on the human resources, and specifically individual human capital. The relationships of the theoretical concepts are shown in figure 1 below.

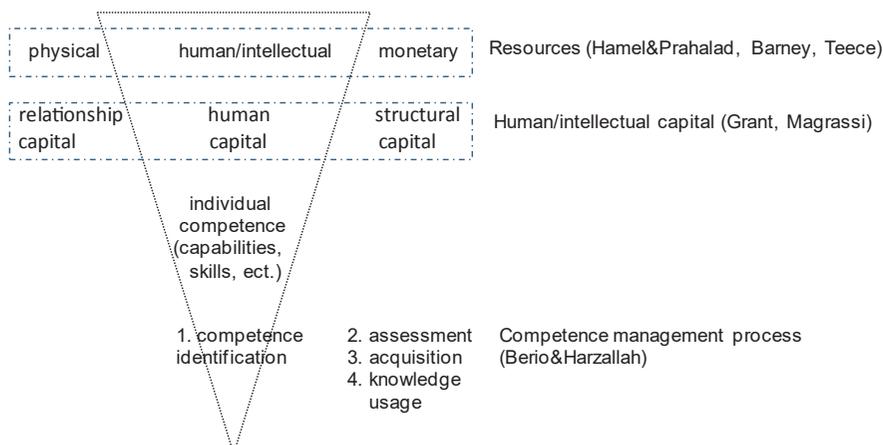


Figure 1. The theoretical concepts of this study

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### **2.1 Definition of intellectual and human capital**

John Kenneth Galbraith introduced the term intellectual capital in 1969, pointing out the difference between an organization's market value and book value. At same time the transition from a traditional industrial economy to a knowledge economy emerged, where a decline of the importance of tangible assets can be seen. Intellectual capital has been regarded as a firm's primary means of creating competitive advantage and business value (eg. Kaplan and Norton, 1992; Edvinsson and Sullivan, 1996). Because of its dynamic nature, intellectual capital is still difficult to define (Zhou and Fink, 2003), but in most studies intellectual capital incorporates three main components that together create value; human capital, structural (organizational) capital and relational capital (e.g. Roos et al., 1998; Bontis, 1998; Dzinkowski, 2000). OECD (1999) defines intellectual capital as "the economic value of two categories of intangible assets of a company", that is organizational and human capital.

Human capital includes know-how, education, work-related competencies, and psychometric assessments, and is the sum of individual competencies in organizations (McGregor et al., 2004). OECD (2008) relates human capital to the knowledge, skills and know-how that employees "take with them when they leave at night", e.g. innovation capacity, creativity, know-how, previous experience, and teamwork capacity. Human capital is thus individual capital, owned by a person.

### **2.2 Definitions of competence**

Competences may be defined from several perspectives. Caird (1992) considered competence as referring to a set of knowledge, skills, and personality variables, which are related to successful behaviour in a designed field. Hamel and Prahalad (1990) looked at the concept of core competences, which they defined as a group of production skills and technologies which enable an organization to provide a special benefit to customers. Firms have unique specific characteristics, which add value to the final customer and can be transferred to different and unique organizational settings. Core competencies are also seen as the highest level of a company's competences, where bunches of competences are formed and spreading widely in the firm. Respectively, competences are formed of capabilities, especially of cross-functional integration and co-ordination of capabilities (Javidan, 1998).

Competences add value because they expand the boundaries of capabilities. Competences have a technology- or knowledge-based component, and often result from a blending of technology and production skills. Capabilities, on the other hand, are rooted more in processes and business routines (Marino 1996). In this paper we consider both competences and capabilities, because both are regarded as individual human capital.

### **2.3 Definition of competence management**

Competence management is one of the key areas of management processes in a knowledge intensive business, as it enables companies to show their stakeholders their competitive position and knowhow. Competence management is also an important strategic decision and reflects strongly on the personnel

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policy of the company. Berio and Harzallah (2005) have divided the competence management process into four areas: competence identification, competence assessment, competence acquisition and competence knowledge usage.

Sanchez (2004) presents five modes of competence to be managed, based on flexibility on the cognitive level, coordination, resource deployment and sources, and adaptability of resources. Competence management is seen as an internal strength of an organization, which a capable management can utilize. Managerial competences, on the other hand, are those elements which enable managers to create, communicate, and empower their employees to realize their organizations' strategic visions (Hambrick and Mason, 1984). Lado, Boyd and Wright (1992) emphasize that managerial competences are crucial because they enable firms to develop other competences.

#### **2.4 Definition of competence identification**

Competences are owned by the individuals and are thus a part of individual human capital. Competence management is a process or a set of processes to manage competences in practice in organizations. Competences are managed on the firm level, on group level and to individuals. The competence management process includes competence identification, competence assessment, competence acquisition, and finally competence knowledge usage (Berio and Harzallah, 2007). Competence identification focuses on when and how to identify and define the competences required in the present or in the future. The identification of competences includes the perception of individual skills, know-how and characteristics in explicit form, as well as in tacit form.

### **3 Research aim and methodology**

#### **3.1 Research aim and questions**

In this study we have searched for concrete examples of human competences in SMEs presented in the literature. The research question below forms the basis for reaching this aim.

“How is SMEs' competence identification described in the literature?”

We have delimited the focus of the study with the following sub-questions:

“Which types of competences have been identified?”

“What kind of themes related to SME competences are presented in the literature?”

“What kind of differences are there between large and small firms' competence identification?”

“What kind of differences are there between product-oriented and service-oriented SMEs' competence identification?”

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### **3.2 Research methodology**

The approach of the study is qualitative by nature. The research design is based on a literature overview using a keyword index search. The data search was made in the scientific journal databases Scirus, Web of Science and GoogleScholar with different combinations of keywords related to the topic, such as intellectual capital, human capital, competence, needs, SMEs, competence management, competence identification etc. The data search was limited from the year 1990 to the present. Some fields, such as medicine and agriculture were excluded from the search. Accepted document types were abstracts, articles, books, conferences, theses and dissertations.

After the first round of data search, we had over 300 semi-suitable articles. Of these, 22 articles were selected for a detailed analysis and added to a table. The selecting criterion was to find examples of concrete competences existing in firms or to identify a theme related to human capital in SMEs.

### **3.3 Data analysis**

In order to analyze the most suitable articles in more detail, they were organized to answer the research questions. Some similarities were found, and the data found in the articles on different competences was classified to groups. The very first classification was made by scanning for managerial and other competences identified in the articles.

## **4 Results**

If a firm wants to know what resources it already has or needs to have, it must identify them. In our overview, the following competence identifications represent the examples of scanned competences and capabilities. In the next part of the paper, the competences identified in the literature are divided into managerial and other competences, and some general themes related to SME competences are highlighted.

### **4.1 Managerial competencies**

Competence identification starts from managers' ability to handle the firm's strategy; managers must have competence to identify resources, shape vision, and deal with these to reach good performance. Managerial competences and identification of all competences are strongly emphasized in the literature. The value creation processes in firms are closely related to the capability of managers to acquire and develop non-imitable resources (Grant, 1991; Barney, 1991; Prahalad and Hamel, 1990). A firm would benefit from a systematic and methodical analysis of its resources, capabilities and competences (Javidan, 1998). Sometimes the managers of SMEs have difficulties to describe their company's internal and external competences in relation to the real world (Vos, 2005). There are also difficulties in firms' ability to identify their specific technological competences and managerial capabilities, and to match these strengths with the assets necessary to gain competitive advantage.

Although managerial competences and their difficulties are clearly pointed out, the literature presents many methods and models to identify competences, of

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both managers and other staff. Some models start from the very beginning, a firm's strategic objectives, and continue through critical processes and resources to be activated to the very end, outcomes (Capaldo et al., 2004; Javidan, 1998). If the managers of SMEs have poor skills in reflecting upon their companies strategically, there are methods and models for this (Vos, 2005). A tool to support the analysis of existing and required competences is the Competence Pyramid of Walsh and Linton (2001), and especially their revised tool in which they propose a very concrete framework to identify generic managerial capabilities and specialized managerial capabilities, both in physical products and in service products in knowledge- embedded, knowledge- based and knowledge- extracted fields.

Mertins and Will (2007) present a methodology for measuring intellectual capital (IC) in SMEs called intellectual capital statement, and e list factors or components of IC based on empirical evidence. In their classification, human capital includes professional competence, employee motivation, leadership ability and social competence.

Another example of managerial tools is competence modeling, discussed by Sanchez and Levine (2009) who compare it to traditional job analysis. They find several differences between the tools, such as the purpose, analysis level, time orientation and measurement approach.

Jørgensen et al. (2009) have studied human resource-related practices in knowledge intensive innovative firms and found that although there are similarities in the practices with manufacturing firms, there are also differences for example in staffing practices. Knowledge, human development and training have an important role in knowledge intensive firms.

Katzy & Crowston (2008) have identified a process they call competency rallying, for accessing the external competences for SMEs. This process includes the steps of competence identification, market opportunity identification, marshalling competences, and co-operative effort for innovation and commercialization.

We realize the importance managerial capabilities, but our focus is more on competence identification of other types of capabilities and competencies in SMEs. However, many strategic and operational tools for managerial support related to intellectual capital and competences may be found in the literature.

#### **4.2 Competence identification**

Kunjiapu and Yasin (2010) discuss competence development and workplace learning in SMEs. In their article (2010, ref. Oates) they classify competences based on their dependence on the context, and describe them. According to Kunjiapu and Yasin (2010, ref. Oates), generic competences are related to skill components, which are not expressed in the form of activities specific to a particular setting. Other competences are occupational competence (related to occupation), task-specific competence (independent of specific jobs), job-specific and enterprise-specific competence (related to a specific work system), and person-specific competence (task or job in a specific work system).

Another paper with a similar approach, focusing on competence development in SMEs versus large organizations, has been published by Singh et al. (2008).

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They say that the most important competences are identification of market changes and introduction of new technology, because they have a direct impact on the performance and competitiveness of the firm.

On a more concrete level, Walsh and Linton (2001) have developed a framework for competence identification, the "competence pyramid". As an example of using it they present general categorization of competences into core production competency or service sector competency such as

- Materials (required expertise in chemical and material engineering; chemicals, steel, paper, plastics, ect),
- Fabrication and assembly (mechanical engineering, systems integration; automobiles, equipment, furniture, computers),
- Knowledge-based services (engineering certification; design layout, engineering services, accounting services, etc.), and
- Knowledge-embedded services (management information systems, quality assurance, computer programming, software, restaurant food.

All of these four competence categories can be found in low- and high-tech firms as well as in goods and services companies.

In a more recent article, Walsh and Linton (2011) have processed their former competence presentation and stress technological competencies and managerial capabilities strongly in a modernized model, which leads to an understanding of a firm's current mix of competences and capabilities. Suitable for all-sized firms, the model presents technological competences divided to generic engineering skills and specific engineering skills. Generic engineering skills may be biological, chemical, civil, computer science, electrical, materials, mechanical and nanotechnology skills. Specific engineering skills are related to e.g. metals, thermoplastics, nanomaterials and composites, and additionally to specific technological skills such as vacuum systems, sensor arrays and micromachining.

Katwalo (2006) presents in his SME companies' competence development model some independent antecedent factors in competence development. In international business activities, e.g. in importing a novice company needs purchasing (order processing) and contract negotiation competences, a proficient company needs skills in process technology and quality (product and process) and in international collaboration and in joint venture business an expert company needs technical skills and creativity/innovation. Katwalo (2006) bases these company activities and associated competences in Drejer's (2000) levels of individual competence development, where an individual goes through levels of a novice, an advanced beginner, proficient, expert and world class.

Marino (1996) has identified competences in three manufacturing companies. In the first company, related to engine design and manufacturing, the competences found at a concrete level were for example turbo machinery technology and after-sales support. In the second company, related to flow meter manufacturing, the competences identified were related to e.g. specific technology, speed and flexibility of modifications, marketing networks and entrepreneurial climate. In the third company, related to industrial process and filtration equipment, competencies such as building alliance relationships, market access and support of continuous improvement climate were identified.

Sandberg (2000) has studied engine optimization and found very concrete competence -related issues in that context, such as understanding monitoring

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parameters, practical sense of the engine, and seeing links between the qualities of the engine. Sandberg presents the concrete parameters in a category table. The categories include the ability to analyze and interpret, the ability to optimize accurately, knowledge of the engine, knowledge of the monitoring systems, the ability to self-teach, and the ability to cooperate with others.

Woolgar et al. (1998) have presented a study on SMEs' attitudes towards innovation and new technology, especially related to technology transfer and identifying new possibilities. They noticed that the view on needed competences for company survival within SMEs differs from the view of company outsiders, such as government agencies and universities. SMEs have specialized competence needs, are related to the markets rather than having new product ideas, and SMEs do not always see the need of becoming innovative. In a study on innovation-intensive small firms, Freel (2005), on the other hand, has linked innovations to competitiveness and presents characteristics of innovative vs. non-innovative SME firms. Developing human capabilities and competences through training increases the innovation intensity of a firm, and the perception of knowledge and skills may be a barrier for innovations.

Katzy & Crowston (2008) have identified competences needed for technical innovations, such as collaboration or network capabilities. They suggest competency rallying as a method for acquiring competences and exploiting networks in SMEs. In their example, they identify competences related to machine tools, designing, and engineering customer solutions such as assembly, quality inspection and project management. The competences were also developed not only in individual companies but on the level of the whole network.

Antonioli et al. (2011) have examined the relationship of innovation, individual skills and industrial relations, and note that human capital enables innovation, which is needed for success. Firms use both internal (training) and external (hiring) labour market strategies to complement their resource base and skills. Wittman et al. (2009) have also researched alliance success and competence, and in addition to general managerial competences they highlight the importance of alliance competence, which is defined as "an organizational ability for finding, developing, and managing alliances" (Lambe et al., 2002, ref. Wittman et al, 2009). In a study on collaborative SME networks, Camarinha-Matos (2009) also emphasize the importance of collaboration for sharing competences and resources in networks.

Steenkamp & Kashyap (2010) discuss the role of intangible assets in SMEs, focusing on managers' perceptions. They also give a categorization of the components of intellectual capital, which includes employee -related issues, such as innovativeness, know-how, work experience, education, job satisfaction, loyalty and training under the category of human capital. To specify in more detail, Namasivayam and Denizci (2006) have researched human capital in service organizations and conclude that it must be studied together with structural and relational capital. Kianto et al. (2010) have continued this by comparing service oriented vs. product oriented firms' competences, and found that there are differences in the processes and content of intellectual capital in these companies.

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## 5 Discussion and conclusions

This paper includes an overview of identification of competencies in SMEs. The overview is based on literature, and results are classified in three separate issues, presented in figure 2 below:

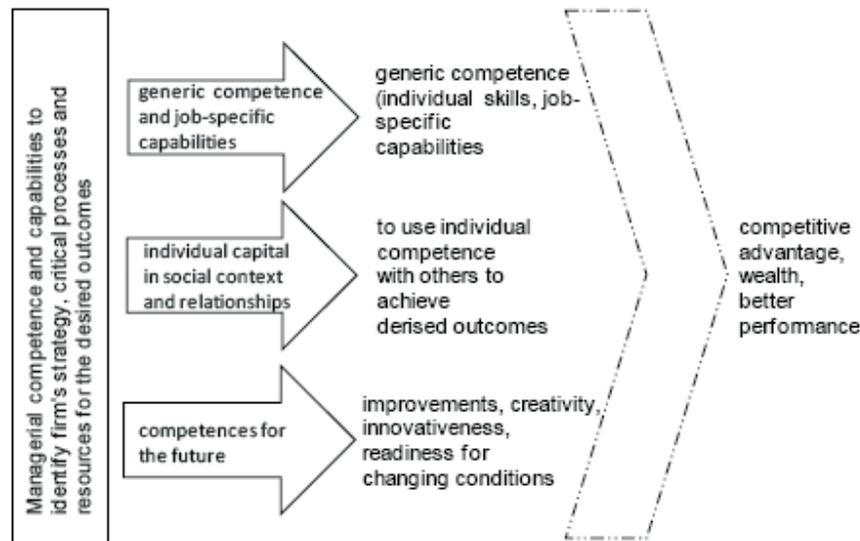


Figure 2. Results of competence identification from the literature

In figure 2, managerial competences are on the left as a starting point, and are therefore the most important. The managers' ability to identify and manage competences gives a firm a possibility to reach competitive advantage.

Very detailed competences and capabilities were presented in some of the articles (e.g. Walsh and Linton 2001 and 2011; Marino 1996). In the resource-based view, competitive advantage is based on different resources, e.g. human resources. Human resources are based on human capital and that is why human capital identification via concrete capabilities and competences is very important. In the competence scanning above, the first identified similarity was on a generic level, as the articles were describing generic competencies and job-specific capabilities (Kunjiapu and Yasin, 2010; Katwalo, 2006; Marino, 1996; Sandberg, 2000). The second similarity between these articles is that they highlight human, individual capital in a social context and relationships, such as Kujapu and Yasin enterprise-specific competence, Katwalo contract negotiations competences, Marino competences in building alliance relationships, and Sandberg as the ability to cooperate with others. Even if you have individual human capital, you have to use it among other individuals and you have to have competence for that social context. A third similarity, which can be named as competences for the future, includes support of a continuous improvement climate (Marino, 1996) and ability to self-teach (Sandberg). So, according to these found similarities, the results of competence identification in figure 2 highlight generic competences and job-

## PART 2

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specific skills, the social and relationship aspect and competences for the future. Many other significant studies indicate in the same direction, and also responsiveness and product innovation is mentioned (Camuffio and Comacchio, 2005).

In addition to identifying examples of specific competences in the literature, we searched for some common themes or views related to human capital and competences presented in multiple articles. A summary of these findings and key messages to SMEs are given in table 1 below:

Table 1. Themes related to human capital and competences

Themes related to human capital / competences found in the literature	Authors	Key messages to SMEs
SMEs' vs. large organizations' characteristics	Singh et al. (2008) Steenkamp & Kashyap (2010)	In SMEs the practices related to managing human capital are often neglected
product vs. service organizations	Namasivayan & Denizci (2006) Kianto et al. (2010)	Service organizations have been less studied, but they have distinctive characteristics in intellectual capital related practices
competences and innovation	Woolgar et al. (1998) Freel (2005) Joergensen et al. (2009)	Innovations and innovativeness are an important base for future success, although not valued and recognized by all SMEs
competence development	Marino (1996) Kunjiapu & Yasin (2010)	Individual competences are the base for organizational success, their development, learning and training is essential also in SMEs
human and relational capital, networks	Katzy and Crowston (2008) Wittmann et al. (2009) Camarinha- Matos (2009) Antionioli et al. (2011)	SMEs must be able to utilize also external networks for efficient competence management

Based on the results above, some conclusions can be offered. First, SMEs differ from large companies with their entrepreneurial competences (Capaldo et al. 2004). Competence elicitation is critical, as small firms and entrepreneurial behaviors are related to the environment where the firms operate. Specific characteristics are the high dependence of small firms on the entrepreneur's traits and culture, and small firms' organizational flexibility. In small firms, the entrepreneur's personality and culture have a major impact on the state of the business. On the other hand, formal organizational structures are on a low level and there is lack of staff members to define tasks and standardize organizational procedures and processes. This result in a not clear-cut setting of the firm's borders: small firms are not self-sufficient vis-à-vis the external environment unlike large firms. Thus SMEs do not have a firm environment which can provide them with intrinsic autonomy (Raffa and Zollo, 2000).

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Second, the importance of knowledge economy and knowledge -based business has grown in the last two decades, and the value creation and financial interests are based on knowledge and competences. In the 1990's, technical competences were regarded as most important. At that time, information and communication technology (ICT) was increasing rapidly in organizations, and naturally, the competence needs were technically oriented (Woolgar et al., 1998). In service -oriented companies, the competence needs are focused on human assets, e.g. creativity and emotional intelligence (Kianto et al., 2010). SME - entrepreneurship is to a large extent based on innovativeness (Georgellis et al., 2000). In addition to innovativeness, the entrepreneurs need to know strategic management and they also need to be able to manage the competences of their employees (Kianto et al., 2010).

Third, the competences of individuals are emphasized in many articles and they have been studied on a general level quite well (Walsh & Linton 2011, Katzy & Crowston, 2008). Competences have been classified into the levels of individual competence, collective competence (groups) and firm competence (organization) (Boucher et al., 2006). Examples of specific competences, such as individual human capital are still scarce in the literature. We have increasingly knowledge -intensive companies, but we still cannot specify the assets on a detailed level that are the base for wealth and financial success, especially when talking about human capital.

As a summary, the contribution of the paper to the existing literature is that the literature overview helps to improve the current understanding on SME competences, by offering concrete examples of identified competences and identifying competence areas that are relevant to small companies. As practical implications, the current work also helps managers to identify possible development areas and needs. When they know what competencies they have or need to have, it is easier to reach better performance and competitive advantage.

