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Doctoral Thesis

How to manage SMEs through the transformation from non-innovative to innovative?

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**How to manage SMEs through the transformation
from non innovative to innovative?**

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Michael Nørager

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Michael Nørager

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non-innovative to innovative?**

**CBS / Copenhagen Business School
Doctoral School of Organisation and Management Studies
Department of Management, Politics and Philosophy**

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Background

It was Albert Einstein who once said that in the middle of difficulty lies opportunity. Apart from the fact that I believe that Einstein was right in this reflection, it is also a splendid metaphor for the recognition that I have come to through the process of doing a PhD. In addition to this retrospective recognition, I had several reasons for initiating a PhD project in the beginning of 2003.¹

The first one was that my employer (Aarhus University) presented me with the opportunity and with funding from the Danish Ministry of Science, Technology and Innovation, the formalities were in place. At that time, it was also a natural continuation of my own professional and personal development and of course, my own ambition to achieve the PhD degree was also a contributory incentive. **A second reason** was that throughout my entire career, I have been both interested in and curious about how to develop people and companies in a business economic perspective. In my conviction, development is a fundamental part of the nature of life, something which occurs simply to ensure survival and which is not just a profit making tool. Still, my professional interest is the business related development of people and companies. The last twenty years of developing companies and creating competitive advantages have increasingly been connected to innovation which links up with the next reason for doing this PhD project. **The third reason** was that I had an area of interests which, in a broad sense, was innovation activities in a micro economic perspective. The whole research process has been carried by my curiosity of how to manage innovation activities; I basically want to answer the question: How may innovation activities be managed effectively? The purpose of creating an answer to this question is to build more knowledge about how to support and develop business communities and the companies within it. **A fourth reason** for conducting the research and writing the dissertation is that I am very enthusiastic about learning and development on a personal level as well; and completing a PhD certainly represents a steep learning curve which has imparted to me a lot of new insights and enabled me to better understand the academic world.

The fifth and last reason for undertaking the PhD process is to show my wife and children, people around me and myself that life is pure potential and that so many things are possible if we just want them to be!

¹ I am subject to a five year part time PhD degree programme.

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Also I would like to thank my colleagues here at Aarhus University, Institute of Business and Technology in Herning and especially all members of our research centre, Centre for Innovation and Business Development. I am so happy being a part of the team and I am looking forward to participating more in our projects. A special thanks to our centre secretary, Lisa Vestergaard Sørensen, for an extremely competent proof reading of this dissertation.

To all the people around me, my family and friends, thank you for all the helping hands, interest, sympathy and understanding. I would also like to acknowledge my mother by saying thank you for teaching me about the strong arm of love and for always being there without setting up any conditions.

Finally, and most importantly, I want to thank my wife Lene and our three children Caroline, Emilie and Frederik. Thank you for showing me the ultimate support and help. I know that I it has been a tough time and that you kids would have preferred that we all had played a game of handball; but watch out, I am back. To you Lene, thank you for “running the show” and for everything you are. I love all four of you – thank you for showing me the meaning of life.

Herning, April 2009

Michael Nørager

0. Purpose

The final research question of this PhD project is a product of both the original purpose and the research question formulated in the application form to the Doctoral School back in 2003. While the research question has changed several times throughout the working process, the essential purpose has remained the same, namely to contribute with new knowledge of how companies may be made more innovative.

The research question has, on the other hand, been modified several times in the working process. The initial research question was formulated in the application form to the Doctoral School of Knowledge and Management at CBS and was expressed in the following way: How can a company's long-term strategic goals be transformed into behavioural adjustments within micro processes which promote the innovation capability? Obviously, this research question is far too imprecise with too many potential perspectives inherent in it and therefore, it needed to be considered more carefully.

I did that by focusing attention on the classic innovation process literature with a research question saying: How to manage the early phases of the innovation process as to create more innovative companies? From this point, the managing aspect followed different trajectories; one was the relation between autonomy and control and the other was how to support, develop and exploit creativity among the employees for the purpose of creating innovation and competitive advantages.

The year of 2005 saw the emergence of slightly different precursors of what later that year became the final and current research question: "How to manage SMEs through the transformation from non-innovative to innovative?"

My PhD project contains quite a number of choices relating to aspects like: Problem considerations (chapter 1, section 1.1), main literature and specific literature (chapters 2 and 3) theory of science and methodology (appendices A – E) and the case studies (chapter 4). In the relevant chapters and sections, I will in each case argue for the advantages and disadvantages of each alternative and state my motives for the choices made.

1. Introduction

In course of the last two decades, politicians, practitioners and researchers alike have taken an exponentially growing interest in the small and medium-sized enterprise (SME) sector, and for good reasons, due to the significant role that SMEs are playing in the overall economic growth (e.g. Smith et al. 2002, OECD Small and Medium Enterprise Outlook 2002). Many scholars from different disciplines (e.g. Gellatly 1999, O'Regan et al. 2006 A, Therrien 2000 and Drejer 2004) all agree that this growth increasingly will be based on innovation activities. Becheikh et al. (2006) argue that several scholars address innovation as something unavoidable for companies which want to develop and maintain a competitive advantage and/or gain entry into new markets.

SMEs are often associated with the potential for reacting faster to new opportunities through innovation vis-à-vis many large scale enterprises (LSEs) (Gray and Mabey 2005, Vossen 1998, McAdam et al. 2004B). This ability, reacting agilely and swiftly to opportunities, however, is mainly valid for an exclusive group of SMEs, for example small and mid-sized R&D based firms or very specialised suppliers. As technological trajectories largely predetermine innovation patterns (Pavitt 1984), there are reasons to believe that a significant share of SMEs is caught in a non-innovative trajectory or “production trap” implying that most available resources are absorbed by the day-to-day activities of the core business.² Due to restricted resources, these SMEs cannot afford to direct much attention on how they may transform or innovate their businesses (Gray and Mabey 2005, Vossen 1998). Many of these SMEs also suffer from a lack of innovation capabilities and development activities (Therrien 2000).

Approaching the problem from the point of view of strategic management, Drejer (2004) argues that the challenges of the transformation process lie in managing the distinction between the day-to-day activities and the innovative business development activities. Due to the global economy and the pressure from the Far East and Eastern Europe, Western companies need to be increasingly innovative in the defence of their market shares. The strategies of Western managers fail when they are based on old economic factors, which are poorly equipped to meet the challenges of today's global economy (Drejer 2004).

² In a Canadian survey of 3,830 SMEs engaged in the service sector, Gellatly (1999) found that 40% (1,532 SMEs) were innovators in products, services or organisational contexts and that 60% (2,298 SMEs) were non-innovative firms.

“Within the next three to five years Western companies will be under pressure to drastically improve their ability to develop businesses/change competitive position while at the same time maintain an effective operation of current activities” (Drejer 2004).

In other words, the SMEs rarely possess the slack managerial resources which Penrose (1959) has argued are essential for the organisations’ ability to pursue new opportunities. In Denmark, as well as throughout the world, there is a large number of SMEs who are not high tech, who do not have any R&D department and who do not recognise a lot of future possibilities in terms of knowledge and innovation. This means that from a Pavitt (1984) point of view, the focus is on supplier dominated and production intensive firms. These production intensive SMEs have been competing by other means, e.g. customer relations, geographical proximity and specialised manufacturing competencies in terms of well-developed product design skills and well-defined knowledge about the customers. This group of regional manufacturing focused SMEs feels the heat from the globalisation³ in the form of increased price and quality competition in their regional home markets and there are reasons to believe that they are subject to a growing pressure and trapped in their production focus.

For this group of SMEs to maintain its economic value and contribution to growth in society, it needs to bring knowledge and innovation-based competitive advantages into focus to the detriment of traditional competitive advantages. The challenge is for the companies to exploit their current business focus and value proposition as a basis for engaging in knowledge-based value creation through innovation (Drejer 2004).

This addresses a cardinal challenge, being conscious that innovation activities among SMEs are directly correlated with competitive advantages and success (Gellatly 1999:13, Baldwin et al. 1994). A challenge which refers to an underexplored and not fully understood (Becheikh et al. 2006) area of managing the transformation process (from less innovative into more innovative-based performance) among SMEs in the manufacturing sector (Pavitt 1984).

³ In 1988, the Danish import from China constituted 1.25 % of the total Danish import and in 2004, the Chinese import rate was 4%; 2.75 percentage point higher. In 2004, the import had increased from about 5 billion DKK to roughly 16 billion DKK.

1.1 Problem considerations

The focus is on the specificity of innovation barriers of SMEs who have not previously been particularly active as to innovation and who want to substitute existing competitive advantages with innovation-based advantages on an incremental basis, entailing that this PhD project has two areas of special interest: First, the barriers that non or less innovative SMEs face and second, how to overcome or manage these barriers. The latter involves a laborious transformation process and the constitution and progression of this transformation process pose the cardinal research challenge. Consequently, the focus point to investigate is how SMEs can be transformed from less to more innovation based companies. The theoretical point of departure for this deductive study is the classic economy and technology based innovation literature (Fuglsang & Sundbo 2005) as well as the growing body of literature on obstacles to innovation among SMEs (Vossen 1998). From these initial considerations the research question is:

How to manage SMEs through the transformation from non-innovative to innovative?

In relation to this PhD project, the word *manage* is used as a business and organisational term which the following definition expands on:

To manage comprises directing and controlling a group of one or more people or entities for the purpose of coordinating and harmonising them towards accomplishing a goal (see also www.wikipedia.org).

The word *manage*, as it is used in the research question, is an umbrella term covering both the management and leadership literature and tradition (see e.g. Burgoyne J., Hirsh W. and Williams S. 2004). The terms management and leadership will also be used and defined (chapter 3) as a generally accepted and generic way of subdividing the literature into different main areas.

The **SME** sector is becoming increasingly important in relation to both the current and the future development of the business society because of a common belief (OECD 2002) that future growth and wealth creation will depend heavily on this particular sector. Therefore, a quantitative and a qualitative definition are outlined below.

SMEs are divided into micro, small and medium-sized companies and the **quantitative** units are number of employees, annual turnover and balance sheet (for more details see section 1.1.1 delimitation).

In a more **qualitative** perspective, the **SMEs** are often described by contrasting them with large firms (Holmes and Gibson 2001, Vossen 1998 B, Scott 1991) and the small and medium-sized companies are typically characterised by some of the following features:

Lacking bureaucracy, rapid decision making, risk taking, motivated and committed management, rapid internal communication lines and shorter decision chains, fast reaction to market change, ability to change routines and strategy fast.

The following section (1.1.1 delimitation) will provide a detailed definition of **SMEs**, covering both quantitative as well as qualitative matters.

Transformation is a term used in relation to several disciplines, e.g. geometry, genetics and mathematics, and **transform** is about altering a subject in form or function. In this PhD project **transformation** is another keyword and it is in general defined from the root of transform which means that:

A subject is undergoing a change e.g. a market change in nature, form or appearance (Concise Oxford English Dictionary).

Here the focus is on transforming the SME from non-innovative to innovative, rather than on market conditions. The term transformation is crucial being *the* most central element of the research question seeing that the research is about examining how this particular transformation process proceeds. In order to convey an accurate picture of what constitutes the transformation process, the following figure has been prepared.

Figure 1.1 The transformation process

| Initial position | The transformation process | New position |
|---|--|---------------------------------------|
| Non-innovative SMEs | | Innovative SMEs |
| Characteristics of the non-innovative SME | Characteristics of the needed transformation process | Characteristics of the innovative SME |

Source: Own work

Defining SMEs as **non-innovative** or **innovative** can follow both a quantitative as well as a qualitative path. As it appears from chapter two, innovation is defined in accordance with the Oslo manual, which defines innovation as a technological product or process that comprises an implementation of technologically new products and processes with significant technological improvements in products and processes.

The **quantitative definition of non-innovative and innovative** is therefore strictly a matter of counting the number of situations in which the SME has not or has been innovative in relation to the Oslo manual.

To actually count the number of successful innovation projects is an often used way of quantitatively defining the innovation level (from non-innovative to heavily remaining on innovation) within a company.⁴

When it comes to a more qualitative definition of non-innovative and innovative SMEs, a literature review (e.g. Becheikh et al. 2006, Baldwin and Lin 2002, McAdam et al. 2004 A. & B., Gellatly 1999) outlines some key distinctions between innovators and non-innovators among SMEs.⁵ These key distinctions make it possible to line up some of the most referred (e.g. Gellatly 1999, McAdam et al. 04 A, O'Regan et al. 06 B, Millward et al. 05, Vermeulen 05, Baldwin and Lin 02, McAdam 04 B %, Freel 99, Baldwin et al. 96, Sabourin 01, Therrien 00) qualitative definitions when it comes to non-innovative SMEs. Therefore, non-innovative SMEs will **qualitatively** be defined as companies which are:

⁴ See e.g.: "The Changing State of British Enterprise" in which non-innovators are defined as firms which do not introduce any innovation during the three years of 1992-1995 whereas innovators introduce a product or process innovation during that same period. Or: "The Fourth Community Innovation Survey (CIS 4)" which employs the same qualitative definition.

⁵ For a more detailed description, see chapter three.

Not working systematically with business strategy or innovation strategy, the management approach is dominant, focusing on time and cost with difficulties as regards handling change, the companies recruit less skilled labour and lack incentive structures and they have little external collaboration, not participating in any networks concerning innovation activities or the like.

The review of the SME literature (e.g. Gellatly 1999, McAdam et al. 2004 A, Panne et al. 2003, Mosey et al. 2002, Millward et al. 2005, Baldwin and Lin 2002, McAdam 2004 B, O'Regan et al. 2006 B, Freel 1999, Baldwin et al. 1996, Sabourin 2001, Therrien 2000, Freel 2005, Freel 2000) argues for some of the most common aspects which constitute a innovative SME. By referring to this literature, **innovative SMEs** are qualitatively defined as companies which are characterised by having:

Business strategies which are related to innovation and the innovation process, a long-term strategy perspective, a consultative management style with a competent handling of change and resistance, the ability to recruit well-skilled labour and systematically train and develop these employees, a well-developed external collaboration in the form of networks with other companies for the purpose of creating innovation.

Subdividing the research question

The research project can be divided into several subareas with a question related to each of these areas. The first sub-question relates to elements of classic innovation management literature. The idea is to address the technology and economy based innovation management literature in order to define a normative understanding of the innovation process and how to organise and manage it. The motive for this theoretical manoeuvre and first literature review is dual because they serve as a point of departure for understanding innovation management as well as form the basis of the first questions and hypothesis of a pilot study. The sub-question related to this area is therefore formulated in the following manner:

How can classic innovation management literature explain the way Danish SMEs organise and manage the innovation process?

As an opposition to the way this classic technology and economy based literature addresses the challenge of developing innovation processes and activities, other literature reviews were made. These reviews were taken from more recent innovation management literature on SMEs (see e.g. Gray and Mabey 2005, Vossen 1998, Therrien 2000) and it suggests some more sociology based ways of explaining how SMEs may be successful in relation to innovation activities. The next four sub-questions are all based on this body of literature and they are narrated in a way which substantiates the main research question. Each sub-question is based on a theme which represents a potential barrier to SMEs' quest to transform their competitive position into being more innovation based than previously:

How can the transformation process from non-innovative to innovative be addressed by management?

How can the transformation process from non-innovative to innovative be addressed by HRM?

How can the transformation process from non-innovative to innovative be addressed by strategy?

How can the transformation process from non-innovative to innovative be addressed by external linkages and network?⁶

These four questions are all considered to be crucial for investigating the process of transforming an SME from non-innovative to innovative. Each of them is taken into account because separately, they are seen as crucial building blocks for investigating and gaining a better understanding of the main research question.

⁶ A more detailed argumentation for the choice of these theoretical positions forms part of chapter 3.

1.1.1 Delimitation

Delimitation - micro, small and medium-sized enterprises – quantitative and qualitative

The SME sector is very important to industry policy and development due to the fact that the majority of future economic growth and wealth is expected to be generated by this sector (e.g. Smith et al. 2002, OECD Small and Medium Enterprise Outlook 2002) and this growth will increasingly be sparked by innovation activities (Gellatly 1999, O'Regan et al. 2006 A, Therrien 2000, Drejer 2004). According to figures from Statistics Denmark, in 2003, 99.66% of the registered companies were SMEs (274,781/275,712 = 99.6%). In 1996, SMEs accounted for 70% of the global production mainly in business to business relations (O'laoire and Welford 1996). Furthermore, EU figures from KPMG (1997) report that 99.8% of all EU companies are SMEs and they represent 65% of employment and 65% of turnover (KPMG 1997). Because of the enormous diversity of companies in the SME sector, it will be expedient to divide the sector into some sub units. In this context, the EU standard definition (similar to the Danish definition) will be applied, saying that micro companies have fewer than 10 employees, small companies have fewer than 50 employees and medium-sized companies have fewer than 250 employees. The number of employees and figures for annual turnover and balance sheet are reproduced below:

Figure 1.2 The European definition of SMEs from OECD 2002

| Definitions | Employees | Annual turnover | Balance sheet |
|-----------------|---------------|----------------------------|----------------------------|
| EU - SME | Less than 250 | Not exceeding £34 million | Not exceeding £29 million |
| Small companies | Less than 50 | Not exceeding £6.8 million | Not exceeding £6.8 million |
| Micro companies | Less than 10 | Not exceeding £1.4 million | Not exceeding £1.4 million |

Source: Recommendation 2003/361/EC adopted by commission on 6 May 2003. This revised definition came into force on 1 January 2005.