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## PART 2

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# 2

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## PUBLICATION

### Survival Competence in Russian SMEs in a Changing Business Environment

*Taipale-Erävala, K., Heilmann, P. and Lampela, H., 2014*

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## **Survival Competence in Russian SMEs in a Changing Business Environment**

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*This paper focuses on the survival competences that enable small and medium enterprise (SME) managers to conduct business in change situations. Russian SMEs, which have undergone several drastic changes in operational environment in recent decades, comprise the subjects of the qualitative study. Their recent World Trade Organization (WTO) membership is challenging in terms of business continuity and competence. The results of the study show that both internal competences and network competences are needed in order to survive in crisis situations. Entrepreneurial competences acquired by everybody in the firm, an open-minded attitude towards external partners, and networking competences provide a future direction for managerial practice and public actors.*

*KEYWORDS* competence, entrepreneurial competences, multiple case study, Russia, SMEs

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## INTRODUCTION

This paper concerns the competences small and medium-sized enterprises (SMEs) need to survive in conditions of unforeseeable external change. SMEs have an important role in economies in general, in terms of both employment and economic output and development. In the European Union (EU) area, for example, over 99% of all businesses are SMEs, and nine out of ten are micro-enterprises with fewer than 10 employees. SMEs count for two-thirds of the privately employed workforce and about half of the value-added created in the EU. (European Commission 2013). They also have an important role in reviving the economy, given that SMEs entering the markets introduce the majority of innovations (Radac and Bozic 2009). Unforeseeable external changes have become more common as the business environment is more complex and the economic situation is fluctuating, which leads to poor predictability of the future and increases the challenges of strategic planning. Thus, the importance of preparing the organization for different possibilities is increasing to ensure the continuity of businesses. Russian SMEs were chosen as the empirical context of the study because they have undergone several drastic changes in their operational environment in recent decades, and examples of such major changes elsewhere are rare. In addition, the Russian economy is subject to general interest due to its substantial influence on the world economy.

Individual competences have attracted interest in fields such as psychology and sociology. In the context of business management, competences have been widely discussed on both the individual and the organizational level (e.g., Cardy and Selvarajan 2006) since the resource-based theory of the firm was introduced in the 1960s (Penrose 1959; Barney 1991). However, most of the literature on organizational competences is written from the perspective of the large corporation, and studies focusing on SME competences are limited. The research question of this study is, "What competences have enabled Russian SMEs to survive the changes in their operational environment?"

The current paper, based on qualitative empirical research, considers competences from several perspectives and focuses on defining those needed specifically in situations of unforeseeable change that strongly affects the company's existence. The study also narrows a gap in qualitative case study research on entrepreneurship and small businesses in Russia (Ojala and Isomäki 2011), in that the tradition thus far has been to conduct quantitative studies based on ready-made survey questions. Qualitative research and face-to-face interviews give a much wider understanding of the phenomenon and are more informative.

The unforeseeable external changes we consider include changes in polity in 1991 and the collapse of the ruble in 1998, when the Russian economy was headed for insolvency and many banks collapsed affecting SMEs' operational environment. As a third turning point, we have considered the

2008–2009 financial crisis, when the ruble's value (in USD) dropped 20% from August to December, and 30% during the period August 2008–January 2009 (Bloomberg 2013). The crisis as a part of world economic crisis of 2008 caused economic, commercial, and productive challenges for Russian SMEs.

Alongside changes in the external business environment, SMEs continuously come up against barriers related to the institutional environment (Aidis, Estrin, and Mickiewicz 2008; Kim 2010; Kim and Kang 2009; Molz, Tabbaa, and Totkaya 2009; Seawright, Mitchell, and Smith 2008), and inhibiting governmental factors (McCarthy, Puffer, and Shekshnia 1993). The obstacles and problems remained fairly stable during one 15-year period of study between 1994 and 2008 (Zhuplev and Shtykno 2009). Earlier studies conducted in the 2000s on the Russian business environment support all the main obstacles mentioned above (Hultén 2006; Fallon and Jones 2004; Roberts 2005). The major obstacles identified in Russian SMEs in 2012 included tax rates, access to finance, political instability and corruption, as well as the emergent problem of an inadequately educated workforce (World Bank 2013). Inadequate education in the workforce could be interpreted as a lack of competence. Tovstiga and Tulugurova (2007) also identify a lack of managerial and business competence. Recent studies of Russian SMEs relate to institutional issues (e.g., Chadee and Roxas 2013; McCarthy and Puffer 2013; Smallbone and Welter 2012; Timofeyev and Yan 2013), and strategic issues and entrepreneurship (e.g., Kiryushin, Mulloth, and Iakovleva 2013; Shirokova, Vega, and Sokolova 2013; Timofeyev and Yan 2013) in identifying entrepreneurial competences as a specific set of competences within an organization.

SMEs have only recently started to increase in numbers and importance in Russia following the transition to a market economy in the 1990s; private entrepreneurial activities having been practically prohibited during the Soviet era (Ojala and Isomäki 2011). Research on Russian SMEs is also limited, although interest has been growing since the beginning of the 2000s (Astrakhan and Chepurensko 2003). According to the latest comprehensive official SME statistics published by the state (Rosstat) in February 2012, with data from 2010, there are approximately 3.2 million SMEs operating in Russia, employing 19 million people (13.3% of the population). The majority of them, about 86%, are micro-enterprises employing fewer than 15 persons. Among the fields of operation, trade is the most common, accounting for 38% of the SMEs, followed by construction (11%) and mining, manufacturing, and the distribution of electricity, gas and water (11%) (Russian SME Resource Centre 2013).

Another notable feature of SMEs in Russia compared to other countries is the high geographical concentration: one-third of them are located in the St. Petersburg or Moscow areas (Astrakhan and Chepurensko 2003). Compared to other transitional economies, the percentage contribution of SMEs to GDP is considerably lower in Russia than in Poland and Hungary, for example. This is attributed in the literature to factors related to the

business environment such as legislation, bureaucracy, corruption, and a lack of financing (Wieneke and Gries 2011).

Russia joined the WTO in 2012. The potential cooperation in trade will bring both Russia and other WTO members both opportunities and challenges. On the societal level, the strong development of SMEs should have a positive influence on socioeconomic development in Russia (Molz et al. 2009), as new firms play a crucial role in promoting economic growth (Berkowitz and Jackson 2006). Of all companies in the EU, 99% are SMEs, and the equivalent figure in Russia is 71% (Kartoteka 2013, Russian SME Resource Centre 2013). These numbers will grow in the future, as will the need for the necessary competences. The aim here is to identify the critical competences SMEs require to be able to continue in business despite the external changes.

The rest of the article is organized as follows. The second section gives an overview of the theoretical starting points and the concepts related to competence. The research design, including the methodological choices and the research process, are described in the third section, and the fourth section reports the results of the empirical interviews. The last section discusses the results of the study and draws conclusions.

#### A REVIEW OF THE LITERATURE ON COMPETENCE AND RELATED CONCEPTS

The terms *competence* and *competency* are sometimes used interchangeably in the literature, and various authors define them differently. However, competence is often perceived as skill-based, and competency as behavior-based. Skill-based competence refers to skills and the standard of performance reached, and what people can do. Competency refers to the behavior through which performance is achieved and focuses on how people do it (Sanghi 2007). Snyder and Ebeling (1992) refer to *competence* in a functional sense but use the word *competencies* in the plural form. Hartle (1995) discusses competency in terms of “visible competencies of knowledge and skills” and “underlying elements of competencies,” such as traits and motives. We use the terms in this study according to the original references but use the word *competence* for both skill- and knowledge-based as well as behavior- and trait-based competence/competency.

Cheetham and Chivers (2005) give the following general definition of *competence*: “effective overall performance within an occupation, which may range from the basic level of proficiency through to the highest levels of excellence.” There are various aspects, including individual, organizational, technological, professional, entrepreneurial, and network competences.

Four approaches to competence concept discussed in the literature were found in this study based on the research data, according to different

competence themes that were discussed by the interviewees. The approach was data-driven, following the idea of grounded theory research where no prior theoretical framework exists. In the interviews competence was approached from four perspectives: (1) individual, (2) entrepreneurial, (3) organizational, and (4) network perspective.

*Individual competence* could be defined as a set of skills and knowledge that an individual needs in order to perform a specified job effectively (Gilgeous and Parveen 2001). In the Russian context, Toppinen et al. (2007) have concluded that skillful employees are important for a firm's performance in woodworking companies in North-West Russia. Personal competences are possessed by individuals and include characteristics such as knowledge, skills, abilities, experience, and personality (Turner and Crawford 1994). Dubois (1993) developed a competency model distinguishing three different types of competencies in an employee's performance. These three types comprise job competencies (the underlying characteristics of an employee; i.e., motives, traits, skills, aspects of the self-image, social role, and the body of acquired knowledge), non-technical competencies (operational models in different organizational situations), and technical competencies (know-how and skills connected to a certain job), and all employees need them for satisfactory job performance (Dubois 1993).

Nurach, Thawesaengskulthai, and Chandrachai (2012) present an overall competency framework that includes eight parts: (1) leadership competency, (2) functional competency, (3) stakeholder-management competency, (4) planning competency, (5) team-selection/team-development competency, (6) communication competency, (7) decision-making and problem-solving competency, and (8) culture-awareness/skills competency. Cheetham and Chivers (2005) define the concept of *professional competence* as the possession of the range of attributes necessary for effective performance within a profession and the ability to marshal these consistently to produce the desired overall results. The core components of professional competence are knowledge/cognitive competence, functional competence, personal or behavioral competence, and values/ethical competence.

Various authors discuss *entrepreneurial competences*. Situations of disequilibrium and change lead to the development of new goods and services, new methods of production, and new markets as people transform resources into a form they believe will yield greater value than the cost of creating them (Venkataraman 1997). This entrepreneurial process begins with the perceived existence of opportunities. Individuals discover opportunities, develop ideas of how to pursue them, and turn them into new business through the exploitation of the resource pool, the organizational design, and the company strategy. Alert, resourceful individuals transform into entrepreneurs in the process, if they were not entrepreneurs previously. The sources of entrepreneurial discovery include the external macro-environment and industry (Shane 2003). Making the most of the entrepreneurial process and

ensuring business success rely on key entrepreneurial competences, such as environmental scanning, recognizing and envisioning, taking advantage of opportunities, and identifying and defining a viable market niche. Naturally, competences related to business and management, human relations, conceptual awareness, and relationships also count (Mitchelmore and Rowley 2010). According to the competence-based view, entrepreneurship means “the capability of entrepreneurs to face effectively critical situations by making sense of environmental constraints and by activating relational and internal specific resources” (Iandoli, Landström, and Raffa 2007, 17). Brownell (2006) identifies some entrepreneurial competences sharpened through formal, learned education, and others that are tacit and dependent on the individual characteristics that develop during the person’s life, career and experience (Brownell 2006).

*Organizational competences* are at play when firm-specific assets are assembled in integrated clusters spanning individuals and groups so that they facilitate the performance of distinctive activities that constitute organizational routines (Teece, Pisano, and Shuen 1997). According to Turner and Crawford (1994), corporate competences belong to the organization and are embedded processes and structures that tend to reside within it. Technological competences are measured quantitatively, in terms of copyrights, registered trademarks, and registered designs, for example. There are also customer competences that focus more on cooperation with customers and partners. Firms developing new products have to rely on customer and market research so that they will know what customers will need in the future (ibid.). Within customer competences, technological and organizational competences are required for innovation (Lokshin, Van Gils, and Bauer 2009). Organizational competences derive from all the firm’s employees, including management, project teams, and project managers. Personal competences thus build up organizational competences (Nurach et al. 2012).

*Network competences* can be defined through inter-organizational cooperation (Ferrer et al. 2009). Cooperative partners should identify specific sets of organizational capabilities related to transforming and reconfiguring competences (e.g., sharing, building trust, and balancing power) in the search for more efficient, flexible, and quality- and time-based operations. Sharing competences relates to the organization’s ability to manage and share resources, costs, risks, and information with suppliers and customers (Lambert and Cooper 2000; Menzer, Min, and Zacharia 2000). Trust plays an important role in inter-organizational exchanges and can be a source of competitive advantage (Barney and Hansen 1994). In terms of performance, it can reduce transaction costs, encourage investment with future returns, and facilitate continuous improvement and learning (Sako 1992). French and Raven (1959) identified five sources of power: reward, coercive, expert, referent, and legitimate power. Sources of power used in networks relate to different context, organizations and co-operation.

## RESEARCH DESIGN

Qualitative research is commonly used in the areas of social science and business, and according to Silverman (2001), enhances understanding of reality as socially constructed, produced, and interpreted through cultural meanings. Eriksson and Kovalainen (2008), in turn, suggest that qualitative business research is an adequate method of knowledge production. We took a qualitative approach in this study in order to better understand people and what they say and do and because it allows the researcher to see and understand the context within which decisions are made and actions take place (Myers 2009). The research on Russian SMEs has been criticized for relying too strongly on quantitative study methods and lacking a deep understanding of qualitative research (Ojala and Isomäki 2011). The Union of Soviet Socialist Republics collapsed in 1991 when the semi-presidential Russian Federation was formed. During the Soviet period, there were no legal or officially private small or medium-sized business enterprises; thus, Russian SMEs are quite young and lack entrepreneurial experience and background. It is therefore logical to take a social-constructionist approach focusing on subjective, phenomenological assumptions and principles in order to bring out different views and increase general understanding of the situation (Easterby-Smith, Thorpe, and Jackson 2008; Yin 2009).

### Research Methods

The emphasis in case-study research is on the production of detailed and holistic knowledge based on the analysis of multiple empirical, context-rich sources (Tellis 1997). It is a method that is commonly used in business research (Ghauri and Grønhaug 2002) to enhance knowledge of individual, group-level, organizational, and social and related phenomena (Yin 2009). Case studies can produce rich descriptions of every-day life (Stake 1995), which in this study refers to the opinions, beliefs, and views of SME managers about their business operating environment. A case may be something special or a unique system that operates according to some pattern (Stake 1995). We argue that Russian SMEs are special on account of their short existence and the absence of extensive experience. We collected the data in individual, focused interviews, which is probably the most widely used method for gathering information in qualitative research. The focused interview is one in which a person or persons are interviewed for a short period of time, the aim being to collect data (Yin 2009). Semi-structured interviews comprise verbal interchanges in which the interviewer attempts to obtain information from another person by asking questions (Longhurst 2010). The current case includes 10 firms and therefore incorporates 10 embedded units of analysis, each firm being an analytical unit (Remenyi 2012). The analytical approach is interpretative, the aim being to explore in detail how the participants make sense of their personal

and social worlds (Smith 2008). Grounded theory (Easterby-Smith et al. 2008) facilitates the analysis of conceptual frameworks through the classification of data in accordance with the research questions (Merton and Kendal 1957). In the process of inductive analysis adopted here, the data are coded, grouped in terms of similarities, and finally interpreted in three main phases: preparation, organizing, and reporting (Elo and Kyngäs 2008).

### Data Collection and Analysis

The first stage of the data-collection process involved compiling a database of Russian companies. In the preparation phase, we had three separate databases giving contact and company information for 369 firms. The objective was to study Russian SMEs operating in the forest or metal or closely related industries, as mentioned above, in North-West Russia. The area is considered as Russia's gate to the European markets and vice versa. Due to the high geographical SME concentration in Russia (Astrakhan and Chepurensko 2003) the firms chosen for this research were limited to the area of St. Petersburg and Leningradskaya Oblast.

In the Northern parts of the globe in Canada, Sweden, Finland, and Russia, the forest and paper industry has traditionally had a significant role in the economy. In the last few decades, the paper industry has focused on the developing, low-cost countries in South America and China, as a result of decreasing demand situation in the developed markets. This has led to changes in the industry structure, which have also affected companies operating in closely related industries such as the metal industry. With reference to the main research question, the selected SMEs had to have been operating long enough to survive at least one crisis, the major ones being the change in the social system from socialism to democracy in 1991 and the collapse of the ruble in 1998, and an economic crisis in 2008, respectively.

Suitable firms were contacted during the organization phase, initially by e-mail, if it existed, and then personally by telephone. Research assistants took care of the Russian and English contacts, and the researcher (one of the authors) dealt with the Finnish contacts. Agreeing on the interviews turned out to be very difficult. Some of the companies operating in the Russian internal market and fulfilling our criteria declined the invitation because they saw no value for them in being interviewed and because the enormous Russian markets satisfied them. Given these external difficulties the researchers could not influence, the interviews were restricted to 10 companies: constructionist research allows for samples of one or more (Easterby-Smith et al. 2008). All the SMEs in question operate in Russia and are engaged in international business or have international clients. Thus, the sample does not include any Russian SMEs focusing on the internal Russian market. The focus-group and individual interviews were conducted between October 9 and December 5, 2012. The language used in the interviews was Russian,

English, or Finnish, and the interviewers were the research assistant (Russian and English) and one of the writers (Finnish, English, and Russian). Table 1 summarizes the basic characteristics of the firms and the interviews: the start-up year, the interviewee's position, and the length of the interviews.

The interviews were recorded and transcribed by the research assistant, who at the same time translated the Russian texts into English and placed the interviewees' responses below the relevant semi-structured questions. We were aware of the possibility of pre-interpretation, which we controlled for in two ways. First, a translator listened to one tape and compared the transcribed and the translated text with the original version. Second, a skilled Russian author who was involved in the interviews checked the transcripts.

The first step in the analysis was to code the data. We compiled three Microsoft Word tables: the first coded the issues related to the research question with a data driven approach; the second gathered together the main coded items related to the research question; and the third grouped and categorized the coded data. The process was iterative, each phase increasing the accuracy of the data. The results of the analysis are presented below in the next section, categorized according to the classification of findings from the data.

**TABLE 1** Industry, Start-up Year, Interviewees, and Interview Duration

Case No.	Industry in which the firm operates	Start-up year	Interviewee(s)	Number of people	Length of interview
1	Engineering, non-standard technology	(1949), 1998	General Director, Production Manager	2	1h33 min
2	Wood machinery, scientific industrial complex	1991	Vice Chairman of the Board	1	1h20 min
3	Commercial consortium of SMEs	2002	General Director	1	1h22 min
4	Chemicals	1992	Marketing Manager	1	1h25 min
5	Sheet metal	1992	Executive Director	1	1h39 min
6	Information, research, data-mining services	1998	Chief Executive Officer	1	1h17 min
7	Accounting and tax services	1997	Managing Director, Financial Director	2	1h18 min
8	Paper industry equipment	1993	General Manager	1	1h38 min
9	House building, agency	1996	Sales Manager	1	1h21 min
10	House building, real estate development	1998	Chief Executive Officer	1	1h37 min

## RESULTS

## Survival Competence in Changing Environments

Table 2 presents the results of the analysis in three categories. The object of the competence refers to the area to which it relates: we describe internal competences as existing within firms and external competences as referring to the external environment. The competence categories column classifies the competences based on the data analysis, with examples taken from the first phase of the coding that reflects the interviewees' concrete, practical actions with the empirical illustrations directly from interview data. The text below illustrates also the answers of the interviewees with short quotations.

## Internal Competences

Internal competences are categorized as entrepreneurial and individual competences. The former include skills, abilities, capabilities, and attitudes, with effects on the entrepreneurial and managerial level. Examples given include

**TABLE 2** Data Analysis

Competence object	Competence categories	Examples	Quotations
Internal competences	Entrepreneurial competences	Focusing the business idea Minimizing economic risks Focusing the strategy direction	“(We survived) with our portfolio diversification and with client orientation policy”, firm nr 4.
	Individual competences	Skilled and qualified staff High know-how in the industry in question Experience Will and desire Personal attitude to change	“anyway lack of technical specialists is everywhere”, firm nr 1. “first of all, people's mentality has to be changed”, firm nr 5.
Competences related to external players, network competences	Networking skills and attitude	Co-operation and networking	“The local building competence, cross-cultural skills and Russian language are essential”, firm nr 10.
	Functional competences	Open-mindedness 'Amoebic', flexible operating style	
	Ability to manage customers on both sides	Customer closeness and a customer orientation Reliability on both sides: in the firm and between the firm and the customer	“The most important thing is the trust developed between us and our partners from Finland”, firm nr 3.
	Courage and the ability to tolerate uncertainty	New market openings abroad	“In every crisis there is an opportunity. It depends how you perceive”, firm nr 7.

the ability to focus the business idea by diversifying the portfolio of operations and production, expressed as follows: “*We realized that we need to diversify our portfolio of operations*” (general director, firm no. 1), concentrating more on turnkey operations and narrowing down the same business idea into smaller niches in the same industry. Financial and budgeting skills help to minimize economic risk through the acquisition of commercial know-how and not offering services at too low a price. Financial skills facilitate the right choice of currency (euro or ruble) in export operations, as a marketing manager (firm no. 4) said: “*We had ruble as a commercial currency to smooth influences into USD and euro in 1998 crisis.*” The decision to broaden the base of paying customers or to focus on select, small-scale customers can also be regarded as an expression of financial skills. Goal-setting skills help in clarifying the firm’s future goals and strategies and in understanding which direction to take. Entrepreneurial competences apply not only to entrepreneurs but also to all SME employees, who should have an entrepreneurial mind-set (see Michelmores and Rowley 2010; Venkataraman 1997).