In relation to a more qualitative definition of SMEs, Vossen (1998 A) argues that the relative strengths of the small firm compared to the large firm⁷ lie in a number of behavioural characteristics. First of all, the fact that small firms rarely separate ownership and management gives more motivation in management and labour (Holmes and Gibson 2001) as well as fewer hierarchical levels which reduce bureaucracy and thereby increase flexibility, prompt more task

⁷ The advantages of the small firm are generally the disadvantages of the large firm and vice versa (Vossen 1998 A).

variation and increase the number of career opportunities (Vossen 1998 A, Scott 1991, Holmes and Gibson 2001). The relatively flat hierarchies of the small companies also facilitate more efficient communication, more cross-functional activities and thereby develop tacit knowledge of unique skills, in turn supporting a variation and improvisation among the workers when performing tasks (Holmes and Gibson 2001, Vossen 1998 A). Different research also supports the argument that SMEs are more agile and able to adapt to new opportunities and market change, which means that the ability to make a quick change of routines and strategy is far more well-developed among SMEs (Gray and Mabey 2005, Vossen 1998, McAdam et al. 2004).

In addition, there are some even more intangible social and psychological factors which also identify the SME companies in a qualitative manner. One is the founder's motivation for creating employee independence and entrusting the employees with more control over their working life activities (in terms of flexibility and freedom to choose their own approach to work) (Holmes and Gibson 2001). Another aspect is the social recognition related to running your own business which is about achieving a higher social position and respect from friends (Holmes and Gibson 2001).

Future growth in the SME sector should not be taken for granted

The SME sector may be an important part of the growth in the OECD economy but frequently, the sector lacks resources to implement the necessary organisational changes. "Dynamic rates of business turnover facilitate the fundamental restructuring required to shift resources towards growing areas and away from declining areas, and to adjust the structure of production to meet market needs" (OECD Small and Medium Enterprise Outlook 2002).

Small firms often lack the financial resources necessary to invest in the required organisational changes when a market opportunity window is open, "although studies show that changes in management structure and work organization can procure higher marginal benefits for SMEs than for larger firms" (Murphy 2002, in OECD Small and Medium Enterprise Outlook 2002). Relevant and sufficient management competences are also a prerequisite for the SMEs to successfully complete a development and a large number of these SMEs fail due to different shortcomings in the management field. Market dynamics in terms of global division of labour, rapid changes in technology, shorter and shorter product life cycles etc. really put heavy pressure on SMEs' ability to develop the organisation and its management capability and the human resources in a broad sense.

“Therefore, promoting the acquisition of knowledge and competencies by SMEs is a goal of many government programs. Japan has made enhancing management capability a primary goal of its SME policies” (OECD Small and Medium Enterprise Outlook 2002).

Undoubtedly, the SME sector has an enormous economic growth potential; the challenge is how to release it.

Delimitation - the case companies (SMEs)

The following criteria have been used for choosing the case study companies. First of all, they have been chosen because they are SMEs which fit into the European definition of micro (one case company), small (two case companies) and medium-sized companies (two case companies) due to the idea of comparing the three different sizes (micro, small and medium) within the SME group in relation to the ability to transform from traditionally based to innovatively based business positions.

Another criterion is that the SME should be a supplier dominated or production based SME as it is in these groups of companies that the largest share of non innovative and production trapped SMEs are expected to be found (Therrien 2000). This implies that the SMEs will be selected from the rural district of Central Jutland, Denmark, and that no high tech, biotech, nanotech companies or the like⁸ will be among the company cases in this study.

The case studies represent different businesses in order to address the research issues in a broader SME business context and not exclusively on the basis of one single business sector. Of course, this involves less validity and depth in the research data; however, a case study with four case studies using the same business sector would not be able to produce higher levels of research data validity and depths than achievable using the present approach.

A third criterion is to choose case study companies which are currently innovation based in relation to the Oslo Manual definition but have a history of being non-innovative. The reason for this is that it is expected that these SMEs are able to contribute with knowledge about the research question concerning the transformation process from non-innovative to innovative.

⁸ As they do not meet the criteria of being either supplier dominated or production based.

Delimitation - the theoretical angle within the SME and innovation literature

In spite of the fact that the research question has been established, the SME and innovation management literature still encompasses many different perspectives which this dissertation may employ in the theoretically based investigation. The innovation management literature identifies a range of issues relevant for understanding and studying the SME transformation process from non-innovative to innovative. We see a lot of variety in the research questions and the methodology used to continuously investigate the SME sector. Hisrich and Drnovsek (2002) divide the last decade's European SME research into the following five dominating areas (Hisrich and Drnovsek 2002):

- The individual (entrepreneur, gender, ethnicity and entrepreneurial processes)
- Environment (SME regional development, SME policy, SME support, employment, financial markets, industry spill over, innovation/technology, alliances/network and venture capital)
- **Process (growth, strategy, internationalisation, innovation, financing, marketing and HR)**
- Organisation (firm creation, success, survival, performance, employment and learning)
- Transition economics (entrepreneur, environment, organisation, process, SME and the regional development and employment)

The objective of this PhD project is to contribute to the SME literature by working with the “**process**” area mentioned above. This area is increasingly in focus as an important way to improve our understanding of innovation in SMEs (Edwards et al. 2005).

The reason for this choice of delimitation is to be found in the main research question of the dissertation and from the fact that a transformation from non-innovative to innovative is a process, the aim is growth and the field is, in a broad sense, business economy. Hisrich and Drnovsek (2002) narrow this “process” area down to: Growth, strategy, internationalisation, innovation, financing, marketing and HR. As it will be explicitly argued (in chapter 3), the central theoretical positions of this dissertation will be **innovation** (e.g. Schumpeter 1942, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, O'Regan et al. 2006 A & B, Tidd et al. 2001, Edwards et al. 2005), **strategy** (e.g. Gellatly 1999, McAdam et al. 2004 A, Panne

et al. 2003, Mosey et al. 2002, O'Regan et al. 2006 A and B, Miles, Snow and Meyer, Souitaris 2002, Khan 1990 and Twiss 1992, Rothwell 1992 and Swan and Newell 1995, Drejer 2004), **HRM** (e.g. Laursen 2002, Laursen and Foss 2003, Leede and Looise 2005 and Jimenez and Sanz-Vall 2005, Wang 2005, Sels et al. 2006, Branzei and Vertinsky 2006), **management** (e.g. Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Gray and Mabey 2005, Patton and Marlow 2002, Burgoyne et al. 2004, Dankbaar 2003, Foss et al. 2003, Yukl 2002 & 1989, Kotter 1990, Drucker 1988, Politis 2005, Murphy and Ensher 2001, Ernø-Kjølhede et al. 2001, Manz and Sims 1987, Mollerup 2000, Dunphy and Bryant 1996) and **networks** (e.g. Chesbrough, 2003 Freel 2000 C, Therrien 2000).

The emphasis on these “process” elements throughout the innovation management literature is attributable to the fact that the focus of research and theory development has been on determining the factors which lead to successful innovation and not on factors inhibiting companies' scope for innovation (e.g. Schumpeter 1942, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, O'Regan et al. 2006 A & B). The literature represents a majority of research in the field of successful innovators and only minor attention is given to the barriers that non-innovators are facing; this trend is especially strong among SMEs (Tidd et al. 2001, Edwards et al. 2005). There is a lack of systematic research and the empirical evidence is weak when referring to the majority of SMEs which are not particularly innovative, although they have to cope with changing technology and uncertainty (Tidd et al. 2001).

Therefore, there will be an individual focus on addressing the key distinctions between innovators and non-innovators (e.g. Baldwin and Lin 2002, McAdam et al. 2004 A. & B., Gellatly 1999) to get an overview of the barriers and impediments that non-innovating SMEs face. This is accomplished by combining and cross-examining the already existing literature on managing innovation in SMEs (Edwards et al. 2005). This allows me to discuss the specificity of the innovation barriers in SMEs who have not previously been innovation orientated and who want incrementally to substitute existing competitive advantages with innovation based advantages.

The research will draw on some of the classical SME and innovation management literature (e.g. Schumpeter 1942, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, O'Regan et al. 2006 A and B, McAdam et al. 2000). However, seeing that this literature mostly deal with all the benefits of already being innovative, other relevant

literature will be taken into account (e.g. Gray and Mabey 2005, Vossen 1998, Therrien 2000, McAdam et al. 2004, Vermeulen 2005, Baldwin and Lin 2002, McAdam 2004) in order to embrace the non-innovative companies. The argument and reason for both the literature reviews and literature choices, which have been made subsequently, are essentially substantiated by the problem considerations, the basic and sub research questions.

The idea is to address the existing SME literature (focusing on non-innovative SMEs) and classic innovation management literature as to search for and formulate some theoretical insights about the not fully understood link between non-innovative and innovative SMEs. That should enable this dissertation to address the question of managing the transformation of SMEs from a non-innovative to an innovative position.

Delimitation – the research process

To create a high validity and reliability within this PhD project, a delimitation of the research process is necessary. Delimiting the research process is also important as to structuring the dissertation and being able to answer the research question.