Individual competences concern all people in the firm. Skilled and qualified staff members have good relationships and mutual understanding and strong team-working capabilities and can rely on one another and on their managers. Unity in the firm is evident in a solid team of like-minded persons. High levels of industry know-how are maintained through the acquisition of foreign-language skills and continuous training: “*The staff is trained to use new machines; level of skills is otherwise poor*” (executive director, firm no. 5). In some cases, individuals underwent voluntary training in a particular field, which they paid for themselves and which was not generally accessible in the 1990s. (see Cheetham and Chivers 2005; Dubois 1993). Russian laws change continuously, new regulations and statutes shape the operational environment, and the bureaucracy demands continuous training in order to update knowledge and skills in the SME’s own field and industry. The role of personnel training was highlighted in the following statement: “*The skills of the company personnel acquired are superb knowledge of Russian legislation*” (managing director, firm no. 7). All the firms stressed the importance of experience, as a sales manager (firm no. 9) said: “*We have been successful due to the experience of our products and Russian taste.*” Despite the many crises, the employees had long-term jobs and over 10 years’ experience in the field. One of the companies was already employing two generations.

The will and the desire to solve problems and ensure the firm’s continuity were acknowledged. The desire to grow and develop, the manager’s desire to make money and to do things in the right way, and even a “we can change the world” attitude describe the internal spirit in the firms. Socialism and a time-bound working culture differ fundamentally from capitalism, and change requires the right mental attitude. Two firms had enormous difficulties getting employees to adapt to the new working climate, expressed by the interviewees as “*We had to overcome mental barrier of our employees, they were unwilling to make any changes in the manufacturing process of*

*those detergents*" (marketing manager, firm no. 4) and *"first of all, people's mentality has to be changed"* (executive director, firm no. 5). The move to ecological products in another company demanded major mental adjustments on the part of the employees. One company started its international trade from scratch with totally new products. The interviewed manager thought that employees born under capitalism could adapt to new methods and production models better than older employees used to socialism and the old attitudes to time.

### Competence Related to External Players, Network Competences

Networking skills and the willingness to cooperate were stressed. Companies sought cooperation abroad, such as in innovation and subcontracting to produce high-tech equipment. Russia lacks the necessary high-level production skills and the means to offer a reasonable price as a turnkey project: Toppinen et al. (2007) underline the importance of skillful employees for a firm's performance. Understanding the importance of collaboration and focusing even more intensively on it was good for business. Active networks function in two directions, from Russian SMEs abroad, but Russian SMEs also accumulate experience from foreign partners: *"At the moment crisis already passed our company is more open for communication and co-operation. We try to accumulate experience from our foreign partners and also share knowledge we have"* (vice chairman of the board, firm no. 2). Scientific cooperation is widely used in green technology production and high-tech product development. All network operations are based on open-mindedness. Various crises have changed attitudes and resulted in more open communication and cooperation, as a chief executive officer (firm no. 6) said: *"Nowadays it is easier to do business, because people are more open for communication."* Firms believe that open and extrovert communication arouses customer interest and instills confidence, and thus firms actively want to promote transparency, stability, openness, and legality (see Ferrer et al. 2009).

In terms of functional operations, all the firms were flexible, following and responding to market changes and thus gaining economic leeway. The acquisition of new knowledge and information concerning new fields or industries, or related to legislation, was smooth: *"When there is a problem in local legislation in a particular industry, we can always easily switch to some other fields and thus, we are flexible and changes in local legislation do not harm us a lot"* (general director, firm no. 3). The interviewees stressed the need for skills related to the national economic climate as well as the need to accept the way things worked. Some crisis situations required the ability to work hard even under extremely critical conditions. Customers tended to vary in terms of organizational levels, both horizontally and vertically: *"Good relations with customers, an ability to move on different levels bottom-up,*

*up-bottom and in horizontal positions has enabled the business continuity of our firm*" (general manager, firm no. 8). Functional competence facilitates flexible, adaptable, and easy-going interaction vis-a-vis customers, society, and the markets. We named this flexible trait "amoebic" because the firms in question seem to be amoeba-like: they are continuously moving and changing their form. They also seemed to have the capacity to move horizontally and vertically inside their customers' organizations as well as together, on the same axis, in both businesses. One interviewee described this as a "skill for environmental survival."

A strong and close relationship at the interface of firms and their customers gives an ability to manage customers both within customer's operations and between firms. Personal and good customer relations and a client orientation extend the firm's functions in the customer's direction, even entering into the customer's processes, and develop the skill to assess customer demands. Interpersonal skills, commitment, and the willingness to work closely with and for customers all promote survival in crises, as illustrated by the following quotations: "*Key persons have the willingness to do the work on right way*" and "*Our historic competence is allocate to broad customer interface*" (chief executive officer, firm no. 10). Reliability on both sides closely reflects the above-mentioned relationship-related skills and abilities. Personal relationships and long-standing customer relationships foster familiarity and mutual reliability. Guaranteed maintenance and after-sales service strengthen the reliability of functional operations. On the other hand, reliability can be shaped by image and brand activities. Long-term and sharply focused brand actions promote the image of a high-quality product that is suitably priced for the mass market. Taking part in competitions and exhibitions and keeping a firm's name in public view at popular sports events, for example, conveys a reliable company image.

Courage and the ability to tolerate uncertainty are usually linked with entrepreneurs, but employees also need these traits in conditions of uncertainty. People need courage to believe in the future in the face of late salary payment and uncertain markets. Going into new markets abroad requires knowledge of international business and also the courage to start to penetrate markets in which other players have been operating for decades.

## DISCUSSION AND CONCLUSIONS

### Summary of the Findings

The previous section has reported the results of the competence analysis conducted among 10 small and medium-sized Russian firms. Competences previously acquired in crisis situations have encouraged companies to consider service needs and to outsource certain operations. Many SMEs went

bankrupt in the 1998 crisis, and in order to avoid the same fate in the 2008 crisis, many of them outsourced their operations to SMEs that were better able to cope with challenging situations.

The thematics around the competence concept seemed to be diverse in the research data. In the interviews competence was approached from four perspectives: (1) individual's viewpoint, (2) entrepreneurial perspective, (3) organizational side, and (4) network perspective. According to the results of the study, both internal competences and network competences are needed for survival in crisis situations. The findings highlight especially the importance of proactively building the internal entrepreneurial competences of opportunity seeking and recognition and simultaneously having an open-minded attitude toward external partners and building networking competences.

*Individual competences* (see Cheetham and Chivers 2005; Dubois 1993) such as industry know-how and highly skilled staff constitute the basis for success and survival in conditions of rapid change. Continuous competence development is, therefore, essential for everybody within the organization. The continuous change also calls for a change in personal attitudes and values: in other words, mind-set changes that allow new ways of thinking, especially in SMEs in which, due to their small size, all competences are specific and highly person-dependent.

Tovstiga and Tulugurova (2007) draw attention to the lack of managerial competence in small and innovative firms, but our study gives different results in terms of *entrepreneurial competences* (see Mitchelmore and Rowley 2010; Venkataraman 1997) such as focusing the business idea, minimizing economic risks, and focusing the strategy direction. Entrepreneurial competences inside an organization, which management in particular requires, provide a direction for the future. However, according to our study, it is important in SMEs in particular for all employees to acquire entrepreneurial competences so as to be able to recognize opportunities and exploit them efficiently.

*Organizational competences* were not as visible in the study as the other competence categories but more intertwined with the other types of competences. Organizational competences are built of individual competences, and network competences can be identified both on individual and organizational levels. Thus, within an organization it is difficult to make a distinction between competences that are purely individual or purely organizational, and at the interface of the organization and its environment, it is hard to distinguish between organizational and network competences.

*Network competences* (see Ferrer et al. 2009), which are directed outward from the organization, are highlighted in this study as essential for surviving an external crisis. The most common factors shared among the 10 companies were organizational openness and flexibility and the willingness to look for partners and solutions from outside, even internationally. On a

more detailed level, transparency and operational networking, as well as building trust and a reliable image, are competences that have helped the companies to survive the crises. On the organizational level, this is based on proactivity in identifying missing competences and finding ways of acquiring the necessary skills from outside the organization as well as in building networks and external partnerships.

### Contribution and Practical Implications

Russia's WTO membership is changing the situation of its enterprises, and there is a need for a deeper understanding of the different competences required within both internal and external networks. This study complements the extant literature in providing a rare internal, empirical view of the competences of SMEs, focusing on those that secure survival in an external crisis situation. The empirical interviews with the SME managers, who have experience in surviving crisis situations, produced a versatile and rich picture. Although the geographical context of the study is limited to Russia, the results seem transferable to similar conditions of unforeseeable external change in SMEs operating elsewhere. The results of the study show that both internal competences and network competences are needed in order to survive in crisis situations. Entrepreneurial competences acquired by everybody in the firm, an open-minded attitude toward external partners, and networking competences provide a future direction for managerial practice and public actors. This will help in planning the acquisition and development of competences in focusing the scarce resources of SMEs on the most critical areas.

Referring to the results, the public authorities and policy makers may also guide the vocational system to produce present-day skilled and qualified individuals for business needs. On this competence base secured by education, it is possible to build up more experience and networking skills for achieving demanded individual competence: 71% of all companies in Russia are SMEs, and the respective number of SMEs in EU is 99%. The number of Russian SMEs will probably increase in the future, and thus the impact of SMEs to the state's economy should also grow. Public actors may increase individual readiness to start to act as an entrepreneur with changing the laws and regulations and hence strengthen general entrepreneurial competence for the forthcoming changing situation (e.g., new requirements following the WTO membership).

This study focused on the significant competences relating to Russian SMEs in changing environments. According to the findings, the importance of competences and need for proper competence management were discovered. Some competences seemed to be more significant than others in the Russian SMEs' changing environment. However, different perspectives of competence seemed to connect to another. In this study, the concept

of competence included all skills and knowledge of an individual, competences of companies, and competences needed in organizational networks. Therefore, the concept of competence relating to SME context in Russia seems to be a summary of all these perspectives. The great question in the future will be, first, how the total competence can be recognized in an SME; what we can, are able and willing to do, and what we cannot do or are not able to do. Second, the total competence identified and acquired must also be managed properly. In other words, an SME's competence base must be internally strong, allowing it to meet external challenges and changes successfully.

#### Limitations and Further Research

All the representatives of Russian SMEs interviewed for this study operated in international business or had international clients: SMEs operating only in internal markets were not included. This is a limitation, and we suggest further studies that will extend the research on SME competences. Qualitative international research should also enhance understanding of Russian SMEs. Russia's WTO membership should offer European companies many opportunities for trading and entering into cooperation with Russian SMEs. However, according to common research practice, the results of the study must be tailored into new contexts.

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## PUBLICATION

### Survival Skills in SMEs - Continuous Competence Renewing and Opportunity Scanning

*Taipale-Eräväla, K., Heilmann, P. and Lampela, H., 2015*

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## **Survival Skills in SMEs—Continuous Competence Renewing and Opportunity Scanning**

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*This article focuses on how SMEs react in drastic environmental changes and what part competences play in business survival. The comparative qualitative case study is based on interviews in Finnish and Russian SMEs that have encountered drastic changes in their business environments. The findings indicated differences in the entrepreneurial competences of the SMEs between the countries, such as passive in environmental and/or opportunity scanning. As practical implications, we highlight the need for SMEs to invest in competence renewing to avoid competence traps. Surviving SMEs must also possess a forward-looking attitude with the opportunity exploitation and exploration.*

*KEYWORDS* changing environment, comparative case study, entrepreneurial competence, Finland, Russia, SMEs, survival competence

### INTRODUCTION

The comparative study focuses on competences in small and medium-sized enterprises (SMEs) needed in turbulent changing business environments. External business changes may influence a firm's operations drastically. Industrial structural changes challenge firms' ability to survive in changing

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circumstances. Some enterprises continue thriving in their businesses, and some firms, in turn, fade away. These differences led us to research the reactions of SMEs and competences enabling the continuity and to ask, “How do SMEs react in drastic environmental changes, and what part do competences play in business survival?” As a globally admitted fact, SMEs have a great impact on employment and the economy. For example, in the European Union (EU) SMEs employ over 66% of all employees, and their value added at factor costs is nearly 58% of all value addition (European Commission 2013). Thus it is crucial to know the SMEs’ responses and reactions in order to promote and assist SME business continuity and to strengthen their weight in increasing social welfare. As a research environment of changing circumstances, we used data of two different samples in the metal and forest industries from two countries to have different perspectives into the phenomena. First, the forest and paper industry, as well as the related metal industry, have suffered changes because of the decreasing demand for paper. In addition, in the last few decades, the wood and paper industries have turned their business over to low-cost countries in China and South America, which resulted in the shutdowns of the paper mills in traditional production countries such as in Russia and Finland. Second, the business environment changed in Russia in 1991 when the polity changed from socialism to democracy. After the polity change, it was possible to establish private enterprises. In 1998 the ruble collapsed, and in 2008–2009 a financial crisis occurred, both of which influenced heavily new established firms. Third, the share of the export of Finland of forest industry products was about 20% in 2013. The share of wood and paper productions decreased about 10% from 2000–2008 (Finnish Customs 2014).

According to Storey (2000), “SME’s primary objective is survival,” and this qualitative study compares survival through competence on twenty semistructural interviews in Finnish and Russian SMEs. Recent literature illustrates business survival—for example, by marketing (Parry, Jones, Rowley, and Kupiec-Teahan 2012)—survival constraints (Okpara 2011), internal factors (Hove and Tarisai 2013), and type of financing (Bauchet and Morduch 2013). All mentioned studies focused on some special, separate items or skills, and a holistic competence view is lacking. This study approaches the survival skills of the SMEs from a more holistic viewpoint than currently available in the literature. According to Cheetham and Chivers (2005), competence is the effective overall performance within an occupation, which may range from the basic level of proficiency through to the highest levels of excellence. Second, competence has been illustrated as terms “competence” (skill-based), and “competency” (behavior-based) (Sanghi 2007). Third, according to the holistic perspective of competence constructs of dynamic and multidimensional elements, these may also include employees’ personal behavior and ethical values. Based on various definitions of competences (and competencies), the study examines competences as all human features,

skills, abilities, capabilities, experiences, attitudes, and other traits that influence SMEs' operations, and also regardless of a position of a person. The study uses terms according to original references but uses the word "competence" for both skill- and knowledge-based as well as behavior- and trait-based competence/competency. The researched issues are competences in a firm (internal competences) and competences related to the external environment. Relevant literature expresses that SMEs have key characteristics, such as limited resources and knowledge, lack of money and multi-skilled employees, and reliance on a small number of customers (Forsman 2008; Pelham and Wilson 1998). The most important characteristic of SMEs is their business diversity (Nooteboom 1994), distributing business in different industries and different markets. In this study, we research SME competences in a limited business environment to illustrate firms' reactions and related competences in a limited industry within limited markets.

The results of the comparative study indicate open-mindedness and fluent external skills in Russian SMEs, and passive behavior including difficulties in the entrepreneurial process in renewing business in Finnish SMEs.

The theoretical background of the article is presented in the second section, introducing a classification into competences related to internal operations and competences related to the external environment according to the findings from the empirical data. The third section illustrates the research design, and the fourth section offers the findings of the cross-case comparison between the two countries. The fifth section discusses the results and presents the conclusions.

## COMPETENCES IN SMALL AND MEDIUM-SIZED ENTERPRISES

A wide variety of competence theories and models have been presented in the literature in recent decades, of which many could be applied also to competences in SMEs. The majority of these models classify competences into two levels, either the organizational or the individual level. In the case of SMEs, these levels might be difficult to separate due to the limited resources and dependence on personal skills. In the following, we have used a classification that emerged from our qualitative data, following the principles of data-driven analysis and grounded theory approach to qualitative research.

### Competences Related to Internal Operations

*Entrepreneurial competences* strongly predict business success in SMEs (Ahmad et al. 2010). In changing and unstable situations, firms need to develop new goods and services and new markets to achieve greater and more value than the cost of creating them (Venkataraman 1997). Individuals who discover opportunities through the entrepreneurial process explore

different sources and develop ideas, aiming to exploit the ideas to new businesses (Shane 2003). The entrepreneurial process includes entrepreneurial competences such as environmental scanning, taking advantage of opportunities, and identifying a viable product to market. Entrepreneurial competences also consist of competences related to managerial competences, human relationships, and conceptual awareness (Mitchelmore and Rowley 2010), as well as intuition and visioning (Loué and Baronet 2012). The entrepreneurial success in SMEs refers, according to Forsman (2008), to intention, ability, and opportunity. The business continuity management is highlighted as one of the most significant targets of a modern firm, allowing it to stay in the market and gain competitive advantage (Valackiene and Zostautiene 2013). Entrepreneurial competencies contribute to business success, and the link between entrepreneurial competencies and business success was more evident in dynamic and hostile environments than in benign and stable environments (Ahmad et al. 2010). The entrepreneur motivation also has an impact (Arias and Pena 2010). The desire of stability and unwillingness to change harms innovativeness in SMEs, particularly among older owners and long-time employees (Hausman 2005).

*Individual competences* are related to skills and knowledge to perform a specific job effectively (Gilgeous and Parveen 2001). Turner and Crawford (1994) stated that personal, individually possessed competences include abilities, experience, knowledge, personality, and skills. To achieve satisfactory job performance, an employee needs job competencies (i.e., motive, traits, skills, and the body of acquired knowledge), operational models to overcome in different organizational situations (nontechnical competencies), and technical competencies (a certain job related know-how and skills) (Dubois 1993). The professional competence is shaped by the context of work, the work environment, and employees' personality and motivation (Cheetham and Chivers 1998). Compared to large firms, SMEs have limited individual resources and therefore have limited competences. The owner's role is important, and a lack of appreciated skills of an owner/manager may cause the failure for the firm (Garcia 2005; Pansiri and Temtime 2008). The owner/manager might be a craftsman with specific operational capabilities (Nooteboom 1994), while other demanded competences are developed in networks (Carson, Cromie, and Hill 1995). Networks and other future directing competences are based on strategic management capabilities with fundamental long-term planning processes, with which SMEs are rarely equipped (Hall 1995; Shrader, Mulford, and Blackburn 1989).

### Competences Related to the External Environment

Organizational competences are founded on all firms' employees, its management, teams, and project managers (Nurach, Thawesaengskulthai, and Chandrachai 2012) and are formed of firm-specific assets integrated

clusters spanning individuals and groups, which in turn facilitate the performance of distinctive activities that constitute organizational routines (Teece, Pisano, and Shuen 1997) and dynamic capabilities (Atkinson 2013). In interorganizational co-operations, *relationship competences* are needed, such as network competences (Ferrer, Santa, Soosay, and Hyland 2009) and customer competences that focus on cooperation with customers and partners—for example, developing new products and services based on customer needs in the future (Turner and Crawford 1994). For innovations to occur, customer competences, technological, and organizational competences are required (Lokshin, Van Gils, and Bauer 2009). In searching for more flexible, efficient, and quality- and time-based operations, co-operative partners may identify specific organizational capabilities—for example, balancing power, building trust, and sharing—as transforming and reconfiguring competences. With sharing competences, an organization manages and shares information, costs, resources, and risks with customers and suppliers (Lambert and Cooper 2000; Menzer, Min, and Zacharia 2000). Trust may be a source of competitive advantage and has a significant impact on interorganizational exchanges (Barney and Hansen 1994).

As *functionality in operations*, one of the strengths of SMEs and the base of competitiveness compared to bigger enterprises is the image of flexibility and customer-orientation (Singh, Garg, and Deshmukh 2008). Many SMEs listen to their customers' wishes very closely and adapt their operations accordingly even to the point of ineffectiveness in their internal processes, as customizing the products and services separately to every customer is not feasible. Operating close to the customer is important for SMEs, but to a certain limit; the company has to consciously define its offering and degree of customization and avoid a one-sided lock-in situation with important customers by actively searching for new opportunities in the markets. Successful product innovation and technology change in SMEs requires dynamic entrepreneurial capabilities such as distributed entrepreneurial insight, entrepreneurial heuristics, and entrepreneurial flexibility in enacting, developing, refining, and deploying (Lanza and Passarelli 2013). Usually opportunity exploitation builds on existing competences and involves "refinement, choice, production, efficiency, selection, implementation and execution" (March 1991, 71). Opportunity exploration, in turn, requires the development of new organizational competences and activities such as search, flexibility, and discovery (March 1991).

SMEs are generally seen as flexible and fast adaptors to external changes, which support their survival and enable even radical innovations in products and services, possibly changing the operation logic of the entire industry (Salavou and Lioukas 2003). For an established SME with long experience of the industry and current customers, as well as proven product and service concepts and operating models, a negative attitude to change and lack of entrepreneurial risk-taking ability might lead to the inability to

take advantage of the external changes and reduced willingness to innovate and renew the business concept. *The attitude toward external changes*, uncertainty, and risk-taking is evident in many ways in the strategic choices of an SME. Is it defining its operations in terms of past competences and once detected customer needs, or is it searching for new ways of exploiting the opportunities provided by the change in situation and uncertainty?

In changing environments, the professions and competences demanded on the jobs become outdated faster when new technologies and work manners change, and renewing of competences is needed. The existing SME may face a situation described as a competence trap (Vähämäki 2005); the existing employees cannot be dismissed because of labor legislation, and hiring new ones is unrealistic because of the limited amount of new masters of new skills. Weiping (2006) illustrates the “competency trap” as a phenomenon occurring in the process of learning. March (1991, see also Levinthal and March 1993) argued that organizational learning, or non-learning, determines the technical, marketing, managerial, and other capabilities of organizations and therefore their competitive performance. Failure to reconcile the need to nurture existing competences with the need to build new ones may lead to a competence trap (O’Driscoll, Carson, and Gilmore 2001). Senaratne and Wang (2009) have found “competence traps” in opportunity exploration and exploitation.

In market change situations, and referring to technological competence, a firm needs to find new business and operations to replace previous customers by new customer relationships, or needs different skills and competences related to existing customers. In some cases, a firm is in a customer competence trap (a competence to serve current customers) and/or in a marketing competence gap; it lacks the competence to gain access to new customers (see Danneels 2007). Sometimes, an incremental product, organizational, or production upgrade is not enough, and a breakthrough invention will be necessary. Ahuja and Lampert (2001) introduced three learning traps—the familiarity trap, maturity trap, and the propinquity trap—which constrain firms’ ability to create breakthrough inventions in large corporations. In SMEs, based on limited resources, the traps of familiarity and propinquity are common, as in the familiarity trap a firm has a tendency to favor the familiar over the unfamiliar, and a tendency to search the nearby existing solutions rather than search for a completely novel solution (propinquity trap) that can be managed alongside everyday operations without R&D specialists and finance.

## RESEARCH DESIGN

### Qualitative Comparative Case Study

The approach is qualitative, aiming at a deep understanding and analysis of the change situation in the companies within the case study. The qualitative

research (Merriam 2009; Bryman 1988) studies the understanding and interpretation of people's social reality and interprets their experiences, the constructions of their worlds, and meanings they attribute to their experiences. A case study is often associated with descriptive, explanatory, or exploratory research, when the focus is on a current phenomenon in a real-life context (Ghauri and Gronhaug 2005; Yin 1994). In business studies, case study research is particularly useful when the phenomenon under investigation is difficult to study outside its natural setting and also when the concepts and variables under study are difficult to quantify.

### Data Collection and Analysis

The data collection was executed with thematic, semistructured focused interviews with individuals representing mainly the management level of the SMEs. Qualitative samples are usually small in size (Ritchie 2003). An interview is a process in which a researcher and participant engage in a conversation focused on questions related to a research study (DeMarrais 2004). Individual interviews are probably the most widely used method for gathering information in qualitative research. An interview provides an opportunity for detailed investigation of people's personal perspectives, for in-depth understanding of the personal context within which the research phenomena are located, for very detailed subject coverage, as well as being a tool for clarification and understanding (Ritchie 2003). A focused interview is one modification of the half-structured interview method. The topics are known beforehand, but the strict design and order of questions that is typical to the structured interview is missing (Hirsjärvi and Hurme 2011; Eskola and Suoranta 2000).

The data were gathered from 10 Finnish and 10 Russian SMEs by semi-structured face-to-face interviews to ensure the rich and focused information (Merriam 2009). The firms were selected on the basis of two criteria. First, they had experienced drastic changes in their operational business environment, and second, all firms operated in the forest or metal industry or were closely related. Suitable Finnish firms were found in a network of shut-down paper mills in southeastern Finland. Because of high geographical SME concentration in Russia (Astrakhan and Chepurensko 2003), the Russian firms were chosen in northwest Russia, which is considered Russia's gate to the European markets and vice versa. The Russian interviews were conducted between October 9 and December 5 in 2012, and the Finnish interviews between January 12 and May 29 in 2012. The Russian data were formerly used in a study of survival competences in Russian SMEs (see Taipale-Erävala, Heilmann, and Lampela 2014). Table 1 summarizes the basic information of the studied firms and the interviews.

The interview process was similar in both samples. Before the interviews, all firms were contacted by sending a semistructured question form

**TABLE 1** Finnish and Russian SMEs (Industry, Start-up Year, Interviewees, and Interview Duration)

Industry in which the firm operates	Start-up year	Interviewee(s)	Number of people and firm	Length of interview	Industry in which the firm operates	Start-up year	Interviewee(s)	Number of people and firm	Length of interview
Metal, maintenance, steel construction	1989	Production Manager, Financial Manager	2 FI 1	1 h 15 min	Engineering, nonstandard technology	(1949), 1998	General Director, Production Manager	2 RU 1	1 h 33 min
Printing house	1991	Managing Director	1 FI 2	1 h 22 min	Wood machinery, scientific industrial complex	1991	Vice-Chairman of the Board	1 RU 2	1 h 20 min
Transportation, earth moving	1944	Managing Director, Head of Office, Son of Managing Director	3 FI 3	3 h 16 min	Commercial consortium of SMEs	2002	General Director	1 RU 3	1 h 22 min
Industrial piping, maintenance	1999	Managing Director	1 FI 4	1 h 31 min	Chemicals	1992	Marketing Manager	1 RU 4	1 h 25 min
Business advertisement	1988	Managing Director	1 FI 5	1 h 56 min	Sheet metal	1992	Executive Director	1 RU 5	1 h 39 min
Machine and facility assembling	1992	Managing Director	1 FI 6	1 h 29 min	Information, research, data-mining services	1998	Chief Executive Officer	1 RU 6	1 h 17 min
Metal structures and maintenance	1982	Managing Director	1 FI 7	1 h 38 min	Accounting and tax services	1997	Managing Director, Financial Director	2 RU 7	1 h 18 min
Underwater engineering and construction	1978	Managing Director	1 FI 8	1 h 35 min	Paper industry equipment	1993	General Manager	1 RU 8	1 h 38 min
Wood manufacturing	1996	Chairman of the Board, Managing Director	2 FI 9	1 h 47 min	House building, agency	1996	Sales Manager	1 RU 9	1 h 21 min
Industrial air conditioning	1998	Managing Director	1 FI 10	1 h 32 min	House building, real estate development	1998	Chief Executive Officer	1 RU 10	1 h 37 min

(see Appendix 1) to the interviewees to ensure an awareness of the aim of the research. During the interviews, the questions were clarified and repeated if necessary, and interviewees were encouraged to discuss their opinions and experiences openly. The questions covered the basic information of a firm and issues on the external and internal environment of a firm. The researchers also explored public secondary data of each firm.

The data analysis approach used was a modified grounded theory-based process (Easterby-Smith, Thorpe, and Jackson 2008), which facilitates the analysis by conceptualizing the frameworks through the classification of data according to research questions (Merton and Kendal 1957). The cross-case analysis followed an iterative analysis of various methods following Miles and Huberman's (1994) three-phase procedure. In practice, the interviews of both samples (Finnish and Russian) were coded as a separate iterative, and the data-driven process compiled a Word table of the issues related to the research questions. Second, the main coded items related to the research questions were gathered together, and third, the coded data were grouped and categorized in terms of similarities using a modified grounded theory (Easterby-Smith et al. 2008). In a cross-case analysis, the common themes of both samples were identified and joined. The pattern-matching technique (Yin 1994) was conducted in the cross-case comparison.

## FINDINGS OF THE CROSS-CASE COMPARISON

The findings reported below are divided in the main issues such as competences related to internal operations (entrepreneurial and individual competences) and competences related to external players (relationship competences, functionality in operations, and attitude to external change) demonstrated in interview form. In addition, selected quotations from Finnish (FI) and Russian (RU) respondents are displayed.

### Competences Related to Internal Operations

*Entrepreneurial competences* have an effect on the managerial and entrepreneurial levels such as developing new business and searching new business opportunities by scanning the external environment. The region of interviewed Finnish SMEs has experienced the shutdown of many mills, and the production of operative factories has reduced, which has influenced the operations of the local SMEs offering their services and work to the factories and mills. Some of the Finnish SMEs have searched new customers or markets, expressed as “searched work from other areas, e.g., from other fields” (FI 6), and “selected as our customers safe payers and changed operations from customer field to another” (FI 8). In order to preserve the firm's continuity, the other actions in Finnish firms have focused on the change

of the generation and on active customer scanning. The Russian firms, in turn, focused more on shaping the firm's business idea and strategy direction and minimizing their economic risks by focusing on selecting small-scale customers instead of a couple of great customers "operate on the same field, but focused the business idea into special building and property development" (RU 10), and "diversification and with client orientation policy" (RU 1).

The surprising difference between Finnish and Russian SMEs was the passiveness in environmental or opportunity scanning of Finnish SMEs. When Russian firms actively scan their business environment, the Finnish firms' reality is described:

"we make a tender, if asked... if someone shuts down now, we have work for a week or two weeks" (FI 4), "we operate the incoming tenders, we live in a fog, don't know what will turn up... now we have work for two months" (FI 10), and "customers and markets shrink... when they shrink enough, we will retire." (FI 9)

*Individual competences* (individual skills, experience, knowledge, personal traits) concern all persons in the firm and directly influence performance in a small firm. All Finnish SMEs have operated in the forest and metal industries for decades in a quite limited and concentrated region. The firms' know-how in the industry is on a high level, and some of them are at the peak. The findings indicate high technical know-how with a few competitors, a lengthened time to reach the position and skill acquirements by learning through practice, as well as a high level of experience, long-lasting customer relationships, and long-term jobs. Along with high know-how, the lack of competence is, however, noticed; to have personnel is not simple, especially with the right working attitude and will. In Finnish SMEs, the unwillingness to change hinders a possible expansion into other fields, and the resistance hinders broadening possibilities:

"we need motivated jacks-of-all-trades... now we have a good welder, who does not want to do anything else... young people have attitude problems" (FI 1)... "we understand that we operate in a narrow field, but we have to stay on it, because personnel's skills are on it, people retire and it is difficult to train the youth as substitutes." (FI 7)

In Russian SMEs, the skilled and qualified staff members were generally highlighted. In some cases in Russia, individuals voluntarily raise their skills and qualifications and are ready to pay for the training themselves. Alongside high know-how in some fields and high levels of experience, the lack of required new technical skills was observed. The will and passion to success are driving forces in human behavior. "I like to do money and have a passion to do my work" (RU 7) presents high involvedness and a positive attitude to work. Referring to the need to change mental attitude, two Russian SMEs

expressed enormous difficulties in getting employees to adapt to the new-style post-socialist working climate indicated in interviews as follows: “first of all, people’s mentality has to be changed” (RU 5), and “our employees were unwilling to make any changes in the manufacturing process” (RU 4).

Both samples expressed high know-how and professional competences in the related industry, experience, and long-lasting customer relationships. The staffs’ skills are on a satisfactory level, and new skills are usually acquired by practicing alongside work as user training through the purchasing of a new production machine. The firms’ attitude for training was positive and encouraging, but its organization was poor by the employers. Compared to the Finnish, the Russian employees acquired voluntarily and spontaneously new information and knowledge on their leisure time paying costs by themselves. The attitude to work is highlighted in both samples. In Russian firms, the change into market economy changed working culture, and that change succeeds better by individuals born in the market economy era. In Finnish firms, individuals have proper skills due to a well-organized national vocational, internationally renown education system, however individuals’ attitude toward working is inadequate. The main comparative findings of internal competences is a reshaping manner of Russian SMEs and a resisting manner of Finnish SMEs, shown as an unwillingness to renew knowledge and competences.

### Competences Related to External Players

*Relationship competences*, like networking, its habits and cooperation, influence SMEs’ and external players’ functions. New orders and tenders are given to Finnish firms based on familiarity and reliability. The firms demonstrated high knowledge of customers’ operations and production processes. One well-done job opens the next one. In traditional industries, such as in the forest industry, people know each other and know their capabilities. The impressions of familiarity and reliability were indicated as “we do not offer a job we cannot do . . . the work will be done within a schedule and according to the plans” (FI 4). Related to the external environment, the situation of Russian firms is different; the country is large, and the private business environment is taking shape. Russian SMEs have an open attitude to co-operate and are willing to operate in networks when approaching the business environment. For success, Russian firms work actively within networks to broaden their basis of skills and experience as: “we try to accumulate experience from our foreign partners and also share the knowledge we have” (RU 2).

The Finnish firms have regular customers for 60–95% of the productions, and firms mainly operate one by one without forming, e.g., contractor groups for the larger tenders. The operation environment, customers as well as mainly competitors are familiar with each other, so the *functionality in*

*operations* is usually known. The firms possess a customer-friendly delivery orientation. The incoming tenders are modified to function in customer processes, and the papers are usually thoroughly scrutinized to ensure functionality; “the tenders are controlled, and if necessary they are transformed to be functioning . . . we offer only a functioning solution to a customer” (FI 8). The open-mindedness also shows in Russian firms’ functions as a flexible operating style. The firms follow and respond to the market change, acquire new knowledge and information of new fields or industries, or related to legislation. Good relations enable the firms to move smoothly in customer organizations’ level, expressed as “good relations with customers, an ability to move on different levels from bottom-up, up to bottom and in horizontal positions has enabled the business continuity of our firm” (RU 8). One interviewee illustrated this adaptable, flexible, and easygoing interaction between customers, markets, and society as “a skill for environmental survival.” A strong personal customer-closeness at the interface of the firms and their customers enables the management of customers both between firms and within customers’ operations.

The courage and the ability to tolerate uncertainty (*attitude to external change*) are features by which persons challenge the existing situation and decide to change the direction. The change may be a possibility, and the structural industrial change in this study seems to be partly a good thing for the Finnish SMEs by offering jobs in revisions of former factories, or former customers have been substituted by new ones. The courage is worth having: “the shut-down was a good thing, we had to go elsewhere . . . and in that we have succeeded pretty well” (FI 6). The firm searched work from other fields and was prepared to move a region and/or a country. Alternatively, the study indicated also the opposite security-seeking attitude and the tightness of used operation models. The shortage of the jobs in reducing markets is realized, but former ties are strong, and the firm-internal need for the change does not appear as follows:

We stay on this field . . . competence ties” (FI 1), “I do not feel greatly to start bouncing around into different fields” (FI 4), “our main field is the forest industry” (FI 7), “our products are suitable only for forest industry” (FI 9), and “we stick in the forest industry . . . our competence is in the industrial jobs.” (FI 10)

One of the Russian SMEs illustrated the common attitude of courage and ability to tolerate uncertainty; “In every crisis there is an opportunity. It depends how you perceive (it)” (RU 7).

When summarizing the comparing competences related to external players, Russian SMEs operate in broad customer levels, or within customer operations, and Finnish firms, in turn, possess a customer-friendly delivery orientation. The customer-friendly orientation of Finnish firms is like a

one-way road; the firms ensure the functionality of the process plans (or perform the ordered maintenance hours properly) and fulfill customers' delivery standards. When compared to Russian firms, the Finnish react when the customer is active and take care of proper customers' production process. Russian SMEs move smoothly and deeply on customers' organizations, like on a two-way road, offering services without expecting a call from them, and they focus the interest onto the customers as people instead of the process. Russian firms were evidently willing to co-operate and had overall an open-minded attitude, and they flexibly searched in new directions—for example, opening new markets abroad.

## DISCUSSION AND CONCLUSIONS

### A Summary of the Findings

The results of the joint analysis are presented in Table 2, and informed as in Section 4: competences related to internal operations (entrepreneurial and individual competences) and competences related to external players (relationship competences, functionality in operations, and attitude to external change).

### Entrepreneurial Competence

The Finnish and Russian SMEs have different approaches in searching for business success and continuity. Finnish SMEs have operated a long time in the same field of a declined industry. Nevertheless, Finnish SMEs focus on new customers or markets mainly in the same field of industry, transfer business to the next generation, or wait passively for new jobs from present customers. Russian SMEs, in turn, are in a different situation. Because of a quite short national entrepreneurial era, they maybe have too broad business ideas, and therefore focus now on narrowing existing business and on internal strategy issues. SME samples illustrated different actions in the entrepreneurial process demanded environmental scanning and opportunity discovering and exploitation (Shane 2003). The Russian SMEs have clear visions and intuitions (Loué and Baronet 2012) and future managerial competences (Mitchelmore and Rowley 2010), but some Finnish SMEs are passive in environmental scanning and suffer of lack of managerial skills. The findings illustrate a reality in the firms; the long-term planning is missing (Hall 1995; Shrader et al. 1989). Three out of 10 Finnish SMEs announced their business future to be in the fog. The fog-going indicates the competence trap in opportunity exploration and exploitation (Senaratne and Wang 2009). Russian SMEs act in hostile and dynamic environments in their young capitalism business environment, and entrepreneurial competencies are more strongly evident than in more benign and stable environments (Ahmad

**TABLE 2** The Summary of the Analysis

Competence object	Competence categories	Finnish SMEs	Russian SMEs
Internal competences	Entrepreneurial competences	Focusing on new customers or markets Actions for the future continuity Passiveness in environmental or opportunity scanning	Focusing of business idea Minimizing economical risk Focusing strategy direction
	Individual competences	High know-how in own industry Experience and long-lasting customer relationships Personal unwillingness and passiveness to change	High know-how in the industry Experience, skilled and qualified staff, spontaneous training Will and desire, need for a change of mental attitude
External competences related to external players	Relationship competences	Familiarity and reliability	Co-operation and networking, open-mindedness
	Functionality in operations	Customer-friendly orientation	Flexibility, customer-closeness
	Attitude to external change	Courage and ability to break previous ties (or not)	Courage and ability to tolerate uncertainty

et al. 2010) such as the Finnish SMEs. If the firms allow staying in the market, the business continuity management is to be highlighted (Valackiene and Zostautiene 2013).

### Individual Competence

Individual competences related to skills and knowledge in job performance (Dubois 1993; Gilgeous and Parveen 2001; Turner and Crawford 1994) are highlighted as well in Finnish and in Russian SMEs. Professional and technological competences (Cheetham and Chivers 1998, 2005) and experience guarantee the most competitive position, and customer satisfaction led to long-lasting relationships. In comparison with the Finnish and Russian samples, it came up first the attitude problem in Russian SMEs having a lack of capitalism work attitude and technical skills, and second, the competence traps in Finnish SMEs. The situational competence trap (Vähämäki 2005) holds enterprises in the current field of industry, and thus hinders a shift into another, possibly more successful industry. The unwillingness or unskillfulness to renew individual competences in Finnish SMEs indicated the competency/competence traps in the process of learning (Weiping 2006), and in organizational learning (March 1991; Levinthal and March 1993), as well as in nurturing existing competences instead of building new ones

(O'Driscoll et al. 2001). Personal unwillingness and passiveness to change (Hausman 2005) was demonstrated in Finnish SMEs. The owner/managers with the important role in a firm and with a lack of appreciated skills (Garcia 2005; Pansiri and Temtime 2008) and with same attitude as long-time employees crucially harm innovativeness and the business (Hausman 2005).

### Relationship Competences

In interorganizational relationships Russian SMEs stressed open co-operation and network competences (Carson et al. 1995; Ferrer et al. 2009). The most common factors were open-mindedness and the willingness to search for co-operators and solutions from outside. Open-minded organizational competences conducted in innovation (Lokshin et al. 2009) and sharing competences (Lambert and Cooper 2000; Menzer et al. 2000) illustrate the Russian attitude. The customer competences based on customer needs in new product development (Turner and Crawford 1994) was not indicated. As a part of organizational competences (Nurach et al. 2012), the trust resulted in both samples. Particularly the Finnish SMEs illustrated reliability as greatest reason for the competitive advantage (Barney and Hansen 1994), as well as familiarity for acquiring new jobs.

### Functionality in Operations

Familiarity and long-lasting customer relationships form close customer relationships. Finnish SMEs have great experience in customer processes, which have led to a deep customer-friendly orientation and flexibility in operations (March 1991; Singh et al. 2008). The same operational flexibility and customer-closeness is also strongly figured in Russian SMEs, partly as entrepreneurial flexibility (Lanza and Passarelli 2013). The difference between firms is the directions of functionality; Russians operate smoothly in and out of customer interfaces, and Finns have one-way operations in the customer interface. This Finnish one-way movement may arise from too much customer familiarity, and it has resulted in a familiarity trap (Ahuja and Lampert 2001); familiar operations are favored over the unknown operations. In addition, a marketing competence gap causes the parallel situation, when a firm lacks the competences to gain access to new customers (Danneels 2007); a firm does not have the required skills for new operations and/or new customer searches.