There are many well-arranged qualitatively based frameworks for conducting a research process (e.g. Brinberg & McGraft 1985, Gerring 2001, and Silverman 2000). In this dissertation, Brinberg and McGraft's (1985) model "The Validity Network Schema" has been found to be the most suitable research process to adopt because:⁹

- The model is well-structured
- The model has a logic and straightforward setup
- The model addresses the whole research process using a suitable level of detail
- Following the model increases the probability that good research may be conducted in terms of high validity and reliability

In appendix A-D, all the considerations and choices surrounding the research process are outlined.

⁹ See further arguments in appendix A.

Delimitation – the methodology

Due to the intention of making this dissertation as reader-friendly as possible for the broadest group possible, the main methodology discussion is placed in appendices (see appendices A-D). However, the following paragraphs will introduce the main methodology and theory of science aspects of the project as a guide for reading the PhD project as such.

In the process of shaping the research question, the methodology structure and a range of other theory of science aspects have been determined as well. The frame of reference for my theory of science is the critical realism paradigm¹⁰ which is part of the neo-positivistic movement. This implies that my ontology is limited realistic and my epistemology is modified objective (see appendix B for a more thorough discussion of these subjects). Thus, I look at the world and the empirical field as very complex objects which preclude making any absolute quantitative measurements in relation to my research. All kinds of measurements in the empirical domain are, in a social science research context, by definition imprecise and can therefore only be treated as condition based predictions. Based on these predictions, researchers and alike may form hypotheses and theories. These theories will always be “open” as Bhaskar (1975) formulates it, indicating that the theory cannot be said to represent an objective truth; at best, it may be perceived as a normative based theory.

Quite a lot of structural aspects are influenced by the order in which theory and empiric elements are handled. First of all, the research may follow a deductive (theory first) or an inductive (empiric elements first) approach.¹¹ The deductive approach has an advantage because the researcher knows what to look for and is therefore able collect data in a predetermined way. This approach, however, entails a great risk of prejudiced and biased data. On the other hand, the inductive approach has the advantage of the researcher being able to collect data in a more unbiased way. The risk of this approach, however, is collecting data which is poorly related to the research question. Thus, social science and research are not black or white and several methods combining the two approaches do exist (see appendix B).

The two conclusion forms have been used in different ways at different points in the research project process. The first main part consisted in a combination between a deductive and an

¹⁰ For a wider explanation of why and how this paradigm guides the research process, see appendix A.

¹¹ See appendix A and B for further details.

inductive approach. I started out with a deductive approach and through a literature review of the classic innovation management literature, I formed some propositions. These propositions were tentatively tested in a pilot study among 10 small and medium-sized companies and this process had a two-sided effect; firstly, I became convinced that my field had similar challenges to those described in the classic literature and secondly, the data from the pilot study did also form an inductive perspective adding new elements and focal points to my research project.¹² From this point on, my research question was established and the process employed in all means a deductive conclusion form with the final literature reviews forming the definitive propositions¹³ which were subsequently tested in the case studies (see appendix C for further details). This means that the research process applies some elements of inductive conclusion forms, however, basically and mainly, it is a deductive study.

1.1.2 Thesis structure

The dissertation structure is basically formed by the problem considerations (see above), the research process and its methodology (see appendix A, Brinberg & McGrath 1985). The research process encompasses three core stages or domains which are reflected in the dissertation structure as well. The first domain relates to the focal phenomenon of interest for the research and it is called the substantive domain. The second domain is the conceptual domain and it comprises the theories which give meaning and understanding to the substantive domain. The third domain is the methodological domain and it is about the techniques and procedures for how to execute the study (Brinberg and McGrath 1985).

In **Chapter 2**, the substantive domain will be addressed in terms of epitomising different definitions in relation to the theoretical concept of innovation (element level) as well as the relation between non-innovative and innovative SMEs (relation level and embedded system level). The objective is to create a clear relation pattern among the phenomena within the substantive domain.

¹² These focal points drew my attention to a more recent innovation management literature on SMEs (see e.g. Gray and Mabey 2005, Vossen 1998, Therrien 2000) based on more sociological ways of explaining how SMEs may be successful in relation to innovation activities.

¹³ See appendix C for a discussion of why the frame proposition is used and not hypothesis.

In **Chapter 3**, the conceptual domain will be outlined through a critical evaluation of the sufficient theoretical positions which are meant to infuse the phenomena of the substantive domain and thereby the dissertation with meaning.

Firstly, the embedded system level will be addressed in order to clarify the range of paradigms within the innovation management literature. It is important to define a theoretical position or paradigm, thereby establishing a certain way of understanding innovation and building a reference frame in relation to the current dissertation.

Secondly, the relation level will be in focus because detailed literature reviews and literature delimitations will be conducted, thus choosing the relevant theoretical aspects of the PhD project. For each chosen theoretical areas, the related concepts will be discussed, thereby addressing the element level of the conceptual domain.

As the last part of chapter 3, a synthesis of the theoretical aspects will be created in terms of an overall model (the transformation model) representing the conceptual domain. From each theoretical area and this transformation model, a set of proposition will be formulated in accordance with the so-called theoretical path (Brinberg & McGrath 1985: 63-65) which entails a hypothetical-deductive way of conducting the research (see also appendix A in which I explain why I am using propositions instead of hypotheses).

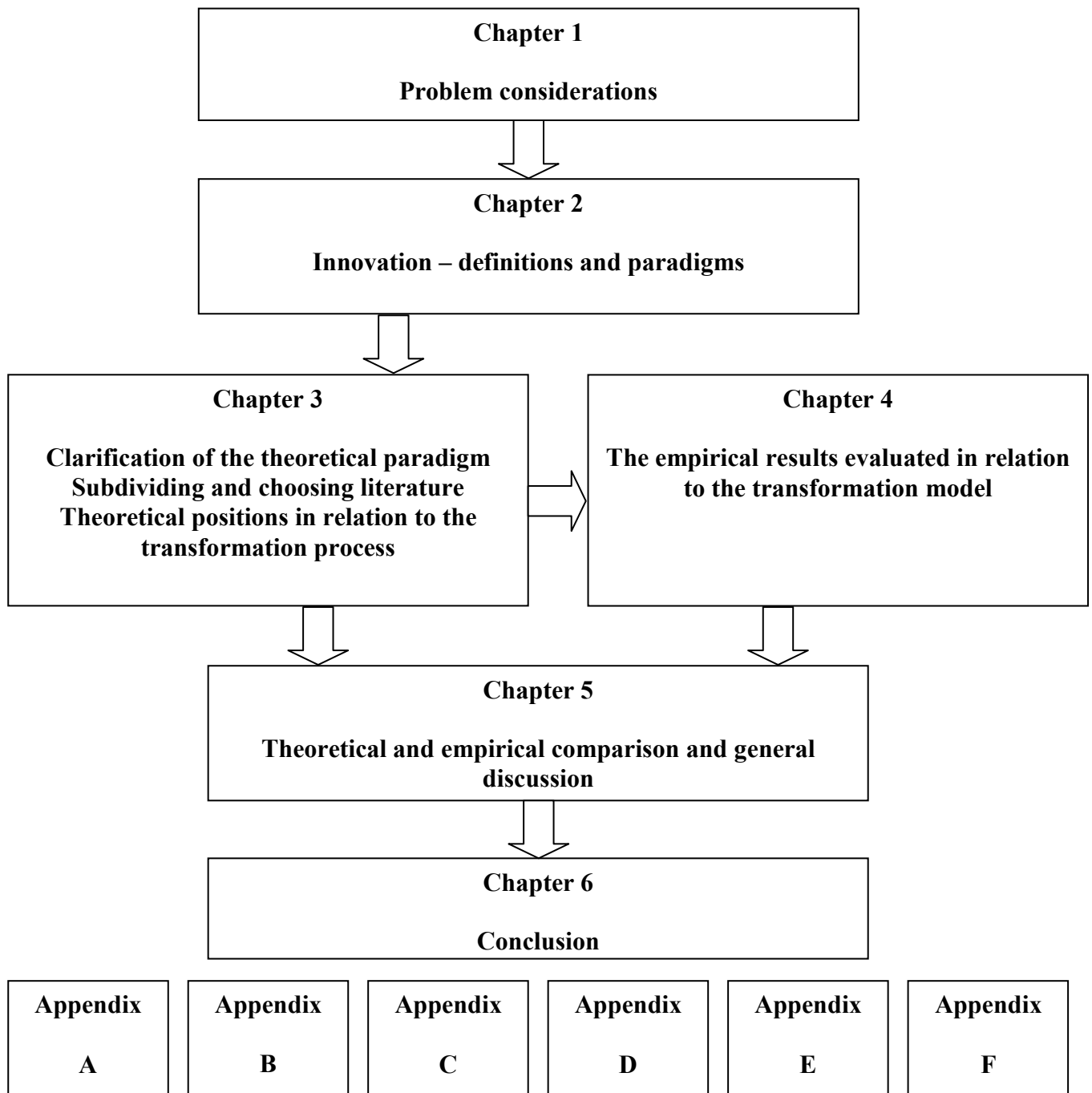
Chapter 4 is where the theoretical constructions meet the empirical data and the propositions are tested. Consequently, the purpose of the chapter is to link theoretical and practical implications. Each of the propositions will be tested in relation to the transformation process and in relation to company size (micro, small and medium-size) in order to determine if and to what extent the propositions are confirmed.