### Attitude to External Change

The continuance in old manners and the customer environment may not originate from a lack of skills but from the attitude to meet external changes. To get rid of the propinquity trap (nearby existing solutions rather than

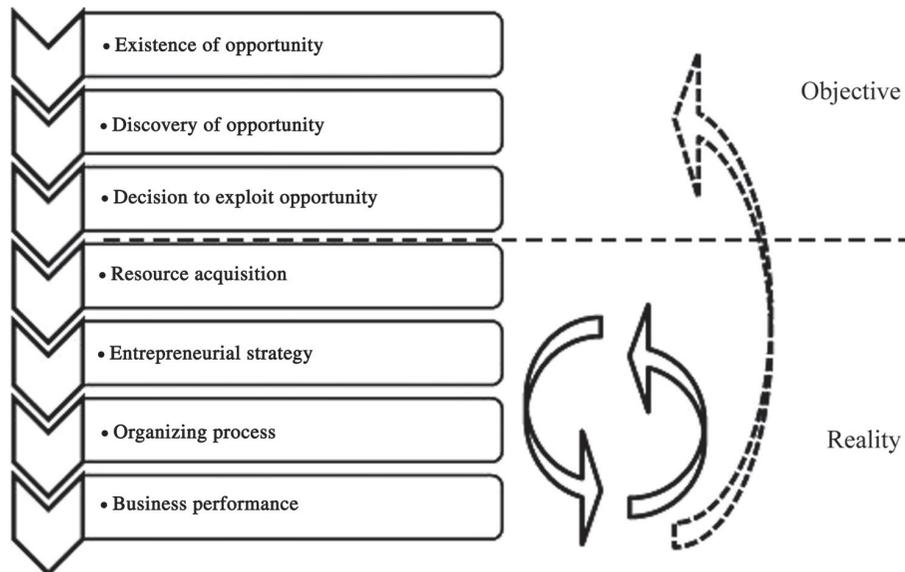
completely solutions) (Ahuja and Lampert 2001) demands a courageous attitude and a belief to change the operation logic of whole industries (Salavou and Lioukas 2003). The firms, as well Russian and Finnish, which had shifted the field of industry, customers, or region, were positive and proud of renewed concepts and models.

### Contribution and Practical Implications

This study reveals remarkable differences in the survival competence of SMEs between Finland and Russia. Answering the research questions, the results add to current literature on SME management an emphasis on the skill of continuous competence renewing and a lesson for SMEs to active environmental scanning. As a main contribution of the study, we present the difficulties of SMEs in going back to the earlier phases of the entrepreneurial process (see Shane 2003), which was strongly indicated in Finnish SMEs' passiveness in the opportunity scanning, the unwillingness toward changes, and the longing for stable times. Competences in the studied Finnish SMEs are not adequate to carry over sudden change situations, nor do they allow strategic repositioning of the firm. In comparison, Russian SMEs have operated nearly all their business periods in unstable business environments, and they have transformed their businesses according to the new requirements set by the changing business environment. The entrepreneurial process includes seven phases from phases of opportunity of existence, discovery and exploitation decision, to concrete entrepreneurial action phases of resource acquisition, strategy, organizing process, and business performance (Shane 2003). Figure 1 illustrates the reality and objective feedback circle. The entrepreneurial process must be seen as a continuous rotation that includes continuous opportunity phases.

The opportunity exploration and exploitation are difficult because of earlier acquired resources, earlier followed entrepreneurial strategy, already organized processes, and the achievement of successful performance in a specific customer and competition environment. Therefore, business and competence renewing is needed (see Venkatamaran 1997). Finnish SMEs experience traps (competence, customer competence, familiarity, propinquity). We argue that the traps are illusions as the competences are not in a stable situation. As practical implications, we suggest renewing competences and changing the attitude from looking backward to looking forward, which enables that new opportunities can be discovered and exploited for the business continuity.

As practical implications, we first highlight the need for SMEs to invest in competence renewing to avoid competence traps that result in reducing firms' operations. Second, surviving SMEs must possess a forward-looking attitude with the opportunity exploitation and exploration. Both implications are essential in ensuring the continuity of the business.



**FIGURE 1** Entrepreneurial process (Shane, 2003; modified) and difficulty in returning back to earlier phases.

### Limitations and Further Research

One limitation of the study is its focus on a limited industry within limited markets. Therefore, first we suggest further qualitative and quantitative research based on our qualitative findings, which could be tested in other contexts (industry, country, etc.). Second, cultural behavior was excluded from this research; thus we suggest studying differences in cultural behavior between Finnish and Russian SMEs from the point of acting in business. Is the open-mindedness that was recognized as a major difference between the data sets in this study dominant in Russian SME business or within Russian people, and vice versa within the Finnish and Finland? Third, we propose to study widely how SMEs take care of the skill of continuous competence renewing, and how they acknowledge opportunity exploration and exploitation in daily business.

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## APPENDIX

(At the beginning is a text concerning the aim of the study and general information of knowledge management.)

### **Interview questions**

#### **Basic information**

- Field of operation.
- When the company was established?
- Number of employees, turnover, resources, etc.
- Staff education, training, and experience.

#### **Changes in the external environment**

- How do the changes in society affect company's lifecycle?
- How do you find the social atmosphere for entrepreneurship?
- Who monitors the external environment and how?
- How the development process of new products or services starts?
- How the local legislation influences SMEs operations?

#### **Knowledge and know-how (internal environment)**

- How do changes in the external environment (e.g., social structure, economic collapse) affect company's personnel know-how?
- What kind of new knowledge the company needs and from where it can be accumulated?
- How new products/services are developed inside the company?
- Does company encourage its employees' creativity?
- What do you think about the company's image?

# 4

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## PUBLICATION

### Entrepreneurial competencies in innovative SMEs

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## **Entrepreneurial competencies in innovative SMEs**

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### **Abstract**

This study examines what kind of specific entrepreneurial competencies enable SMEs to successfully implement innovations. The conceptual research approach is supported by empirical data in a multiple case study. A framework of entrepreneurial competencies in the 2000s is created, based on how they are defined in the recent literature, and the framework is reflected with qualitative interview data from 13 innovative Finnish SMEs in the forest industry. The study indicates that in SMEs that were able to successfully exploit and execute innovations, the entrepreneurial competencies include special extrovert competencies (e.g. open-mindedness), competencies related to preparation, and pro-activeness in business operations, which all seem to have a significant influence on successfully implementing innovations. Additionally, the study concluded that there are no notable differences between different innovation types and found entrepreneurial competencies in innovative SMEs.

### **Keywords:**

entrepreneurial competencies, SMEs, innovative, Finland, multiple case study

### **1. Introduction**

In the 2000s, the business environment has changed with increasing speed due to digitalization and globalization. Alongside technological and demographic changes, new laws and regulations have offered more entrepreneurial opportunities and thus more opportunities for entrepreneurs to exploit ideas in practice (Shane, 2003) - i.e. to innovate. This study aims to identify the entrepreneurial competencies that are specific to those SMEs that have successfully implemented innovations. According to earlier literature, entrepreneurial competencies have been studied widely and different dimensions have been found (Kolb, 1984; Chandler and Jansen, 1992; Lorrain et al., 1998). Despite the broad range of literature, there still does not seem to be an agreement as to what entrepreneurial competences consists of. Therefore, this study firstly contributes to existing research by defining what the present entrepreneurial competencies are. In order to investigate how entrepreneurial competencies have changed in literature since the know-how-oriented competence in 1980s, we conducted a literature review; this review defines the typical entrepreneurial competencies required between 2008 and 2014.

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Secondly, the contribution of the study to existing research focuses more specifically on entrepreneurial competences in innovative firms. To our knowledge, there are only a few rare studies focusing on this issue (see Santadreu-Mascarell et al. (2013) for an exception). This lack of research is somewhat surprising because innovative SMEs are recognised to hold a crucial position as engines of growth (OECD, 2013) and as key drivers of innovation (European Commission, 2013). Thus, the question is posed: *What kind of entrepreneurial competencies do SMEs that successfully implement innovation have?* Furthermore, to gain a deeper understanding of innovative SMEs, we also studied the influence of innovation types related to specific entrepreneurial competencies. Thirdly the study raises the question: *Do different types of innovative SMEs place different emphases on their competencies?* To investigate these questions empirically, we conducted interviews in 13 SMEs, in the field of the forest industry. As a theoretical background we have contributed the entrepreneurial process model of Shane (2003), and its entrepreneurial phases to categorising the competencies in these entrepreneurial phases. Additionally, the entrepreneurial competencies found were classified based on the firms' innovation type (OECD, 2005). Innovative SMEs were selected by peer nomination from other entrepreneurs or local business centres in the area. This selection was based on their proven ability to commercialize innovation. In this study, an innovative firm is defined as one that has implemented at least one innovation (Tiwari, 2008). Thus, this type of innovative firm is considered "successful" in this study.

In the study, entrepreneurial competencies are considered to mean 'underlying characteristics such as generic specific knowledge, motives, traits, self-images, social roles, skills which result in venture birth, survival and/or growth' (Bird, 1995: 51). The 'underlying characteristics' mentioned are the personal features which then create organisational ones (Turner and Crawford, 1994). Personal competencies build up organisational competencies, and organisational competencies are composed of all the competencies of the firm's employees, including the management, project teams, and the project managers (Nurach et al., 2012). All these competencies contribute to the firm's performance. Thus the study approaches personal competencies (Turner and Crawford, 1994) without separating them from any professional position held within a firm, whilst also noticing that a firm's success is formed by creating or adding value through the organisation of resources (Bird and Jelinek, 1988). In the study, personal *competence/competencies* are defined as 'an underlying characteristic of a person which results in effective and/or superior performance on the job' (Klemp, 1980: 21), including all human features, abilities, attitudes, capabilities, skills, experiences, and other traits which influence a firm's operations, regardless of an individual's position within that firm. In SMEs that have successfully implemented innovations – here called innovative SMEs - it is unlikely that one individual entrepreneur (see Herron and Robinson, 1993) possesses all of the competencies required to able to turn an idea into a value creating firm.

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Consequently, a team of entrepreneurs is often needed, so that in a small firm, members of the staff, other than the entrepreneur, may also possess entrepreneurial competencies and thus influence a firm's operation. Thus, the entrepreneurial competencies include and cover all business actions, from opportunity scanning via business development, to a firm's day-to-day operations including all the entrepreneurial phases of a firm. Shane (2003: 11, 12) introduced entrepreneurial phases in an entrepreneurial process model. In the entrepreneurial process, entrepreneurial opportunities can be scanned and discovered from different sources by entrepreneurial attributes leading to opportunity exploitation and execution. The entrepreneurial process model (Shane, 2003: 11, 12) was chosen to be used as a theoretical background for the study, because it combines all the entrepreneurial phases (opportunity, execution, and the firm's performance), when compared with other entrepreneurial process models (e.g. Stevenson and Jarillo, 1989).

As one result, the study creates a template of typical entrepreneurial competencies (TTEC) based on the literature between 2008 and 2014. More specifically, the empirical findings of the study add to the literature the fact that in innovative SMEs open-mindedness and a mental attitude that develops new trends and thoughts are highlighted, based on the individual competencies of employees and managers. Additionally, the study highlights the importance of a purposeful public image competence and a two-way networking competence that creates beneficial co-operation with all partners. Comparison between TTEC and the empirical results indicated that TTEC are related to incremental innovations, unlike innovative SMEs indicated specific entrepreneurial competencies focusing on radical innovations. When combining the competencies and the results of the firms' innovation type, the study concluded that extroversion is a common denominator as regards the competencies in innovative SMEs, but there were no notable differences between the competencies as related to the types of innovation. Overall, the company-level extrovert competencies and the company's preparation and pro-activeness in business operations are thus stressed, as these qualities seem to have a significant influence on successfully implementing innovations.

This study is structured as follows. First, we introduce the conceptual concept of entrepreneurial competencies in SMEs. After this the previous literature on the general categories of entrepreneurial competencies and the exact competencies included in each category are described. Then a discussion follows on the methodology employed. Finally, the remaining part of the paper presents the empirical results and their analysis, the discussion, and the conclusions.

## **2. Previous research on entrepreneurial competencies**

Earlier literature on entrepreneurial competencies has developed from emphasizing know-how-oriented (Hambrick and Crozier, 1985; Kolb, 1984; Milton, 1989) competence and skills

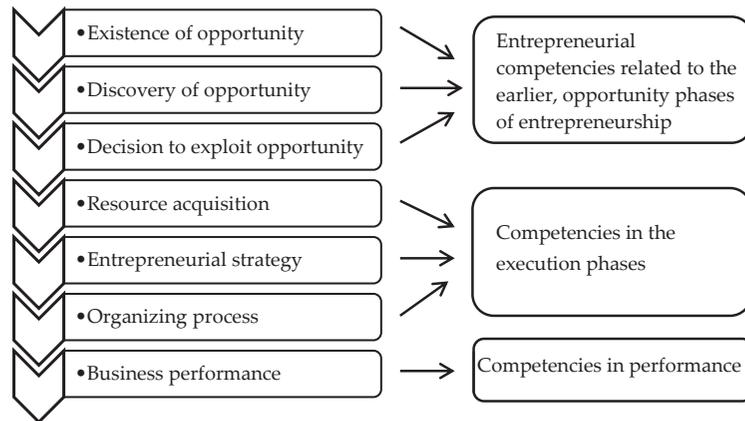
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to stressing personal qualities and behaviour-related categorizations (Pelletier, 2006; Gasse and d'Amours, 1993; Gasse, 2005; Gasse and Paracini, 2007).

In order to study the relationships between entrepreneurial competencies and innovation types, we used generally-accepted classifications from the OECD (OECD, 2005; Tiwari, 2008) where the types of innovations are the following: product innovation (a significantly improved good or service), process innovation (a significantly improved production or delivery method), marketing innovation (a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing), and organisational innovation. The literature on innovation examine the fact that when innovating a product innovation, new products with a closer fit to a firm's competencies tend to be more successful (Danneels, 2002). Leiponen (1996) found that product and process innovation tend to be associated with different competencies, related to education and firm-specific work experience. The above-mentioned competencies are presented in a relationship in order to renew and to develop internal competencies, and are focused on general capabilities. However, this study focuses on entrepreneurial competencies instead of the general capabilities present in a firm.

To identify recent entrepreneurial competencies in the literature, the review included scientific full-text databases between the years 2008–2014. Focusing on innovative SMEs, we constructed an analytical framework for entrepreneurial competencies in the 2000s. We found approximately 240 articles with the keyword *entrepreneurial competencies* but no references to *innovative\**. It appears that while there is a steadily growing literature on the broader general classifications of entrepreneurial competencies, studies on entrepreneurial competencies as regards innovative SMEs are rare. The typical entrepreneurial competencies presented in the literature in the 2000s were then identified. The accepted review references are from 2008–2014 and thus represent recent knowledge in the field. The details for all the articles included in the review are presented in Appendix 1. As a classification base, a modified model of the comprehensive entrepreneurial process is used (Shane, 2003), and the results of selected articles are presented in three categories (see Figure 1 below): entrepreneurial competencies related to the early, opportunity phases of entrepreneurship, competencies in the execution phase, and competencies in performance. Figure 1 below combines the entrepreneurial phases, the entrepreneurial competencies found, but presents only those attributes which were found in at least three articles.

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*Figure 1. Entrepreneurial competencies related to entrepreneurial process of Shane (2003:11)*

This classification combines similar terms. First, the following early entrepreneurial competencies are presented and the opportunity phases of the entrepreneurial process: scanning entrepreneurial opportunities, discovering opportunities from different sources by different entrepreneurial attributes, making decisions about opportunity exploitation (see Shane, 2003). In the literature, this stream includes typical entrepreneurial competencies such as the terms related to opportunity (Hui et al., 2011; Man et al., 2008; Ahmad et al., 2010) meaning the ability to identify those goods or services that customers want. Some authors, like Morris et al. (2013) use the terms opportunity recognition and opportunity assessment, these terms are firstly used to recognise and perceive changed situations, and then evaluate and determine their relative attractiveness. Other authors use different terms for a similar content – opportunity recognition and its exploitation (Loué and Baronet, 2012), refinement competency (Rasmussen et al., 2011), and opportunity seeking and initiative (Santandreu-Mascarell et al., 2013). Mitchelmore and Rowley (2010; 2013) use the term entrepreneurial competencies to mean similar opportunity competencies. Hui et al. (2011), in turn, add to the discussion on entrepreneurial learning competency by highlighting entrepreneurial education, lectures, and learning from entrepreneurs' experiences.

When compared to the entrepreneurial know-how-oriented competency in the 1980's literature, the literature in the 2000's can be seen to have introduced future and motivation aspect. Hui et al. (2011) discuss entrepreneurial aspiration competency, Morris et al. (2013) conveying a compelling vision of the future, and Loué and Baronet (2012) highlight intuition and vision. When an opportunity is discovered, an entrepreneur must decide whether or not to exploit it. The risks may be enormous, and therefore Dimitratos et al. (2014) and Santandreu-Mascarell et al. (2013) have recognised competencies such as risk-taking and risk management/mitigation (Morris et al., 2013).

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Second, entrepreneurial competencies were categorised in the execution phase, where resources are assembled, organisations are formed, and a firm's strategy is finalized. Naturally, this phase includes strategic competencies (Ahmad et al., 2010; Man et al., 2008) and competencies related to resource leveraging / bootstrapping / integration (Man et al., 2008; Morris et al., 2013; Ahmad et al., 2010; Hui et al., 2011; Rasmussen et al., 2011). In the execution phase, an idea is converted into an innovation, and Morris et al. (2013) logically follow a path defining innovativeness as 'the ability to relate previously unrelated objects or variables to produce novel and appropriate or useful outcomes' (Morris et al., 2013). Man et al. (2008), in turn, has a slightly different definition mentioning innovative competence as the generation of new ideas based on problems and the exploration of new ideas. Morris et al. (2013) approach innovativeness from the point of creative problem solving / imaginativeness. Additionally, according to Dimitratos et al. (2014), innovativeness is connected to product offerings (new products and changes in product offerings), and Hui et al. (2011) consider innovation competency in emergency innovation events, e.g. in a business transition – and thus, mainly as problem solving.

Third, competencies needed in the performance phase are naturally related to the actual running of the business – business and management (Mitchelmore and Rowley, 2010; 2013) and leadership (Loué and Baronet, 2012). A firm has employees and customers; therefore, typical relationship competencies include human relationship competencies (Mitchelmore and Rowley, 2010, 2013; Hui et al., 2011; Loué and Baronet, 2012; Man et al., 2008; Ahmad et al., 2010). The abilities needed for business management are significant for a firm's success, but in addition some authors extend these relationships to include conceptuality: conceptual and relationship competencies (Mitchelmore and Rowley 2010), and conceptual competencies (Ahmad et al., 2010). In the 2000's, co-operation and networking has been highlighted in SMEs, and therefore the need for the increased networking that started in 1990's is included as well in competencies (Lans et al., 2011; Morris et al., 2013; Santandreu-Mascarell et al., 2013). More specifically, Dimitratos et al. (2014) see the need for networking as intra-multinational networking or extra-multinational networking. Global business skills and abilities rapidly become outdated. Therefore, learning competencies (Man et al., 2008) are generally discussed as meaning the overall learning from customers or competitors, (Dimitratos et al., 2014), learning more of a company's own industry (Ahmad et al., 2010), and information seeking (Santandreu-Mascarell et al., 2013).

Table 1 below summarizes and presents typical entrepreneurial competencies based on recent literature i.e. that between 2008 and 2014. It contains entrepreneurial process phases, competencies found in the literature focused on each phase, authors, and categories of competencies (attributes found in at least three articles). The categories of competencies form a template of typical entrepreneurial competencies (TTEC), which is used in Section 4 to

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report the analysed results of our empirical study on entrepreneurial competencies of innovative SMEs.

*Table 1. Competencies found in the literature, positioned in the entrepreneurial process phases*

<b>Entrepreneurial process phases</b>	<b>Competencies found in the literature</b>	<b>Author(s)</b>	<b>Competency category</b>
Opportunity phases	Abilities related to opportunity identification	Hui et al., 2011; Man et al., 2008; Ahmad et al., 2010	Opportunity competencies
	Opportunity recognition and assessment	Morris et al., 2013	
	Opportunity recognition and its exploitation Refinement competency	Loué and Baronet, 2012 Rasmunssen et al., 2011	
	Opportunity seeking and initiative, Entrepreneurial competencies (focusing on opportunity)	Santandreu-Mascarell et al., 2013 Mitchelmore and Rowley , 2010; 2013	
	Entrepreneurial aspiration competency Conveying and compelling, vision/seeing the future Intuition and vision	Hui et al., 2011 Morris et al., 2013 Loué and Baronet, 2012	Vision / seeking the future
	Risk-taking  Risk management/mitigation	Dimitratos et al., 2014; Santandreu-Mascarell et al., 2013 Morris et al., 2013	Risk-taking
Execution phase	Strategic competencies  Competencies related resource leveraging / bootstrapping / integration	Ahmad et al., 2010; Man et al., 2008 Man et al., 2008; Morris et al., 2013; Ahmad et al., 2010; Hui et al., 2011	Strategy and resource assembling
	Innovativeness, problem solving / imaginativeness Innovative competencies Creating new products offerings Emergency innovation, transition	Morris et al., 2013 Man et al., 2008 Dimitratos et al., 2014 Hui et al., 2011	Innovative competencies
Performance	Business and management  Leadership	Mitchelmore and Rowley, 2010, 2013 Loué and Baronet, 2012	Business management

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

Human relationship competencies	(Mitchelmore and Rowley, 2010, 2013; Hui et al., 2011; Loué and Baronet, 2012; Man et al., 2008; Ahmad et al., 2010)	Human relationship
Networking  Intra-multinational / extra-multinational networking	Lans et al., 2011; Morris et al., 2013; Santandreu-Mascarell et al., 2013; Dimitratos et al., 2014	Networking
Learning competencies  Information seeking	Man et al., 2008, Dimitratos et al., 2014, Ahmad et al., 2010 Santandreu-Mascarell et al., 2013	Learning and information seeking competencies

Although the literature review focused on identifying the most recent and typical entrepreneurial competencies between 2008 and 2014, these findings were based mostly on similarities between the studied articles, however, some dissimilar definitions were found. For example proactiveness was noted as a minor attribute (Dimitratos et al., 2014) and is defined as behaviour leading to being first in the markets and adopting a competitive posture. Loué and Baronet (2012) also highlight marketing and commercial competencies. Ethical competencies and familism were only mentioned by Ahmad et al. (2010).

### 3. Research design

In this paper, a qualitative research approach was chosen to give richness to the data collected and the findings made (Silverman, 2005). A case study methodology was chosen because it allows an extensive examination of a single instance of the phenomenon of interest to be made (Collis and Hussey, 2003). Given our objective of finding innovative entrepreneurial competencies, we chose a multiple-case study (13 case studies) as the research design. This research design was chosen because in multiple-case studies, only those relationships that are replicated across most or all of the cases are retained for analysis. Hence, the resulting conceptual framework or hypotheses are often more parsimonious and generalisable in comparison with single-case studies (Eisenhardt and Graebner, 2007). Each case is considered here as an independent experiment and an analytical unit on its own (Eisenhardt and Graebner, 2007; Yin, 2003). The unit of inquiry was the SME, and the interviewees were considered to be the key innovation experts embedded in the unit of analysis (Yin, 1994).

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

### 3.1 Data collection

To ensure the validity of the findings, the selection of the case studies was a key concern. The innovative SMEs were peer-nominated by other entrepreneurs or local small business centres based on the SMEs' proven ability to commercialize innovation. Additionally, an SME was considered appropriate for this study if it met all of the criteria summarized in Table 2. We

*Table 2. Selection criteria for innovative SMEs*

Number	Criteria for innovativeness
1	It had introduced new products or significantly improved products, production processes, and/or services into markets.
2	Other companies in the field or local small business centre identified it to be innovative.
3	It has successfully commercialised innovation.

used data saturation as a test of sufficiency (Morse et al., 2002; Lincoln and Guba, 1985). The number of required cases became clear as this study progressed because new entrepreneurial competencies stopped emerging from the data. We chose to study firms related to the Finnish forest industry because the forest industry is very important to the Finnish economy. This field has also suffered from structural changes, and new innovations are important for the survival of the industry. As a consequence of cost-cutting operations over the last several decades, forest industry production has moved to low-cost countries such as South America and China. Globally, other forest intensive countries such as Canada and Russia face similar situations. In Finland, the share of export for forest industry products decreased by 10 percent from 2000–2008. In 2013, it was 20 percent of Finland's export (Finnish Customs, 2014). The forest industry needs new products, and thus it is justified to study firms that have already exploited new innovations. Therefore, Finnish forest industry firms provided an interesting context in which to study entrepreneurial competencies. The forest industry has traditionally been dominated by large corporations, but the majority of new innovations are started on a small scale by entrepreneurs because their skills and competencies allow them to discover and exploit opportunities (Shane, 2003).

Table 3 presents the innovation types in each firm studied. Using the classification of Oslo Manual (OECD, 2005), three innovation types were recognised: a product (or service) innovation, a process innovation, and a marketing innovation. Being aware of the fact that innovations may be included simultaneously under several classifications, the table illustrates the most fitting classifications (OECD 2005, 53–56). Table 3 also shows which specific field in the forest industry the firms represent: property construction and surfacing, bio energy and environmental technology, and operations related to supply chains and

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

production processes. Additionally, Table 3 lists the main business areas of the SMEs under study and their specifications from the interviews. The entrepreneurs interviewed for this

*Table 3. The specifications of the firms studied*

Innovation type	Case number	Main business of the company	Interviewed persons and length of interview	Specific field of forest industry
Product or service innovation	1	Coloured wood producer	Managing director 1h5min	Property construction and surfacing
	3	RFID-tag producer and solution provider	Technology director 1h	Supply chains and production processes
	4	Construction of low-energy buildings	Managing director 1h9min	Property construction and surfacing
	5	Insulation-board producer	Managing director 1h10min	Property construction and surfacing
	7	Producer of an environmental friendly power source	Managing director 1h	Bio energy and environmental technology
	9	Parquet and wood product producer	Managing director and deputy managing director 1h	Property construction and surfacing
	12	Wood finishing products producer	Managing director and technology expert 2h	Property construction and surfacing
Process innovation	2	Bio-fuel producer	Managing director 1h13min	Bio energy and environmental technology
	8	Supplier of waste solutions (including machinery)	Managing director 1h54min	
	11	Bio energy software systems supplier	Managing director 45min	Bio energy and environmental technology
	13	Stainless steel packaging machine producer	Managing director 1h27min	Supply chains and production processes
Marketing innovation	6	Provider of digital printing solutions	Managing director 1h21min	Supply chains and production processes
	10	Process engineering office	Managing director 45min	Supply chains and production processes

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

study mainly held the position of managing director in their companies. There were two exceptions to this. In the first exception, the managers were both the managing director and the deputy managing director. In the second exception, both the managing director and the technology expert were interviewed. Within each firm, we used purposive sampling (Lincoln and Guba, 1985) to identify and select key informants who were most knowledgeable about the topic in question (Saunders et al., 2009). We specifically selected those entrepreneurs who created or were members of the team who created the SME, because they had knowledge about the management structure. In addition, most of these people were responsible for or involved with innovation and development activities in their companies. In those companies where they were not directly involved, we also interviewed a second person who was responsible for innovation and development activities. As is typical with case studies, the interview data were triangulated with other data (Yin, 2003). Triangulation is an attempt to ensure the most in-depth understanding of the research phenomenon possible (Denzin and Lincoln, 2000). We also collected secondary data (for example, information from company websites) relevant to each case.

Interviews were semi-structured, using a thematic and conversational approach, lasting between one and two hours. Each interviewee was made aware of the aim of the research. In addition to this, the interviewees were encouraged to talk about their experiences in their own way. The questions were repeated if necessary and iterative and circular questioning and discussion were also allowed. Further, there was ongoing clarification and verification of the information received during the interview. The questions concerned the company's development since its foundation. The interviewees were questioned about their background in the industry and their tasks within the SME to ensure that they had directly experienced the phenomenon of interest. The interviews resulted in the life stories of the SMEs under study, and provided information about the competencies required in each phase of the company's life.

### *3.2 Data analysis*

We analysed the data for each company using template analysis in order to identify and categorise the different types of innovative entrepreneurial competencies. Template analysis is one type of thematic analysis that balances a fairly high degree of structure in the process of analyzing qualitative data while also having enough flexibility to be adapted to the requirements of this study. (King, 2004) Our literature review (and the classification based on the review) was used as the first- and second-level coding frame. As this was a data-driven process, we also iteratively modified and complemented the coding frame according to our data. We not only looked for similar competencies, but also differences between the 13 cases in order to understand entrepreneurial competencies related to different innovations and different firms. Additionally, we used two tactics suggested by Yin (2003) to ensure the

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

validity of the research. First, we used multiple sources of evidence, and second, we established a chain of evidence with the coding.

All the interviews were recorded and analysed with the help of ATLAS.ti software, which is specially tailored to qualitative data and explorative data analysis. The data analysis was based on a copy of taped transcripts which formed the database. Key themes from the cases were allowed to emerge naturally from the data. This further enabled connecting the themes with key themes generated from a previous literature review. Thus, the risk of subjective error or bias in the data analysis was decreased. Confidentiality was guaranteed as regards both the organisations and individuals; hence, the quotations are anonymous. The findings of the analysis are presented in the next section. They have been categorised according to the classification of findings from the data and are also illustrated by some of the codes from the 1607 Atlas.ti software.

#### 4. Findings

##### 4.1 Empirically identified competencies

In this section, an analysis of the findings is presented using the template of the typical entrepreneurial competencies (TTEC) that was introduced in Section 2. The categories of TTEC and the empirical study findings are combined and presented in Table 4 below. The first column presents the entrepreneurial process phases, the second the typical entrepreneurial competencies and the third column presents the empirical study findings related to these categories. The text below elaborates on the results in each category and illustrates the answers with empirical quotations taken directly from the interview data.

**Table 4.** Typical entrepreneurial competencies and the study's empirical findings

Entrepreneurial process phases	TTEC Typical entrepreneurial competencies	Entrepreneurial competencies found in innovative SMEs
Opportunity phases	Opportunity competencies	<p>Future trend competencies in technology, customership, legislation, and environmental systematic continuous scanning behaviour for innovation opportunities</p> <p>An open-minded ability and mental attitude for entirely new trends and thoughts</p> <p>Long-lasting development and innovative ability and the patience to wait for results</p>
	Vision/seeing the future	Clear vision and goal setting skills for many years into the future and knowing one's own position as well as the industry's position and the competitors' positions

## PART 2

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

	Risk taking	Awareness of risks
Execution phase	Strategy and resource assembling	Similar to the opportunity competencies
	Innovative competencies (refers mainly to problem solving and incremental innovation)	Similar to the opportunity competencies
Performance phase	Business management competencies	Financial and budgeting skills, business operational skills, development ability as a part of daily life (like a thought pattern)  Managerial experience, competence to preview requisite resources and the ability to fit requirements into acquisition and development situations, marketing and purposeful public image skills when marketing
	Human relationship competencies	Human capital and individual capability requirements are important at all organisational levels, skills related to hiring and knowledge of human nature, interpersonal skills, the ability to manage customers and conceptual competencies
	Networking competencies	Networking skills
	Learning and information seeking competencies	Highly qualified, deep and wide familiarity with industry based on the consideration of new ideas and desires  thorough familiarity with the market and customer needs, and their processes

### 4.1.1 Competencies in opportunity phases

Competencies in the opportunity phases seem to indicate that the SMEs studied have an open-minded mental attitude towards developing new ideas, and when an idea is defined, they have a clear target for achieving it.

#### *Opportunity competencies*

The opportunities competencies were recognised as competencies related to future trends in technology, customership, legislation, and systematic continuous environmental scanning behaviour for innovation. Entrepreneurial opportunities exist everywhere, so scanning the environment is important for the conceptualization of development trends and for following general trends, legislation reform, and the behavioural changes of the customers. Opportunities may arise, for example, from green wave technology and customer wishes, which demand that a firm possess the ability to develop and innovate an idea into a practical product or service. Future products and services may currently be unimaginable, but the

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mental attitude of being open minded is crucial. As one technology expert stated (Case 12): 'We do have ideas and a desire to make applications and experiments for the joy of doing it; we do not miss people who say it is not possible'. The analysis recognised that innovative ability must be built into a firm's operations in order for innovation possibilities to be identified all of the time; for example, one respondent noted that: 'Basic business must be managed, but a little bit is going on all the time for the excitement; do not stop to that bustle' (Case 6). In the beginning stages, idea generation may take a long time, and the results might be invisible. In some firms ideas have needed years to mature, as noted by one managing director (Case 7): 'This innovation has been developed from the year 2002'.

#### *Vision/seeing the future*

As vision/seeing the future competencies, clear vision and goal setting skills for many years into the future were identified as being important; so, too, was knowing one's own position as well as the industry's position and the competitors' positions. In the SMEs studied, goal setting skills were focused on the future, and such a course requires a very strong vision for product development. The path of a new technical innovation can be winding but, as one respondent noted, 'The direction was always clear as a crystal' (Case 4). The firms had clear growth targets, and they actively sought new business ideas outside the firm, in order to refine and thereby grow the business.

#### *Risk taking*

Risk taking was recognised as an awareness of existing risks, not as a competence, although some firms were aware of expansion risks, as noted in the following responses: 'We know the risks in internationalization' (Case 9), and 'The growth has its own risks' (Case 10). New business ideas are controlled, and are synchronized with the day-to-day operations, as indicated by the following response: 'We know what we do and why we do as we do' (Case 3). An awareness of existing risks may be due to the study approach that was used, as we researched established innovative SMEs and most of them had already exploited their innovation as regards the markets, and as they had quite stable customer relationships they no longer faced major financial threats.

#### *4.1.2 Competencies in the execution phase*

The competencies in an execution phase are integrated with opportunity competencies in the execution phase. The innovative SMEs executed incremental innovations - i.e. innovative firms are already prepared in the opportunity phases to implement a desired idea into an innovation, and the necessary competencies are connected to idea development and goal-orientation.

## PART 2

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

### *Strategy and resource assembling*

Competencies related to SME strategies and resource assembling were covered in the opportunity phases, and thus a part of the opportunity competencies. This seems to indicate the necessity for the preparation and careful consideration of an idea; the strategy and resource assembling have already been decided when the idea is first approved, in order to develop it into an innovation.

### *Innovative competencies*

In the TTEC framework, the innovative competencies are mainly focused on renewing already existing products or services—that is to say—incremental innovations. Most of the empirically studied SMEs had exploited radical innovations, and these innovations had even changed regulations and laws. In the studied SMEs, the innovation competencies are covered in the opportunity competencies, i.e. those firms that have been goal-oriented and, thus, have exploited an idea according their plan, and introduced it into the market.

#### *4.1.3 Competencies in performance phase*

The performance phase defines whether the innovation is successful or not. The innovative SMEs highlighted various skills and capabilities for the successful implementation of innovation. Competencies in the opportunity and execution phases are focused on considering and implementing an idea into an innovation, but the competencies in the performance phase will dictate the success of the innovation. The empirical findings increase knowledge regarding the competences needed for building a purposeful public image to guide SMEs publicity, a networking openness and an attitude of co-operating beneficially with all partners. Additionally, the SMEs studied expressed a high-level of individual competencies in both the employees and managers, which are necessary to develop and implement radical innovations.

### *Business management competencies*

The business management competencies identified included: financial and budgeting skills, business operational skills, development ability as a part of daily life (as a thought pattern), managerial experience, and the ability to preview the requisite resources and implement requirements into acquisition and development situations. As a part of the marketing skills, purposeful public image skills were highlighted. The interviewed managers pointed out that marketing skills, and especially public image skills, were proactive functional competencies. The firms deliberately controlled their public image, and guided their publicity. Publicity was managed as a part of the company's management, and as part of management development. The management's actions shape the firm's image to help the firm stand out in the external environment as an innovative, leading, and prominently figured firm, as described by the managing director in Case 8: 'The outside brand is in shape; we set limits in

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our outside actions and we increase, in purpose, our coverage by our development actions'. This innovative image results in more customers, as noted in the following response: 'Our healthy growth brings work from customers' (Case 11). Marketing and public image skills are common in all SMEs; however, according to our analysis they are not purposefully emphasized.

As an addition to resource management, new brave attitudes and competencies are needed. Acquisition and development of resources do not automatically mean new resources, but with new thoughts and with new acquisition skills, the existing resources may be organized in a proper way to respond to different situations, as noted by the following comments: 'We have an inside procedure to sustain the interest and overcome frustration; what's next?' (Case 6) and 'Developing demands changes in attitude and mind set' (Case 8).

#### *Human relationship competencies*

The findings in this category include typical human relationship competencies, such as skills related to hiring and knowledge of human nature, interpersonal skills, the ability to manage customers and conceptual competencies. The analysis shows that human capital and individual capabilities are required at all organisational levels. Human capital and individual capabilities are very important in small companies, where every person at every organisational level must take a wider view and see himself or herself as being an essential part of the firm, and realize that their job's impacts on the jobs of others. With regard to the need for employees to acquire various skills, possess the attitude to take on many duties, and view the firm's situation as a whole, one respondent noted: 'An organisation must be a single unit, and competencies must be in the whole firm; our competence is built into the whole firm' (Case 10).

Moreover, control over the entirety of the firm is also emphasized: 'Competence is formed of the dominance of totality; an individual must know the importance of one's work to the work of others; we know challenges in the whole firm's chain' (Case 2). Technical skills, creativity, and work attitude are a firm's individual capital. The lack of or weakness in some individual competencies is also recognised. Individual capabilities are required from the personnel, but managers demand the same from themselves. Based on their former experiences, managers are more confident as regards their talents to lead a firm. Based on their experiences in prior jobs, managers also have a wider perspective on their industry; they crystallize experience as a special skill and know-how in small firms.

Innovative firms have high performance in industrial skills; they are, therefore, able to develop products that may change laws and regulations: 'Our innovation changes regulations' (Case 4). In this scenario, the product developed was highly technical and it had an impact on many laws or regulations to such an extent that the product causes re-regulation within the industry. These businesses are at their peak because of their high level of industrial skills and the tacit knowledge found within the company: 'In technology we are

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

at the top of the pile' (Case 13). To maintain a high position in the face of competitors, the price compared to competitors is tested systematically: 'Competitors do not reach up to our level, we know our rate' (Case 8). A new mind set and motivation are needed: 'Change in thinking is needed, we want to develop industry' (Case 5).

#### *Networking competencies*

The firms studied included small firms with limited resources; 'We search for networking partners in product development to support our skills, competencies and language skills', (Case 13). The manager's own skills were also recognised and identified: 'We concentrate on core competencies; the rest was sought outside the company' (Case 3). However, where skills were inadequate, businesses sought to secure resources from networking partners. A firm at the peak of its industry may have to look for partners abroad: 'In own industry, we lack skills and knowledge; we look for them abroad, sometimes over long distances' (Case 4).

#### *Learning and information seeking competencies*

The study analysis indicated that the firms' had a highly qualified, deep, and wide familiarity with the industry, based on considering new ideas and requirements, a thorough familiarity with the market and customer needs, as well as familiarity with their processes. Excellence in practical market and acquiring competitor information means that prices can be increased; the price can be adjusted to the businesses own requirements, as 'Special products may be costly' (Case 1).

#### *4.2 Competencies linked to innovation types*

The specific empirical findings, in the entrepreneurial phases, were observed to be related to the innovation types (Table 5) based on the classification of Oslo Manual (OECD 2005, 53–56). The firms identified their type of product/service innovation and process innovation. An open-minded mental attitude towards developing new ideas was expressed in all the innovative SMEs regardless of the innovation type. A purposeful public image competence was indicated by firms presenting product or service innovation and process innovation. Networking openness and an attitude of beneficial co-operation with all partners was illustrated by all the studied SMEs. The highlighting of the individual competencies of employees and managers was mainly demonstrated in the marketing and process innovation firms, where the employee turnover is based on the employees' ability to meet a customer needs instead of producing a particular product. Developing friendly attitudes was embedded in all firms. When comparing the study results to the innovation types made by the firms, open-mindedness and a co-operative attitude were the two competencies that dominated. The results demonstrate that the typical traits of innovative SMEs are open-mindedness and the development of a friendly mentality and co-operative attitude.

**Table 5.** *Specific entrepreneurial competencies related to innovation types*

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

Innovation types	Specific entrepreneurial competencies
Product or service innovation	Open-minded mental attitude for developing new ideas
	Purposeful public image competence Networking openness and an attitude of beneficial co-operation with all partners
Process innovation	Open-minded mental attitude for developing new ideas
	Purposeful public image competence
	Networking openness and an attitude of beneficial co-operation with all partners The highlighting of the individual competencies of employees and managers
Marketing innovation	Open-minded mental attitude for developing new ideas
	Networking openness and an attitude of beneficial co-operation with all partners
	The highlighting of the individual competencies of employees and managers

As a summary of Section 4, it can be concluded that entrepreneurial competencies in innovative SMEs are dominated in the opportunity phases by preparation, determination, and orderliness (i.e. proactiveness) to achieve the desired goal. Certain attributes of open-mindedness were indicated in the performance phase and in co-operation related to actors in external environments, such as in relationships with the media and partners in networks. When the typical entrepreneurial competencies in the literature (TTEC) and the empirical data of innovative SMEs are compared, there seems to be a significant difference in the execution phase; a determination guides innovative SMEs so that they execute and proceed according to their vision. TTEC, in turn, indicated a stronger emphasis on innovative and strategy competencies, which means a longer innovation process, and thus longer execution. When comparing the innovation types and the specific entrepreneurial competencies found empirically, it can be concluded that there are no notable differences between different innovation types and the entrepreneurial competencies found in innovative SMEs.