As every proposition has its point of origin in the sub-questions from the problem considerations, each proposition test and conclusion will correspond to an answer to a sub-question. These conclusions will, together with the comparison between theory and the empirical data in chapter 5, form the basis for answering the main research question.

In **Chapter 5**, I will make a detailed comparison of the theoretical and empirical aspects of each of the four theoretical areas treated in the dissertation. From the perspective of the whole research process, a model for transforming Danish SMEs from non innovative to innovative will be outlined, as well as suggestions for further research to be conducted in order to arrive at the main conclusion of the PhD project (chapter 6).

The considerations about validity and reliability in the research process, the theory of science perspective and the methodology and research strategy as well as the study protocol are all presented in the **appendices** at the end of the dissertation. These scientific techniques describe how the researcher works with her field and they are placed in appendices at the end of the dissertation to give prominence to the theoretical and practical elements. The aim is to arrange the dissertation structure towards applied management practice and, by doing so, to reach a wider audience. Taken together, the dissertation structure can be illustrated as in the figure below:

Figure 1.3 Thesis structure



2. Innovation – definitions and concepts

In this chapter, the focus is on constricting and defining some of the cardinal phenomena and themes used in the dissertation. The first phase in the research process involves, despite its elusive and ineffable character, forming the substantive domain¹⁴ as it explicitly relates to the current research. It is also a way of laying the groundwork for understanding and working with the conceptual domain as well as the methodology domain (see appendix A).

The substantive domain (see appendix A for further details) is what is in the field prior to the initiation of the research. Consequently, this chapter is dedicated to describing and defining the phenomenon of innovation (element level) and how this phenomenon crystallises in different patterns within the companies (relation level) and what kind of impact these companies have on the substantive system in terms of the business society and vice versa (embedding system level). This chapter therefore emphasises defining relevant substantive elements in the following sections; innovation (the element level) and separating non-innovative SMEs from innovative SMEs (as both the relation level and the embedded system level). The SME sector as another part of the embedded system level in the substantive domain was addressed and defined in chapter 1.

2.1 Defining the phenomenon of innovation

From Schumpeter in the 1930s and until today, business research has been and is increasingly directed toward understanding how innovation is created and utilised and its importance for the development of organisations and societies. But before going any further into the innovation management literature, the phenomenon will be clearly and unambiguously defined.

Defining innovation is seen as a way of defining the main phenomenon of this research and it is in line with the element as well as the relation level of the substantive domain (see appendix A). The concept of innovation is used in an increasing number of contexts but unfortunately, a number of different meanings are attributed to it and the phenomenon is still poorly understood (Becheikh et al. 2006).

¹⁴ Substantive should in this context be understood as something which exists in its own right and this something refers to the phase in which the research is planned to be conducted.

Innovation stems from the Latin word 'innovare' where 'in' means 'therein' and 'novare' means 'to create something new or change something'. To further define 'innovation' it is important to distinguish between the concepts of 'innovation' and 'invention'. 'Invention' comes from the Latin 'inventio' which can be translated into 'invention'. The concept 'invention' has at least two meanings in the context of innovation theories. In one sense, the invention is the unique idea or the research-based breakthrough which will revolutionise a particular product or an entire industry (Christensen 2002). In another sense, 'invention' is perceived as the first phase (initiation) of an innovation (product, process or organisational) which may be prompted by external market demands or by the internal idea generation and development activities of organisations. In this second meaning of invention it is not necessarily the first phase of a unique new product, normally it will merely be new to the inventing company.

Consequently, innovation is to be seen as a continuation of the invention process and is concerned with the practical use of the ideas on a technical and commercially value-generating basis. As the current research focuses on the manufacturing sector, the innovation activity area will be defined as technological products or production processes.

The innovation must be new to the company but not necessarily new to the market or world (Mosey 2005). In order to meet the innovation definition, it must be introduced into the market and constitute a competitive advantage for the company, implying that the innovation is a successful implementation of a creation (Heunks and Roos 1992). The concept of innovation may further be defined in relation to the "Oslo Manual", saying that an innovation is a new or improved technological product or process (TPP - Oslo Manual, European Commission 2005).

The definitions of Mosey (2005) and Heunks and Rose (1992) are very much in line with the "Oslo Manual" definition from which the following section is taken:

"Technological product and process (TPP) innovations comprise implemented technologically new products and processes and significant technological improvements in products and processes. A TPP innovation has been implemented if it has been introduced on the market (product innovation) or used within a production process (process innovation). TPP innovations involve a series of scientific, technological, organizational, financial and commercial activities. The TPP

innovating firm is one that has implemented technologically new or significantly technologically improved products or processes during the period under review” (Oslo Manual, European Commission 2005).

According to this definition, minor product or production process improvements will not be regarded as innovation. Naturally, it can be difficult to define what minor and major improvements of products or processes are. By referring to the Oslo definition, the innovation should significantly contribute to the technological improvements of a product or a process. This means that improvements in terms of optimising products or processes in a day-to-day basis will not be termed innovation even though it could be argued that these activities are new to the company, are implemented on a market and contribute to the earnings. These activities are simply not significant contributors to any technological improvement of products or processes. In my opinion, a significant contribution to a technological improvement of a product or a process must be part of some kind of longer-term (not day-to-day) project within the company. Such a project should become its own verb in the sense that everyone in the company knows about it and that several employees are engaged in completing it. It will (as the definition says) not be considered to be an innovation until this project is successfully implemented (on a market or within the organisation) and it contributes to the company earnings.

As the emphasis is on implemented and profit-earning products or processes, aborted innovations and innovations in progress are not considered to be innovations.

Radical or incremental innovations

Freeman and Perez (1988) categorise different types of innovation depending on to which degree the innovation has changed the industry; among others, they characterise the differences between incremental and radical innovations.

The incremental perspective exists on a continuous basis in most industries depending on demand, company culture and technologies applied. The radical ones are discontinuous and they are usually a result of large R&D (research and development) investments either within the companies themselves or at research institutions.

As the unit of analysis is supplier dominated or production based SMEs from the rural district of Central Jutland, it must be expected that the case companies have either none or very limited R&D activities. Companies without any R&D department are able to create both radical and incremental technologically based innovations; however, the incremental and continuously based innovation process will normally be prominent.

The definition of innovation used in this dissertation is, as mentioned above, the new or significantly technologically improved product or process activity which at least is new to the company and implemented on the market with some contribution margin as a result. This definition relates to the classic economic, rational and technology¹⁵ based way of understanding innovation. Adding the incremental and continuous innovation process to this understanding endows the innovation activities with a much more hands-on expression with some change management characteristics as well. This definition delimits innovation from being understood merely as business start-ups, entrepreneurship and high-tech companies which have a much more risky and changeable way of looking at innovation.

2.2 Conceptualising non-innovators versus innovators among SMEs

Being a part of chapter 2, this section also focuses on the substantive domain now addressing the relation level and the embedded level. The relation level is elucidated through an evaluation of the concept of non-innovators versus innovators among SMEs. The embedded system level, on the other hand, is addressed by discussing what impact innovation activities have on the SMEs and the society in general (Brinberg and McGrath 1985:33). The aim is to scrutinise the differences between companies which are heavily innovation activity based and companies which are not or almost not related to any kind of innovation activities.

Even though some SMEs are very skilled in competing on innovation and might even have advantages over larger companies, many countries like Denmark, Canada and New Zealand have a considerable share of less innovative SMEs. There are reasons to believe that more the 50% of the SMEs (Gellatly 1999) are non-innovative or less innovative orientated firms.¹⁶

¹⁵ See e.g. literature such as: Schumpeter 1942, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001. See also section 2.3. concerning innovation paradigms.

¹⁶ In a Canadian survey with 3,830 SMEs engaged in the service sector, Gellatly (1999) found that 40% (1,532 SMEs) were innovators in products, services or organisational contexts and that 60% (2,298 SMEs) were non-innovative firms.

To address this situation, a great deal of research is currently conducted to better understand the role played by the SME sector in general economic growth and development worldwide (OECD 2002). The majority of this research tends to emphasise the factors that support firms when they are already successful innovators and overlook the factors inhibiting firms' opportunities to innovate (e.g. Schumpeter 1942, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, O'Regan et al. 2006 A and B, McAdam et al. 2000).