## 5. Discussion

The study explored entrepreneurial competencies in successfully innovative small and medium-sized companies and identified what these competencies consisted of. The discussion follows the phases of the entrepreneurial process (Shane, 2003) namely the early, opportunity phases of entrepreneurship, the competencies in the execution phase, and the competencies needed in performance (see Figure 1). Firstly, we found that in comparison with the TTEC framework, the opportunity competencies identified included similar issues, such as scanning for entrepreneurial opportunities (Mitchelmore and Rowley, 2010) in order to identify goods and services customers need (Ahmad et al., 2010) in changing business

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

environments (Morris et al., 2013). In the analysis, future trend competencies were emphasized, which aimed at acquiring new technological opportunities, a systematic, continuous, 360 degree scanning of the external environment and taking time to be mentally oriented to external factors outside of one's own business. Thus, the difference between TTEC and the study analysis is that SMEs that have successfully implemented innovations operate based on their own objectives; acquiring new business opportunities from e.g. legislation, and thus developing new technology as well as serving customers with completely novel products without waiting for requests from customers. The ability to be open-minded and having a mental attitude which encourages the development of entirely new trends and thoughts - might be similar to proactiveness (Dimitratos et al., 2014). This was recognised as a minority attribute in the literature and is defined as a behaviour of being first in the markets and adopting a competitive posture. Innovative SMEs are thus very motivated to notice incredible and obscure business possibilities in order to develop their business.

In the vision/seeing of the future, the analysis introduces a similar increase in the visioning trend that has been seen since the 1980's (Mitchelmore and Rowley, 2013; Morris et al., 2013). The innovative SMEs have clear and strong visions and goals for many years; they are required to operate according to these visions (Hui et al., 2011), and are additionally aware of their firm's position in the markets. The firms operations are clear and focused on achieving the desired goal; therefore there seems little space for intuition (Loué and Baronet, 2012). The greatest difference between TTEC and the study findings appeared in risk taking. Although risk taking was highly acknowledged in the literature (Dimitratos et al., 2014; Santandreu-Mascarell et al., 2013; Morris et al., 2013) the firms studied had an awareness of risks, but the risk-taking was not highlighted as a necessary competence in the analysis, mainly because of the innovative SMEs in the research had already established themselves in business.

In the execution phase an idea is converted into an innovation. As concluded earlier, the term innovativeness is used in the template to mean both creative problem solving (Hui et al., 2011; Morris et al., 2013) and, to some degree, exploring new ideas (Man et al., 2008). Dimitratos (2014) connected innovation competency to product offerings—that is to say—incremental innovations. The analysis indicated that innovative SMEs combine innovative competencies into opportunity competencies, and thus the findings do not support TTEC. Moreover, the difference between earlier studies and this study can be found in the different context of the innovativeness: innovative competence refers to incremental innovativeness, refreshing the products/services. In innovative SMEs, radical innovation (and in turn innovativeness) is combined with opportunity competencies, basing on a desire to develop novel products or services.

In the business performance phase the competencies define how successful an innovation becomes. Therefore, competencies in innovative SMEs focusing on every-day business operations and finance (Mitchelmore and Rowley, 2010; 2013; Loué and Baronet, 2012) are

Submitted for review as a candidate for publication to International Journal of Entrepreneurship and Small Business.

crucial. The findings highlighted development ability, and furthermore determined that a development-friendly mind set was a necessary part of daily business life. This development-friendly attitude was already identified in business environmental scanning in order to observe new rising trends. In addition, the findings stressed up-to-date individual competencies regardless of the persons' position in the company. The findings indicated that human capital and individual capability requirements were important at all organisational levels. The literature commonly discusses human relationships and related competencies as being the responsibility of the managers, but empirically in SMEs everyone is part of the human capital and individual capabilities and must possess the attitude that they can take on many duties, and thus possess an overall view of the firm's situation. The organisations' skills are based on individual skills (Turner and Crawford, 1994; Nurach et al., 2012), thus individual skills and competencies are highlighted as influencing the firm's performance.

The study determines the standard of competencies, and the TTEC describes the sources for updating: learning competencies as being learned from customers and competitors (Dimitratos et al., 2014), learning about one's own field and updating skills and knowledge (Ahmad et al., 2010; Man et al., 2008), and information seeking (Santandreu-Mascarell et al., 2013). A particular standard of competencies is understandable because the firms have mainly exploited radical innovations where individual skills must be updated to reach the level required for the development-friendly mind set. As an interesting part of marketing competencies, the empirical research introduced a purposeful public image competence, which was not discussed earlier in this form in the literature. Although Loué and Baronet (2012) mention marketing and commercial competencies as a minor entrepreneurial competence, a purposeful public image competence was highlighted as a novelty in the innovative SMEs, and a tool to accelerate penetration to the markets.

Networking competencies were illustrated in TTEC as intra-multinational networking/extramultinational networking i.e. the co-operation between internal and external firm activities (Dimitratos et al., 2014), and social interaction skills (Morris et al., 2013). All TTEC networking competencies based on the literature focus on a single firm's needs, or are firm-oriented. The content of our study in networking is different; co-operation works both ways, benefitting both partners acquiring the beneficial business power, financial skills, and other skills they lacking. At a practical level, networking often starts from an idea development in co-operation with universities, subcontractors, and customers. Networking is even based on very sensitive areas such as idea development, product generation and financing, and the findings illustrate that an open-minded attitude, courage and strong confidence in one's partners are important traits. As one novel addition to the literature, the study introduces a two-way networking competence which expresses an attitude of co-operating beneficially with all partners. These type of networks are sometimes referred to in the organisational literature as reciprocal networks (Brass et al., 2004), and network competence related to these

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networks seems to be an essential part of the capabilities of successful innovative companies. Thus, consideration for other company's strengthens the trust between various partners.

## 6. Conclusions

The study focuses on the entrepreneurial competencies recognised in SMEs that have successfully implemented innovations. Firstly, a template of typical recent entrepreneurial competencies (TTEC) was created based on scientific literature from 2008-2014. Empirical data was collected using a qualitative research approach, and interview data from 13 innovative Finnish forest industry firms was gathered. The data was analysed through TTEC, and the main empirical findings present the entrepreneurial competencies used in successfully innovative SMEs: 1) An open-minded ability and a mental attitude enabling the development of entirely new trends and thoughts - based on the individual competencies of employees and managers with a development friendly mind set, 2) a purposeful public image competence, and 3) a two-way networking competence with the attitude of co-operating beneficially with all partners. These skills mentioned together with the open attitude advance the current understanding of entrepreneurial competencies by bringing novel extrovert-oriented aspects into the discussion of competences, especially in innovative SMEs. Usually extroversion is only combined with individual traits (Marjani et al., 2013; Garcia and Moradi, 2012; Baron, 2002), but the study showed that extroversion also covers actions at an organisational level.

When combining the study results and the results of the firms' innovation types it can be concluded that extroversion is a common denominator in the competencies. Earlier literature, in the 1980s stressed skill-based entrepreneurial competencies, and studies conducted in the 1990s added behaviour-based competencies. This study offers a new view of SMEs in the 2000s, highlighting the importance of a firm's extrovert competencies and its ability to engage in continuous opportunity scanning, explore ideas, exploit opportunities, and support a mentality that fosters continuous development.

The study is conceptual by nature, and does not therefore offer straight implications to be put into practice, but some assumptions may be presented as to how the study results can be utilized. The study emphasizes the importance of company-level extrovert competencies. This means that even during the protected idea generation and start-up phases, successful SMEs have an open attitude towards networking. The study has implications for firms and their expectations of economic development, as well as for public actors working with SMEs. Although the research data from innovative Finnish SMEs is limited, the results can assist global firms that want to develop their entrepreneurial competencies in an effort to achieve greater success in innovation exploitation and business. As regards training, the behaviour-based aspects of competencies in skill-based training should be more acknowledged. In education, the importance of a development-friendly mind set should be stressed in

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syllabuses, in order to stress the opportunities entrepreneurship will offer to students, e.g. as one chance to have a job.

This study has some limitations, such as the limited number of interviewees. We interviewed one to two key informants from each company. The interviewees were chosen because they were responsible for innovation and development activities in their companies and they were also involved in daily management activities. However, future research could widen our approach from the daily management level to the stakeholder level. This could be done by developing a stakeholder-based competence framework for innovative SMEs. Additionally, the study focuses solely on the Finnish forest industry-related business and innovative SMEs in that context. The results might be different in other countries and industries.

As further research, we suggest a qualitative study of competencies in innovative SMEs that have successfully developed radical innovations as well as a qualitative study of firms that have developed incremental innovations. Another possible area of further interest could be to investigate networking competencies, which seem to be essential for innovative SME companies. The research could especially concentrate on reciprocal relationships and networks based on mutual benefits and learning extension.

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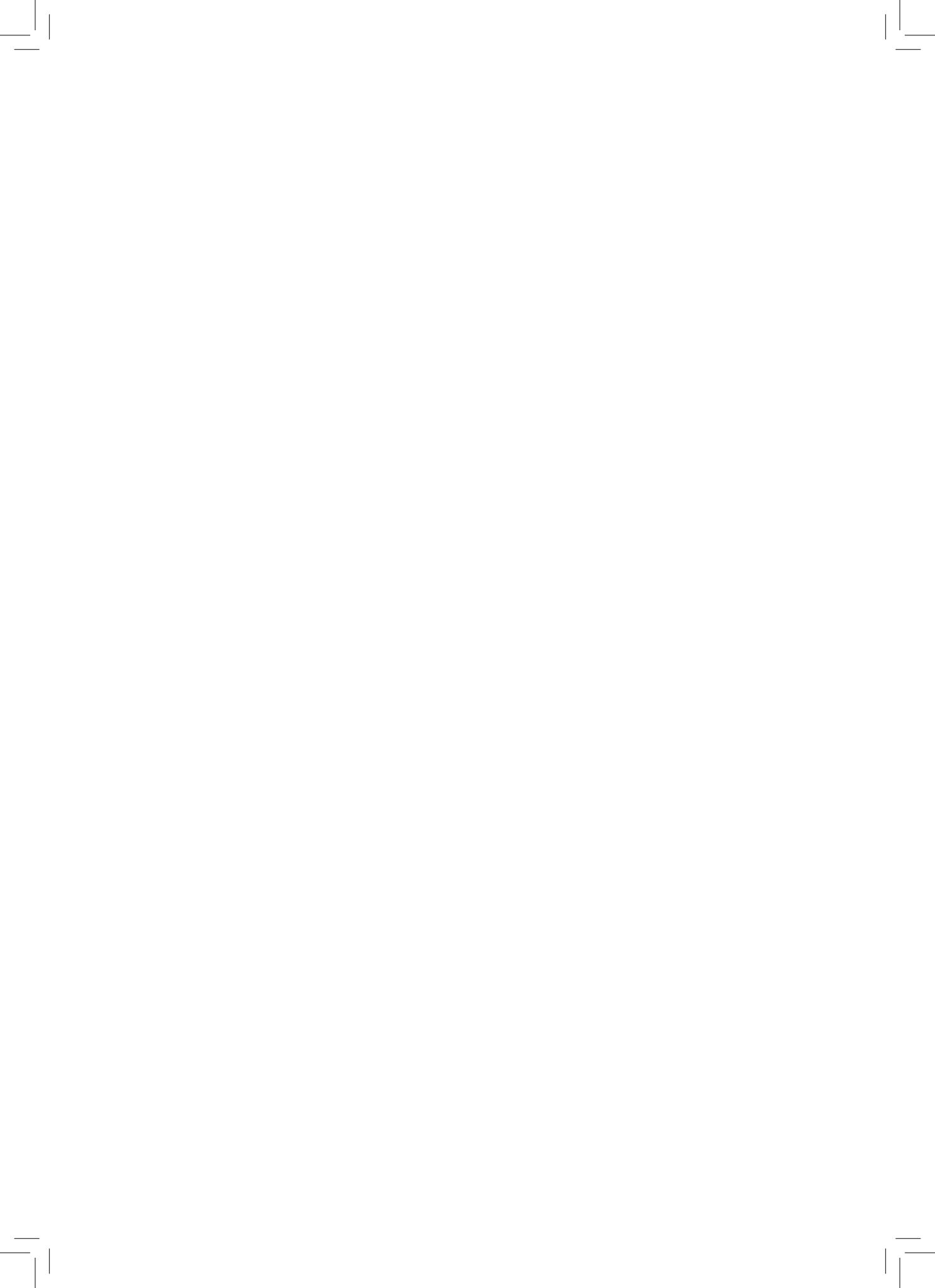
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# 5

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## PUBLICATION

### SME competence transformation – a case study on industrial structural change

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## **SME competence transformation – a case study on industrial structural change**

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**Abstract:** The paper considers SME competence transformation resulting from structural changes in the forest industry. The focus is on change management of public actors and SMEs. The research data are based on publicly available industry data and 13 in-depth themed interviews of public actors, SME managers and start-up entrepreneurs. In this study, it is found that SMEs develop their business in response to external changes and are able to transform their competences to meet changed circumstances. Furthermore, it is noted that start-up companies base their business on formerly acquired skills and competences. Another important finding is that public actors manage structural change but, from the perspective of entrepreneurs, do not appear to meet the needs of SMEs and micro companies. The paper provides valuable insights into change management, competence transformation paths and possible pitfalls which public actors and SMEs may face when confronting business environment changes.

**Keywords:** competence transformation; SMEs; structural change; industrial restructuring; public actors; innovativeness; Finland.

266 *K. Taipale-Eräväla et al.*

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## 1 Introduction

The study addresses the transformation of SME competences in the forest industry in situations in which structural change demands adaptation as a strategic response. This locally unpredictable structural change often reflects wider industrial restructuring, an important topic of macro-economic debate, theoretically and in practice, and a subject which has attracted attention in both the EU and the USA (European Commission, 2012a; Janger et al., 2011). Examples of the effects of external change are shut-downs of factories, and their impacts on subcontracting SMEs, and internal changes resulting from new innovations in a company's product or service offering. External change often forces organisations to implement change within the company and to foster innovativeness, and the internal and external aspects of change cannot be totally separated. External changes may appear in several dimensions, e.g., technological development or restructure of the logic of the whole industry, and their complex nature affects the competences needed to operate in the new circumstances and the type of competence transformation that occurs. In this study, competence transformation is defined as a transformation of individual behaviours, knowledge, values and skills, and from a competence management perspective, the desired practical results of transformed individuals' behavioural and functional competences.

An SME view of change situations and the effects that change have on the whole collaborating network of organisations is seldom presented, the focus is mostly on the

implementation and impacts of technological change (see e.g., Koh et al., 2009; Cragg et al., 2011). Here, we focus on SME competence transformation as a result of changes in the business environment, which is a relevant viewpoint considering the number and importance of SMEs for local economies (Eurostat, 2011). The idea of dynamic capabilities (Teece et al., 1997) is close to the concept of competence transformation. However, it has been omitted from this study, mainly because the emphasis is on small SMEs, which rarely have the distinct capability to manage competence changes on the organisational level, as described by the dynamic capability literature. There exists a need for new research related to the combination of continuous change management and innovation management in the SME context from the point of view of competence transformation. A changed situation challenges companies' competences, as they have to choose between clinging to existing practices or changing their competences; either hiding from or embracing the future.

The main research question of the study is:

- How do SME competences transform as a result of business environment changes?

Sub-questions of the study are:

- How do structural changes in the business environment affect an SME's competences, and how do public actors manage the change process?
- In which competence areas is competence transformation required?

We have taken a qualitative, interpretative and triangular approach in the study. Two different data sets have been utilised in the empirical part of the study. The primary data were collected through personal in-depth, semi-structured theme interviews with 13 managers representing organisations in the public and the private sector. The interviews took place in August–October 2011 in south-east Finland. As a secondary data source, statistics from the industrial forest sector in Finland and other public services data were analyzed. The primary data were treated such that the interviews were first transcribed and then analyzed by classifying them in categories based on the research questions, after which similarities and differences were sought. The secondary data were used as background and support material.

The findings of the analysis show the importance of public support in developing new competences in organisations when attracting companies from outside the area and, at the same time, supporting the growth of established SMEs. Modification of company operations on the basis of existing competences and adaptation of these competences to new sectors would seem to lead to successful outcomes. Furthermore, it would appear that a positive attitude towards change and systematic management of the change process lead to long-lasting effects for SMEs.

The research contributes to SME innovation and change management literature by emphasising the competence transformation view of the change process in organisations, especially in structural change situations, such as the closing down of operations. The issue of competence transformation is discussed from the SME perspective combining, in the empirical part of the study, the views of both public and private organisations.

The paper is structured as follows: the introduction section presents the background of the study, and then we give a short overview of the theoretical basis of the study, concentrating on the areas of change, competences and future prospects in SMEs. The next section introduces the research approach, the methods of data collection, and the

268 *K. Taipale-Eräväla et al.*

data analysis. The results of the empirical work are then presented. In Section 5, we link the theoretical background with the findings. The final section presents limitations of the study and areas needing further research, together with recommendations for practitioners.

## **2 Theoretical background**

### *2.1 Industrial restructuring and managing structural change*

Change is a constant in the modern business world. Changes in political structures have brought industrial structural changes, with domestic and external competition, to the formerly socialist economies. In developed economies, the increasing role of global competition has led to changes in established industries, e.g., the forest industry in Finland. A versatile and rich network has developed around the forestry industry in Finland, the so-called forest cluster, which accounts for around 10% of gross national product (GNP), almost 30% of industrial productivity, and nearly 30% of net export income. The forest cluster employs around 200,000 people in Finland (Paper and Wood Insights, 2011). Currently, the Finnish forest cluster is facing significant challenges in global world trade, similar to many other actors in manufacturing industries, and market capacity reductions sometimes lead to plant closures.

Shut-downs of large production facilities of major global companies have a profound effect on local and regional economies by increasing unemployment. To replace the lost jobs, governmental and regional development policies are applied to encourage new entrepreneurship, and structural change is managed by actions, such as marketing of premises, dissemination of information about available human resources, training, financial assistance, counselling and advisory services, as well as the formation of a strategically chosen business base (Bridge et al., 2003; Bagchi-Sen, 2001). The effect of public programmes supporting SMEs' operations has been studied, for example, by Alvarez (2004), who focuses on the export performance of SMEs. In a European Commission (2010) strategy paper, one of seven flagship initiatives, Innovation Union, is focused on more jobs, improved lives and a better society. There are 23 million SMEs in Europe (European Commission, 2012b) and their influence is recognised as being very important for economic wealth and sustainability on national, regional and local levels. Public governmental, regional and local actors may promote and manage SMEs' success with the guidance of many special EU SME Guidebooks, e.g., Building Entrepreneurial Mind-sets and Skills (European Union, 2012), and the forthcoming regional implementation of the SMA – Small Business Act for Europe (European Commission, 2012c, in preparation).

Kanter (1989) states that organisations must be fast, flexible, focused on their customers, and friendly, allowing staff to experiment and develop their skills. Change happens inside an organisational environment, where policy-making, strategic management, organisational structures, power, politics, organisational cultures, individual uncertainties and psychological resistance to change exist. From the management perspective, change is a process of guidance and adjustment aimed at achieving the goals for change. Businesses try to anticipate and take advantage of developments in their surroundings (Boonstra, 2004). According to Smith's (2009) study,

when adapting to change, managers in IT intensive industries must implement proactive policies and procedures in processing forthcoming restructuring.

Current economic, social and political trends impose considerable demands on business. Almost every organisation has to adjust to an increasingly multicultural external environment (Robbins and Judge, 2007). Human resource policies and practices have to be changed to reflect the needs of an aging labour force and the effect of retirements. Technology is changing jobs and organisations. Economic shocks have continued to impose changes on organisations – competition is becoming more global, mergers and consolidations occur, and the importance of e-commerce is growing. Social trends do not remain static, e.g. meetings are often held and information shared in the internet. World politics also forces organisations to change (Robbins and Judge, 2007).

## *2.2 Towards a better future by renewal and competence management*

External changes in the operating environment can present possibilities for innovation and renewal. The structural change of an industry is analogical to the process of “creative destruction” used in evolutionary economics and first introduced in the literature by Schumpeter. A pioneer of innovation theory, Joseph Schumpeter used this term (Schumpeter, 1939) to describe the driving force of progressiveness in a capitalist economic system, i.e., innovation (Winter, 2006). One of his main arguments was the important role of entrepreneurial innovations and new small businesses in driving economic growth. New companies, in particular, i.e., new entrants to the markets, introduce ‘disruptive’ or ‘discontinuous’ innovations that change the logic of the industry proportionally more than established industry players (Spencer et al., 2008).