Despite this focus on successful innovators, some research has been done on the barriers faced by non-innovators. Still, there seems to be a quite remarkable scarcity of literature and research regarding how to get through the non-innovative to innovative transformation process. There is, though, a small but growing body of research about the differences between innovative and non-innovative SMEs (e.g. Gray and Mabey 2005, Vossen 1998, Therrien 2000, McAdam et al. 2004, Vermeulen 2005, Baldwin and Lin 2002, McAdam 2004, O'Regan et al. 2006 B). This serves to emphasise the shortage of research into the question of how non-innovative SMEs can transform themselves into more innovative companies by means of various development activities. That is, we need to understand not just the differences between these kinds of firms but also how to overcome them. More than any other sector, the non-innovative SME sector is expected to become reliant on theories and practical advice on how to shift its focus from day-to-day business activities to a combination of day-to-day production activities and the ability to innovate.

We know that by measuring the performance of innovators as compared to non-innovators in areas like profitability, market share, growth and productivity, it simply turns out that innovation is directly correlated with success (Gellatly 1999:13, Baldwin et al. 1994), which supports the following statement: *"Innovation and success are complementary"* (Gellatly 1999:13). In other words, we know that being innovative in terms of making new products/services or processes are an effective way of sustaining or developing competitive advantages.

Chapters 1 and 2 have been aimed at creating a foundation, direction and scope for primarily the theoretical part and secondarily the empirical part of the dissertation. This scope has an important consequence for the rest of the dissertation, as it forms the platform for doing the literature reviews,

The Danish part of the CIS 4 survey (2004) consisted of 2,036 SMEs and 52% of these were not innovative from 2002 to 2004.

delimitation and selection of the relevant literature. The following chapter 3 will unfold the theoretical positions which are built on these theories.

3. The theoretical elements of the conceptual domain

In this chapter, the theoretical foundation on which the dissertation is built will be presented and adapted. This process will, as in chapter 2, follow the validity network schema (see appendix A) through the lines and ideas within the conceptual domain which, as the substantive domain, has the following three levels; element, relation and embedded system (Brinberg and McGrath 1985). The element level consists of different concepts of the phenomena or properties of the phenomena as Brinberg and McGrath put it. The relation level is basically the theory which the researcher focuses her attention on; Brinberg and McGrath call it logical causal chronological relations among the phenomena. On the embedded system level, the focal point is paradigms (theoretical) which means that the perspective is a larger amount of theories which are linked together by a group of scientists who to a certain extent share the same values, beliefs and behaviour (See appendix B for further details). Compared to chapter 2, this chapter will handle things in the opposite order seeing that it starts with the theoretical paradigm (see section 3.1). In my opinion, it is logically sound that this theoretical chapter seizes the paradigm aspect first, thereby establishing the framework (paradigm) for how to understand the theories and the concepts within the theories. Then, in the following sections, the theories (relation level) and the properties of these theories (the element level) will be evaluated.¹⁷

3.1 Constructing paradigms in the field of innovation

The first elements of coherent innovation theory are attributable to Schumpeter's work in the thirties (1934, 1939 and 1943) but it is not until the late seventies or early eighties that we actually see a breakthrough and a more proper economic tradition as regards innovation theory (Dosi et al. 1988). Today, innovation is a major part of mainstream economic and business theory and is one of the most critical points of economic competition in this decade. Nations, regions, companies and people are striving to establish innovation models or systems which can lead to sustainable competitive advantages. For obvious reasons, it is very difficult, if not impossible, to develop such models or systems due to the dynamic character of innovation. In scientific communities, different research directions or "paradigms" have tried to set up broader frames for how to investigate, understand and work with innovation. Paradigms consist of rules for how a scientific community appears and work (Kuhn 1970, Popper 1983) and Kuhn defines a paradigm as shared beliefs and

¹⁷ It will be done with all due respect for the learning taxonomy of going from the unified whole (theory) to the particulars and concepts of these theories (properties of the theory).

agreements about how to understand certain problems among scientists. A certain paradigm keeps the group of researchers together and makes them a society with shared values beliefs and behaviour (see more details in appendix B).

The many different theories, models and systems for innovation support the argument of characterising the area as fragmented and dynamic. However, the innovation literature (e.g. Schumpeter 1942, Kirzner 1978, Uhlener 2003, Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, Fulgsang & Sundbo 2005 Draft & Weick 1984, Fuglsang & Sundbo 2005, Dewey 1988, Edwards et al. 2005) makes it possible to outline at least three dominating paradigms or “schools”, each with its own integration mechanism. (The integration mechanism is mentioned in the first parentheses)

- Entrepreneurship based innovation (value) (e.g. Schumpeter 1942, Kirzner 1973, Uhlener 2003, Fulgsang & Sundbo 2005)
- Technology based and functional innovation (technology) (e.g. Burns & Stalker 1966, Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, Fulgsang & Sundbo 2005)
- Strategic reflexive based innovation (strategy and reflexivity) (e.g. Draft & Weick 1984, Fuglsang & Sundbo 2005, Dewey 1988)

There are two main reasons for discussing these different paradigms; one is to see which paradigm is most suitable for the current research as a theoretical framework for understanding the innovation literature. The other is to examine if and to what extent these paradigms are competing or co-operating, thus learning more about these paradigms, and to decide how one or more of them can be used in this dissertation. The question of competing or co-operating is also mentioned by Sundbo when he asks whether each of the three paradigms is a mono or multi-theoretical explanation for innovation today (Sundbo 1995). Are these paradigms actually competing about being *the* explanation for how to innovate and being *the* macro factor which really influences the development of society? Or do the paradigms in some kind of combination deliver a united and co-operating explanation for innovation? The answer will follow in section 3.2.4.

In the following sections, each paradigm will be analysed from a macro perspective (how the paradigm influences the business society) and from a micro perspective (how the paradigm understands the factors which initiate innovation). Furthermore, the innovation process will be interpreted in relation to internal organisational activities.

3.1.1 The entrepreneurship paradigm

In the entrepreneurship literature, there are basically two main theories which expound the entrepreneurship phenomenon differently. One perceives entrepreneurship as a dynamic value creating person who either tries to create something entirely new (Schumpeter 1934) or tries to create value from insufficiencies or faults in the way things work (Kirzner 1973). The other main theory pigeonholes entrepreneurship as an ongoing process within existing and often large organisations (Drucker 1985, Pinchot 1985); Kanter (1983) terms these people corporate entrepreneurs. Due to the fact that this study is limited to the SME sector, thereby precluding large companies, the corporate entrepreneurs are also precluded because they are mostly present in big companies.

For Schumpeter (1934) the entrepreneur is the innovator and if the entrepreneur establishes a new company on the basis of a new idea (an innovation), then Sundbo (1998) calls it the classic entrepreneur or a Gründer (founder). If a company is started in a well-known area without any new products, we talk about a business founder and then it has no relation to innovation theory. The entrepreneurship theory has developed from perceiving the entrepreneur as an internally driven and intuitively acting person (Schumpeter 1934) who focuses on a randomly based innovation process (radical or incremental) which is basically uncontrollable (Sundbo 1995) to seeing entrepreneurship as a role which can be learned and therefore also organised in different business structures (Argyris & Schons 1978, Nelson & Winter 1982, Kanter 1983 & 1989). The traits of the entrepreneur, however, are still based on independency and creativity (Binks and Vale 1990); “Entrepreneurs are system-builders and creators of change”...and “The social system is mainly understood to be bound together by the charisma and personality of the entrepreneur” (Fulgsang & Sundbo 2005).

3.1.2 The technology and economic based innovation paradigm

Although technology is difficult to define (Sundbo 1998), this second innovation paradigm has its focus on technology based disciplines from the natural science area and it developed through the

thirties, forties and fifties. In relation to the success of making primarily product innovation but also technology (inventions) and process innovation, a technology and economic and rationally based innovation theory evolved (Dosi 1982, Freemann & Perez 1988); in fact with the same point of departure as the entrepreneurship paradigm (Schumpeter 1934).

The paradigm started out with a technology push (Freemann & Perez 1988) conviction but quite quickly this view was supplemented with a somewhat weaker demand pull (von Hippel 1988) perspective. The technology and economic paradigm embraces both the radical and the incremental paths of innovation, although the incremental perspective is emphasised more due to the belief that radical innovation is seldom and difficult to predict (Sundbo 1995). These incremental (primarily product or process) innovations occurs as something which is organised in the company; either in an R&D function or as an implicit part of more classical departments. The innovation process is seen as a way of capitalising on employees' ability to generate technical creativity which can be transformed into new inventions and afterwards act as bridgeheads for various kinds of incremental innovation (Sundbo 1995). The paradigm is to be understood as: "The production of certain given goods, and possibly the standardized or technology-based services to the right price and in the right volume"....and therefore, "Innovation relies on well proven and well identifiable trajectories of change, either technological trajectories or professional trajectories" (Fuglsang & Sundbo 2005).