Innovativeness, innovation capability and its antecedents, and their effects on SMEs have recently been studied widely (see e.g., Radas and Bozic, 2009; Rhee et al., 2010; Forsman, 2011, Lee et al., 2012). A study of Rosenbusch et al. (2011) on the relationship between innovations and performance in SMEs concludes that innovation is positively linked to SME performance, although contextual factors; the firm's age, culture etc, affect this relationship. A recent study by Piperopoulos and Scase (2009) also highlights the importance of innovation and networks for SME growth. Proximity to business advisers, competitors and important customers are considered important for SMEs' innovation capabilities (Löfsten, 2010). Innovation performance in small high-tech firms is influenced by the skills of employees, motivation drivers, behaviour, and business and external networks (Börjesson and Löfsten, 2012).

The resource-based view of the company (see e.g., Barney, 1991) is based on the idea of combining different resources to achieve competences and using a varying mixture of competences to create innovations, such as new products and services. In more recent literature, the competence-based view of the firm emphasises the link of collective employee competencies to a company's past and present activities, and in turn, future strategic possibilities (DeFillippi and Arthur, 1996). Innovative ability or innovation itself has also been studied as a competence in organisations (see Waychal et al., 2011).

Cheetham and Chivers (2005) offer a general definition of competence: competence is an effective overall performance within an occupation, which may range from a basic level of proficiency through to the highest levels of excellence. Cheetham and Chivers (ibid.) define more precisely the concept of professional competence: it is the possession of the range of attributes necessary for effective performance within a profession, and the ability to marshal these consistently to produce the desired overall results. Cheetham and

270 *K. Taipale-Eräväla et al.*

Chivers (1998) present a model of professional competence in the work context and work environment. In this model, they define different competence levels on which professional competence is based: meta-competencies/trans-competencies, knowledge/cognitive competence, functional competence, personal/behavioural competence, and values/ethical competence. In practice, on the other hand, competence can be understood as an influence on an individual's skills, knowledge, self-concept, traits and motives (Spencer and Spencer, 1993). Competence has also been divided into hard competences, such as job-specific abilities, and soft competences, such as personality traits, values and styles (Parry, 1996). In this study, we have defined competence as comprehensive individual behaviours, knowledge, values and skills. The definition follows closely the French comprehensive competence approach, i.e. knowledge, functional competences and behavioural competences (Le Deist and Winterton, 2005).

Competence management is needed to coordinate specific activities and processes. One of Sanchez's (2004) five important modes of competence is managers' coordination flexibility to identify, configure and deploy tangible and intangible resources. Coordination flexibility depends on the ability of managers to acquire or access, configure and deploy chains of resources to respond to changing and diverse environmental conditions to achieve a desired target (Sanchez, 2004). Castanias and Helfat (1991) have identified three categories of managerial resources; generic, industry-specific and firm-specific. The most important factor in change situations is that of managers being competent to discern external environmental change and then remodel the firm's internal resources and competences.

Competences in SMEs have previously been studied in the literature mainly from the individual perspective, for example identifying some areas of entrepreneurial competences (Hartog et al., 2010). The competences of SMEs on the organisational level and the transformation of needed competences (Lewrick and Raeside, 2010) are less studied, although some studies on specific competence areas, such as IT competences, exist (Cragg et al., 2011). In very small, micro-sized companies that employ less than 10 people, where the entrepreneur may typically be the only employee, or the other employees are his/her family members, the individual competences of the entrepreneur are of course essential for the success of the company. Development of competences and anticipation of future changes and new requirements from customers are sometimes even crucial for the company's existence.

### **3 Research design**

Industrial change provides the background of this study of competence transformation. The topic of competence transformation is approached through investigation of Finnish municipalities that have recently undergone structural industrial changes, focusing on the forest and paper industry. In the first stage of the research, secondary data from public sources were used to create an overall picture of the change situation. Based on this analysis, the Southern-Finnish region of Kymenlaakso was chosen as the target area for the case study research because, since the 1980s, there have been considerable structural changes in locally important industries, such as the marine, machine, and forest and paper industry. Within the timber and paper industry alone, it has been estimated that over 7,000 jobs will disappear in the period 1990–2015, which is 70% of total job losses

for the region (ETLA, 2011). The current average unemployment rate in the area is around 13% (Centre for Economic Development, Transport and the Environment, 2011). In addition, the share of entrepreneurs in the workforce is less than the country average, and only a few growth enterprises exist in the area (Regional Council of Kymenlaakso, 2011).

The study is qualitative by nature. The term qualitative implies emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity, or frequency (Denzin and Lincoln, 2003). The way in which the people being studied understand and interpret their social reality is one of the central motifs for qualitative research (Eriksson and Kovalainen, 2008).

The research data consist of interview transcripts and additional material in text format. Individual interviews are probably the most widely used method for gathering information in qualitative research. The interview style used here is a focused, semi-structured interview (Silverman, 2005). The interview data were gathered in August–October 2011. The total number of interviews was 13. The first group of interviewees was chosen among public actors who mediate or can influence structural change, including the management of a regional development company (two interviews) that acts in five municipalities and cooperates with other municipal development agencies in the region. In order to have a summarising view from the SME perspective, the chairman of the board of the regional Kymenlaakso entrepreneurs' society was also interviewed. This group of 'public actors' (group 1) consisted of three interviews. Based on the secondary data and using the snowball selection method (Doreian and Woodard, 1992) to acquire further interviewees, we asked the first group to name some SME managers for the second group. Six interviews were conducted with this group of 'SMEs' (group 2). Since 1999, five paper mills have been shut down in the Kymenlaakso region and some of the former employees of these mills have started their own businesses. Again based on the recommendations of group 1 interviewees, four of these start-up micro entrepreneurs were chosen for the study. This group of 'micro enterprises' (Group 3) consisted of four interviews. Descriptions of the groups are presented in Table 1.

**Table 1** Main business areas and interviewed persons of the companies

#	Main business of the company	Interviewed persons	Group Nr
1	Regional development company	Managing director	1
2	Regional development company	Business adviser	1
3	Federation of Finnish Enterprises, regional organisation	Chairman of the board	1
4	Sawn timber, glued laminated wood products and engineering in many locations	Chairman of the board	2
5	Customised machinery services, subcontractor for forest industry	Managing director	2
6	Modern engineering workshop specialised in subcontracting	Managing director	2
7	Global engineering, project management and consulting company	Marketing and communications manager	2
8	Finnish corporate group in quality logistics services	Managing director	2
9	Turnkey cottage producer	Managing director	2

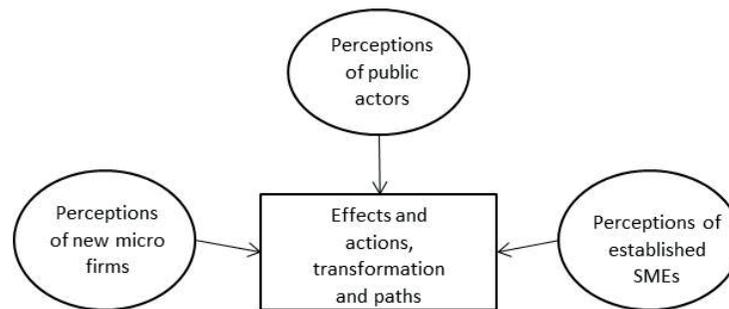
272 *K. Taipale-Eräväla et al.*

**Table 1** Main business areas and interviewed persons of the companies (continued)

#	Main business of the company	Interviewed persons	Group Nr
10	Multifaceted photo producer	Managing director	3
11	Consulting, conglomerate firm	Managing director	3
12	Electrical installations, conglomerate firm	Managing director	3
13	Food processing firm	Managing director	3

We studied the competence transformation via data triangulation by asking for the perceptions of different actors viewing the issue from different perspectives and using different sources of information in order to increase the validity of a study (Guion et al., 2012). The public actors (group 1) led structural, governmental and regional change management; the established SMEs (group 2) and the new micro companies (Group 3) observed external changes from their own perspectives, see Figure 1.

**Figure 1** Item triangulation, different perspectives



In qualitative analysis, the researcher classifies and categorises the data. In synthesis, the aim is to form a general view and depict the phenomenon from a new perspective (Hirsjärvi and Hurme, 2001). According to Alasuutari (2001), in qualitative research, the data are examined through particular theoretical and methodological viewpoints and during the analysis, attention is paid only to what is essential on the basis of the theoretical framework and the research questions. There are a number of standardised techniques in qualitative analysis, and one best practice does not exist. Compression of implication in qualitative analysis means that the meanings presented by the interviewee are abridged to a shorter verbal form. In qualitative analysis, the intention is often to interpret the implications suggested by the data, but the interpretation is always more or less speculative.

The interviews of this study were recorded, and the interviewer took notes at the same time. The 13 interviews resulted in about 20 hours of primary data material. The data were transcribed into a computer, broken and bunched up, coded and then analyzed with qualitative methods of analysis. The data were processed manually with the help of normal office programmes; no qualitative analysis software or statistical analysis tools were used.

## 4 Results of the interviews

The views of the interviewees are presented below based on the data analysis according to the themes of the research and organised by interviewee group.

### 4.1 Structural change and perceptions of public change management

The results summarising the opinions of the interviewees on how structural changes have influenced public actions are given in Table 2.

**Table 2** Views of public change management

<i>Group number</i>	<i>Summary of answers</i>
Group 1	Change management by strong guidance with the aim of diversity in the economic structure and exploitation of existing competences
Group 2	Moderate interest for public actions, which are seen as unsuitable, slow and bureaucratic Low awareness of public actions Firms adjust their offering continuously, scanning the markets actively
Group 3	Considerable interest for public actions aimed for start-ups Services mainly good, but no general awareness of the strategic plans of public actors

The *regional public actors* (group 1) recognised the need for structural industry-level changes decades ago and have a strong vision in promoting change. The economic structure of the region has traditionally been based on big industrial players, to whom small subcontractors have provided services. In the 2000s, the public actors realised that there was a lack of middle-sized companies with 200–300 employees having production and markets of their own and operating in a variety of fields. The public actors have tried to close this gap by attracting new firms and assisting in the development of existing enterprises, with the aim of managing the structural change strategically in the long run. Simultaneously, a need exists for attitude changes within the public actors to adjust to SMEs' realities, such as limited resources.

*The companies that have operated surrounded by structural changes for decades* (group 2) continuously adjust their offering according to the markets or at the latest when they see signs of an economic recession. All the interviewed companies had experienced severe economic downturns and reacted to the structural change in ways corresponding to the current operations of the company; moving from mass production to specialised subcontracting; acquiring new machinery; expanding their business and becoming closer to the customer; becoming highly specialised in technology and competences; and finding new ways to exploit both their own resources and external resources that had become available in a new way. The actions taken by the public actors to guide the structural change were seen in the immediate surroundings of the companies as short-term development measures and were experienced as too slow, bureaucratic and unsuitable for the companies. Two of the companies were aware of the public actors' strategic vision of structural change, but the actions were seen as ineffective, too slow and too late.

274 *K. Taipale-Eräväla et al.*

All *the new start-up entrepreneurs* (group 3) had received either financial or other support during start-up from public actors or from a private company closing its operations down. The entrepreneurs were mainly satisfied with these services and support measures. The long-term structural change process was acknowledged only partially.

#### 4.2 *Competence transformation in the companies*

The results summarising the opinions of the interviewees on how competences are transformed in the companies are given in Table 3.

**Table 3** Views of competence transformation in the companies

<i>Group number</i>	<i>Summary of answers</i>
Group 1	Attitude change is needed Focus on future possibilities Competence transformation through new customers and new business
Group 2	Strong vision of managing the future with specialisation in technology New operational model, new equipment, personnel training, diversified customers Special competences deepened and new ones acquired
Group 3	Competences based on former work, factory work, a vocation or hobbies Competence updating needed, business competences acquired Attitude change as an entrepreneur Personal networks highlighted

*The public actors* (group 1) observed that the transformation of competences needs to start from a change of attitudes for everybody; letting go of the past and embracing future possibilities. According to the views of the public actors, progress is achieved by grasping the future challenges with courage and assuming responsibility. New competences are based on old ones, and the public actors want to support growth companies in particular. New industries appear and bring new competence requirements with them.

All *the small and medium-sized companies* (group 2) had a clear vision of their future and they worked actively towards it, so they can be said to exhibit strategic level business competences. Each of the companies had changed their logic of operation or business idea at least once because of structural changes. Most of them had specialised in their own field, deepened their competences, or widened them towards the customers' businesses to offer 'turn-key solutions'. Both deeper specialisation and a wider area of operation require a change of attitudes from the workforce, as well as changes in competences when confronted with new machinery, regulations and instructions. Companies that had entered a completely new business area had to acquire all related competences from scratch.

The closing down of factories was seen as a positive opportunity for change in the lives of the *start-up entrepreneurs* (group 3), making it possible to take advantage of the entrepreneurs' own competences holistically. The start-up businesses were based on earlier experiences and competences of the entrepreneurs, acquired through their former

jobs, factory occupation, a vocation or part-time jobs elsewhere, or leisure-time hobbies. All these competences needed to be updated, deepened or extended when starting up a business. Examples of needed competences were business competences, attitude changes and the development of personal networks. Business competences in running an enterprise were new to many of the entrepreneurs and were still not completely mastered at the time of the study. Attitude change was needed with holistic time management as an entrepreneur. The importance of personal networks at the start-up phase was highlighted.

We studied also the competence transformation paths, summarised in Table 4 below.

**Table 4** Views of competence transformation paths

<i>Group number</i>	<i>Summary of answers</i>
Group 1	Start-up entrepreneurship is based on work experience or hobbies
Group 2	Internal training of personnel and tacit knowledge transfer, hiring specialists from outside, external training of managers An attitude change for continuous learning required from all
Group 3	Updating dormant competences, expanding them and acquiring new ones New competences acquired through self-directed learning and exploration Definition of competence needs and training the personnel. Internet and personal networks utilised.

*The public actors* (group 1) trusted the educational system and expected to receive training requests. They identified two paths for new entrepreneurs, building on previous occupational competences or on competences acquired through hobbies.

Utilisation of new machinery and expansion of operations to new areas in *SMEs* (group 2) has required training of personnel, through internal training or the hiring of specialists from outside. The development of managers has been done through external training, and the employees' competence has been transformed through training and the transmission of tacit knowledge. The SME managers felt that the path to the required competences is easy to find, once the direction is known. The management of the company has usually given the direction, and the goal has been achieved by training the personnel to increase and extend their existing competences. According to the interviewees, in a new situation, a change of attitudes is required from everybody: for example, the management needs to change the practices of the organisation and the employees need to learn to use new machinery.

In *new start-up enterprises* (group 3), the transformation of competences has been based on nurturing dormant competences and emphasising personal interests that the entrepreneur believes in. Previous work or free time experiences do not usually cover business competences, so they have had to be acquired or at least the entrepreneurs have had to become aware of the lack of such competences. The acquisition of a specific new competence is driven by personal interest, and is usually done by self-study on a need basis, either in the internet or from personal networks.

## 5 Findings and discussion

On the basis of the interview responses of the three groups, the key findings of the study are discussed below in the light of current literature. The elements of Schumpeterian

'creative destruction' were easily recognisable in the industrial structural change process of the studied area, as was the important role of new ventures and small entrepreneurs as the driving force of economic development (Spencer et al., 2008). The studied region has experienced structural changes in several industries during the last decades. The closing down of factories has had a strong impact on the community of 200,000 inhabitants. It is generally acknowledged that external changes in the operating environment open new possibilities for a better future by innovation and renewal (Winter, 2006; Radas and Bozic, 2009; Rhee et al., 2010; Forsman, 2011). The environmental changes must be recognised and reflected in the innovation performance of SMEs (Rosenbusch et al., 2011; Piperopoulos and Scase, 2009). The changes recognised have to be linked to the entrepreneurial competences of SMEs (Hartog et al., 2010; Waychal et al., 2011).

The public actors as the representatives of the state and region have taken a strong role in managing change, with the aim that the economic structure becomes diversified, with medium-sized companies in different fields, as well as with an increase in the number of small companies. With this proactive entrepreneurship development policy (Bridge et al., 2003; Bagchi-Sen, 2001) and based on the resource-based view (Barney, 1991), the public actors emphasise change management to respond to changing and diverse environmental conditions (Sanchez, 2004). Although communities and states try to influence changes regionally (Robbins and Judge, 2007), we found that many existing SMEs and new start-up entrepreneurs were not aware of the strategic change management role of the public actors. Public actions specifically directed to regional SMEs were commonly seen as unsuitable, slow, bureaucratic and ineffective.

The findings concerning the effects of structural change on SME competences (Table 2) indicated that the established SMEs had actively transformed their competences and searched for new opportunities in the changed situation to secure the continuity of their business as Boonstra (2004) states. As in Kanter's (1989) conclusions about organisations' rapidity, flexibility and focus on customers, the studied companies' transformation in competences has happened through specialisation or expansion of existing competences, or the change has enabled completely new operations. Our findings are also aligned with Barney (1991), who hypothesises that combining resources to achieve competences enables innovations.

The management of the SMEs had a vision to guide the development of their companies, a prerequisite to successful change adaptation noted by Smith (2009), and the employees have adjusted their skills to the changed environment by changing their attitudes, and developing and increasing their competences. The professional competence model (Cheetham and Chivers, 2005) is comprehensive, but it is inadequate for SMEs and micro companies, which demand effective performance done with the holistic competences of individuals, combining professional work, leisure skills and other competences. In the start-up companies, structural change was seen partly as a positive issue, because it enabled holistic development of the entrepreneur's competences. All the new start-ups based their business on existing professional competences from former occupations or hobbies. According to DeFillippi and Arthur (1996), competencies of employees need to be extended from past and present activities to future strategic possibilities, which is a point of view that was highlighted in this study as an attitude change for continuous learning at all levels: the employees, managers and public actors.

The competence transformation paths of the companies (Table 4) followed the general development of the business. When the business expanded to new areas, training and updating of competences was required, which is in accordance with Börjesson and

Löfsten (2012). In the established SMEs, learning to use new machinery, for example, was organised as internal training, whereas when the business expanded, the new competences required of management and employees were acquired through both internal and external training. Job-specific competences were acquired, as well as values/ethical competences (see Cheetham and Chivers, 1998). Both visible and invisible competences as defined by Spencer and Spencer (1993) were influenced, and the influences on values (see Parry, 1996) were identified in the present study as well. In the new start-ups, the business was based on specialised competences that were reinforced and updated through exploration and acquisition of the necessary new information from the internet or the personal networks of the entrepreneur.

## **6 Conclusions**

### *6.1 Contribution of the study and implications for practitioners*

The study focused on industrial structural change, change management perceptions of public actors, and the views of micro companies and SMEs concerning competence transformation. Based on a qualitative research comprising 13 interviews, we have introduced some interesting aspects to SME change management and competence studies. The paper adds to the current SME innovation and change management literature by emphasising the competence transformation view of the change process in organisations, especially in structural change situations, such as the closing down of operations. The empirical part of the study also discusses the issue of competence transformation from the SME perspective, combining the views of both public and private organisations. Structural changes and industrial restructuring are often discussed from a macro-economic industry sector point of view, and this study complements existing studies by presenting a company-level, bottom-up approach.

Although this study concerned the forest industry in Finland as an example of an industrial structural change situation, the changes that have taken place and the views presented by the different groups of actors are applicable also in other geographical contexts. Similar situations have occurred in various industries and regions in several European countries, such as the mining industry in England or the shipping industry in Portugal, and the effects of the industrial change processes have been recognised on the EU level, as well as in the USA. The results of the study, the identified competence transformation processes and the recommendations given to support it provide further tools to manage these change processes effectively.

On the basis of our results, we argue that existing SMEs transform their competences in alignment with their business change management. New start-ups need more business competences. In both the interviewed start-ups and the established SMEs the attitude to change was to embrace the future, rather than cling to the past. We identified two strategies for public support to develop new competences in organisations: first, attracting suitable, independent companies from outside the area, and second, supporting established SMEs' growth and competence development through public training programmes and activities specifically targeted to individual companies. SME competences can be transformed by exploiting and widening the competence areas that are near existing professional competences. Modifying company operations on the basis of existing competences and adapting them to new sectors seem to lead to a successful

278 K. Taipale-Eräväla et al.

outcome. Attitudes towards the change process seem to affect the success of SMEs, as a positive attitude towards change and systematic management of the change process leads to long-lasting effects. In a change situation, organisations need innovative thinking and courage to see future possibilities on both organisational and individual levels. In an organisational network, the clear role of a leader is important in implementing the change.

### 6.2 Limitations and further research

The findings on SME competence transformation made in the study were based on qualitative data. The qualitative approach always requires a degree of interpretation, which can be seen as a limitation of the study. However, despite the limited number of interviews, conducted in one industrial field, the results can be considered applicable to other industries facing similar change situations. Based on this study, several interesting possibilities for further studies were found. One of the strongest findings was that the guidance of public actors was not acknowledged by the private companies. Interaction problems between public and private actors, and how public actions could be more effective in supporting SMEs in structural changes remain important topics for future investigation. Another topic of research could be more detailed study of competences and their transformation in micro-enterprises (start-ups) and how they are reflected in academic literature on SMEs.

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280 K. Taipale-Eräväla et al.

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*SME competence transformation*

281

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