3.1.3 The strategic reflexive based innovation paradigm

In general, strategy is defined as a question of positioning the firm in relation to the market by manoeuvring the firm's internal structures and processes to achieve a competitive advantage. This definition also fits this paradigm which takes as its starting point the changeable character of the external environments and tries to translate these inputs into internal organisational areas like strategy, effective operations, internal control and a sound development of the company (Sundbo & Fuglsang 2002 and 2005). Behind this paradigm lies a theoretical recognition saying that the market possesses a wealth of untapped potential which can be turned into value by companies who have innovation-based and well-articulated strategies (Herlau et al. 2001, Panne et al. 2003). Strategic reflexivity is about formulating and implementing the strategy between the internal habits, rules and behaviour and the external interpretation of market needs and possible partnership alliances with innovators and customers alike.

Due to the idea of utilising the marginal opportunities, this paradigm does not focus on radical innovation but on incremental innovation.¹⁸ It is future market requirements which “determine” when it is appropriate to launch an innovation development process; “incremental innovations are therefore a result of conscious strategic considerations” (Sundbo 1995). The strategic reflexive paradigm classifies the innovation process somewhere between the rational paradigm (technology/economic) and the processual paradigm (entrepreneurship) because it basically reflects the strategic literature (Mintzberg 2000) and the conditions for applied strategic work. There is a rational ideal goal among several normative strategy theories (Sundbo 1995) but it is also well-known that a certain part of the strategy fulfilment is contextually engendered (Mintzberg and Quinn 1991) and therefore does not form part of the rational and deliberate strategic plan. Implementing a strategy will always entail a development process involving large parts of the organisation.

The management aspect and contribution are core elements of this paradigm because it requires well-developed management competences to handle that “strategic reflexivity means that the organization’s change process is constructed by its strategy. This strategy is, however, continuously deconstructed and reworked in a reflexive manner by constituencies within and around the organization”...and on top of that we know that the road is unpredictable....”the change process does not follow a pre-determined trajectory, neither technological nor social” (Fuglsang & Sundbo 2005). The table below provides an overview of the three paradigms and their representation of innovation.

¹⁸ Here, all kinds of innovation are in play; product, process, service, organisational, social.

Table 3.1 The three paradigms and their view on innovation

| | The entrepreneurial paradigm | The technology - economic paradigm | The strategic reflexive paradigm |
|------------------------------|-------------------------------------|--|---|
| Value (latency) | Deploy personal achievement | Institutionalisation of routines | Strategic reflexivity |
| Goal orientation | Create activity – organization | Create goods and standardised services | Create services and experiences |
| Integrative mechanism | Person – charisma | Hierarchy, socialisation mechanisms | Strategy, roles |
| Adaptation mechanism | Trial and error | Trajectory, technological and professional | Reflected incremental differentiation |
| Creativity mechanism | Individual personality | Systematic technical routines | Interaction |

Source: Fuglsang & Sundbo 2005

3.1.4 The three paradigms - comparison and choice

The first element of comparing these three paradigms is to determine whether they are competing or complementing each other in relation to being *the* most dominating paradigm for predicting how to innovate and create influential economic growth. Sundbo (1995) raises the same question when asking whether one of these paradigms (mono theoretical) or all three of them together (multiple theoretical) are able to provide adequate explanations to the emergence of innovations which have the strength to create general growth in society.

The answer is ambiguous and it depends on the context. If a macro theoretical explanation is used, then the three paradigms are competing¹⁹ for being *the* paradigm which explains how innovation and economic growth are generated (Sundbo 1995). Throughout the last century, each paradigm has had its golden age starting with entrepreneurship, then the technology/economic and in these years, it is possible to present some theoretical arguments for announcing the strategic reflexive paradigm as the winner of the competition²⁰ (Fuglsang & Sundbo 2005). Conversely, when taking a microeconomic view of these paradigms, some empirical evidence indicates that; “a multi

¹⁹ Although there is a certain overlap and some borders are less clear due to the fact that the same basic literature is used in more than one paradigm.

²⁰ It is possible to link these golden ages of each paradigm to historical and far-reaching waves of economic booms and development. See Sundbo 1995 and 1998.

theoretical explanation cannot be rejected” (Sundbo 1995). In an organisational micro perspective, innovation and economic growth can be produced by a mix of the activities and behaviours which are linked to the three paradigms (entrepreneurship, technology/economy and strategic reflexivity). The answer to the question of competing or complementing therefore depends on the perspective applied. On a theoretical macro level, the paradigms are competing and on an empirical micro level, the paradigms are not competing but may even complement each other.

Another useful way of comparing and analysing the three paradigms is first of all to classify them in relation to the degree of determination within the social system or change agency that each paradigm refers to (Stacey 2003, Fuglsang & Sundbo 2005). The scale is a continuum ranging from machine analogue to anarchy (see figure 3.1 below) and the entrepreneur paradigm is very much in conformity with the anarchy. Entrepreneurship is normally understood as a system or person which breaks the rules, lives in chaos and continuously constructs new relations between all kinds of different activities and actors (Fuglsang & Sundbo 2005, Schumpeter). Innovation and change activities in the entrepreneurship paradigm are therefore “a completely unpredictable, and thus anarchic, process” (Fuglsang & Sundbo 2005). This paradigm, however, is moving towards the so-called process interactive system (little less anarchy – see figure 3.1) due to the pursuit of bringing entrepreneurship into some kind of organisational context (Fuglsang & Sundbo 2005).

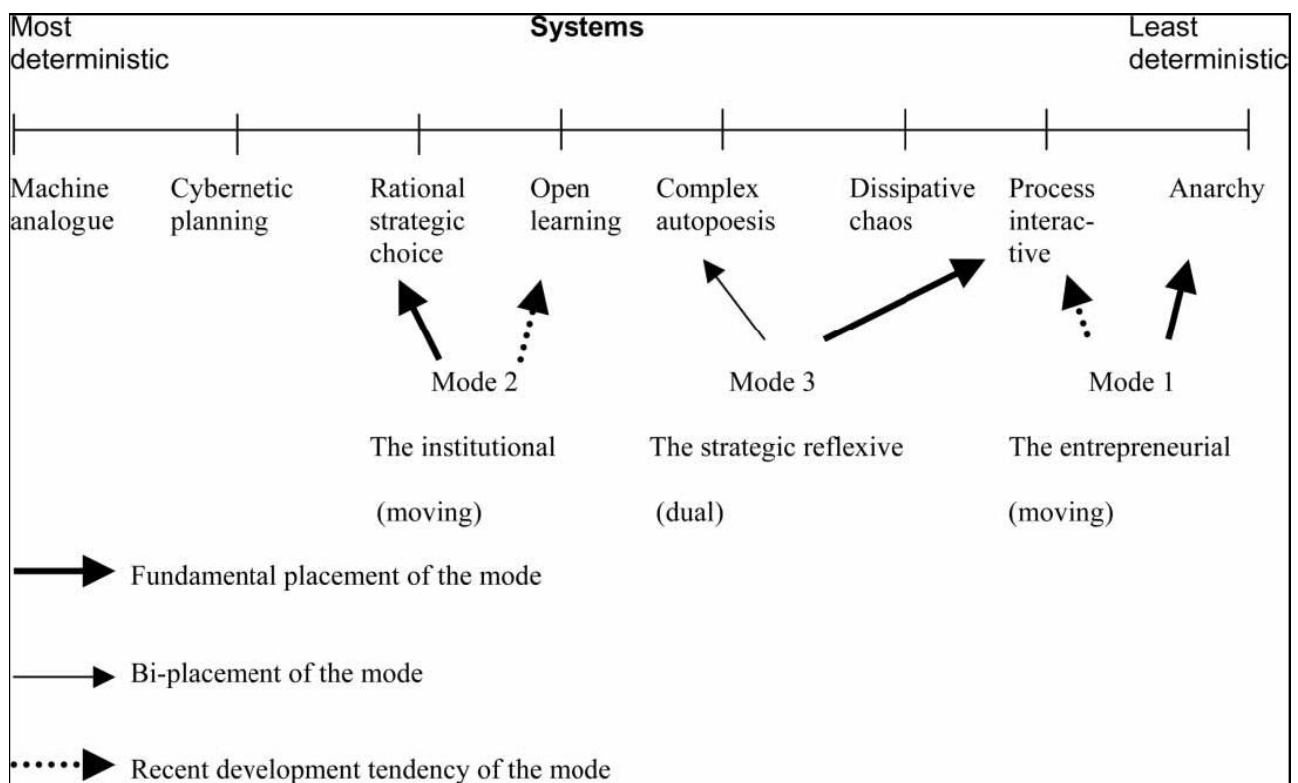
The technology and economic based paradigm is linked to a much more deterministic system called “rational strategic choice” (see figure 3.1 below). This makes sense in view of the fact that this paradigm is identified by things like systematic processes, institutionalised technical activities, routines etc. (Fuglsang & Sundbo 2005). Consequently, it is fair to say that this system refers to the classic rational and economic based view or the rational strategic view. Nevertheless, this paradigm has also changed realising that innovation is not something rational which can be planned down to the last detail and then be institutionalised. This realisation has caused the paradigm to move in the direction of a more open learning approach which means that it is to be understood as system developing in a less deterministic direction (see figure 3.1).

The strategic reflexive paradigm conceives the innovation and change process as “many interactions within the organization. New ideas evolve out of interactions between the employees and the managers and their interaction with external actors and constituencies” (Sundbo & Fuglsang 2005).

The strategic reflexive paradigm has a built-in duality coping with both a hierarchical managerial structure (some similarities with the technological/economic paradigm) as well as a loosely coupled interactive structure. The intention is to embrace both a production and innovative development logic within the same organisation, a philosophy which is also known from the so-called ambidextrous organisation (O'Reilly & Tushman 2004). Therefore, the strategic reflexive paradigm is related to two different systems; the complex autopoiesis system covering the hierarchical structure and the process interactive system covering the loosely coupled structure.

In the figure below, the three paradigms are positioned in relation to original placement (the arrow) and in relation to the direction of the recent movement (dotted line arrow) (Sundbo & Fuglsang 2005).

Figure 3.1 The paradigms and the level of determinism



Source: Fuglsang & Sundbo 2005

Interestingly, figure xx indicates that both the entrepreneurship paradigm as well as the technology – economic paradigm are approaching the strategic reflexive paradigm (Sundbo & Fuglsang 2005) which may be interpreted as the first sign of a mono theoretical or complementing explanation of innovation and economic growth.

The reason for reviewing and analysing each of the paradigms and their mutual influence on setting the scene for innovation as a society growth promoter is to decide which one of them is the most appropriate to employ in this PhD project.

As already mentioned above and what also appears from the definition of entrepreneurship, this PhD project is not about entrepreneurship, neither as a single person nor as a person or department in a large company. The research question and the field of interest emphasise SMEs and a much more general understanding of innovation management and therefore, this paradigm does not apply to the current PhD project.

The strategic reflexive paradigm is somehow very attractive and also a kind of a paragon for a lot of these years' main stream literature on how to manage daily activities while simultaneously creating a context promoting innovation and development. This paradigm will be extremely relevant for companies in the business of high tech, bio/nanotech and other R&D based firms or very specialised suppliers. However, when related to the SMEs chosen for this dissertation, it is obvious that there is a misfit (see chapter 1: Delimitation of the case companies). The empirical data (see chapter 4) simply indicate that these companies are not part of this strategic reflexive paradigm yet.

The companies within this study are still in the technology and economic based paradigm struggling with improvement in terms of better innovation competences and therefore moving their change agency towards some kind of open learning system.²¹ Also the theoretical position within the applied literature is based on the technology and economic based tradition due to the fact that the pilot study data and the first literature reviews mutually influence each other and create a clear direction towards the chosen paradigm. Thus, the arguments for applying the technology and economic based innovation paradigm in this PhD project are substantiated both by empirical as well as theoretical explanations.

The consequences of applying the technological and economic paradigm are an elimination of the entrepreneurship paradigm and the strategic reflexive paradigm. The theoretical position applied in this chapter and throughout the dissertation will be taken from the technological/economic

²¹ It will appear from the data from the case studies (see chapter 4).

paradigm enabling me to reflect, analyse, theorise and generalise within the paradigm which relates optimally to the research objects and field as such.

3.2 Subdividing of the technological/economic paradigm

Now the centre of attention is on the relations level within the conceptual domain (see appendix B), in other words, the theories which can contribute to our knowledge about what it takes to transform an SME from non-innovative to innovative. When the aim is to transform, a rational approach will be to focus on barriers to and promoters of innovation development. A transformation process can be completed either by overcoming the barriers which impede it or by getting support from promoters that can facilitate the desired transformation. Often barriers and promoters are related in the way that overcoming a barrier creates a promoter and vice versa.

Consequently, determining theories on barriers and promoters are important and relevant for the current research and dissertation. The aim is to create a channel which links the exponentially growing literature on innovation in a broad sense and the literature which is going to be used in this context. Essentially, this channel is about crafting a vertical link through the conceptual domain (from paradigms/embedded system through theories/relations to concepts/elements) which is about arguing for the choices made in relation to the theoretical paradigm, the theories and the theoretical concepts. Until now, chapter 3 has been about arguing for the chosen paradigm; the remaining part of the chapter is about arguing for the choices made in relation to theories and theoretical concepts and to explain why and how these theories relate to this dissertation.

Becheikh et al (2006) is an exponent of the technological/economic paradigm as his work focuses on how to encourage technology based companies to become more innovation based. Becheikh et al. (2006) have written a useful and important article²² which brings together “a set of variables related to the innovation process and the internal and contextual factors driving it” (Becheikh et al. 2006). This article has the potential to help “researchers to better channel their efforts in studying the phenomenon” (Becheikh et al. 2006). The article covers a literature review of all peer review articles on empirical based technological innovation studies in the manufacturing sector from 1993 to 2003.

²² “Lessons from innovation empirical studies in the manufacturing sector: A systematic review of the literature from 1993-2003”.

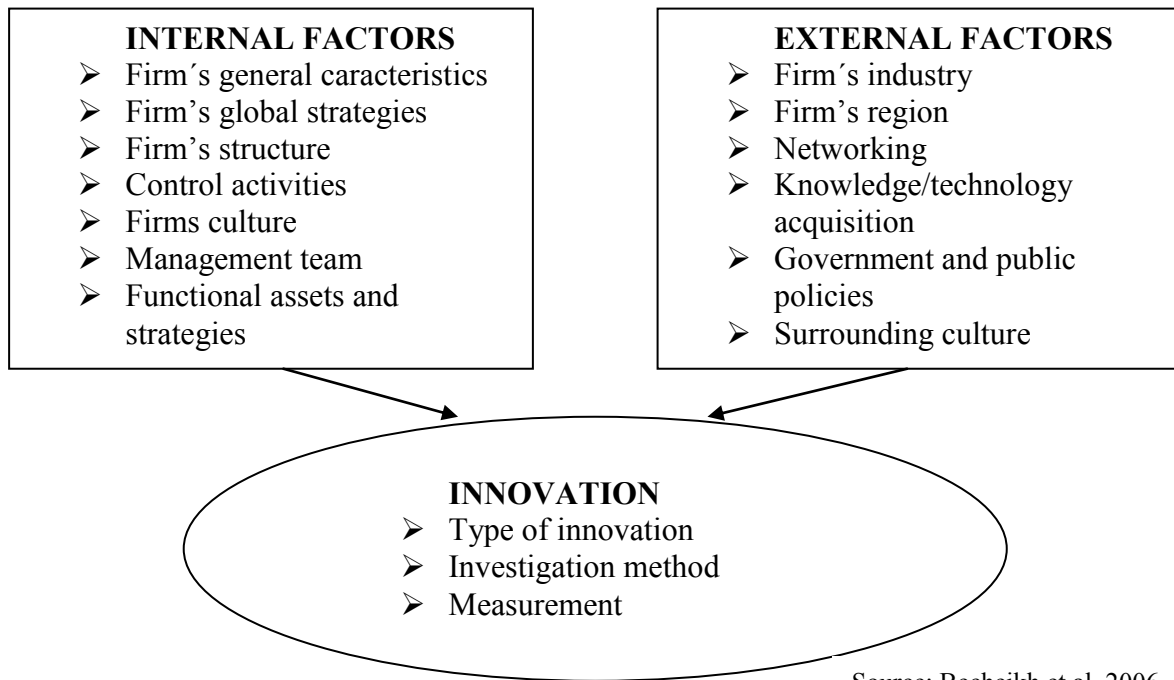
As is evident from Becheikh et al. (2006), one cardinal and substantial problem within the exponentially growing body of research into innovation management is the absence of a precise description of how to fulfil a successful innovation process. Despite the fact that many researchers have tested a large number of innovation related variables and found some evidence of a recipe of successful innovation, a problem arises when similar variables are tested because “they discovered differing degrees of association with the rate of innovation” (Becheikh et al. 2006). However, Becheikh et al. (2006) try to address this problem by (conducting a systematic review from 1993 to 2003) integrating all empirical based results concerning technological innovation (product and process) in the manufacturing sector in order to identify where the conclusions converge and diverge. It is of significant interest to identify variables which converge in relation to the phenomenon of innovation (Becheikh et al. 2006) as a means to categorise the innovation literature and address relevant literature for this PhD project.

Becheikh et al. (2006) take the following question as the point of departure: “What is innovation and what determines its development in manufacturing firms?” The article (Becheikh et al. 2006) has two main objectives in relation to the literature review; one is to study how the variable “innovation” is approached and measured and the other is to identify the main explanatory variables which establish and relate to the innovative performance and behaviour within the firm. As a way to delimit the innovation literature, the article is of great interest to this PhD project. It represents an obvious opportunity to divide this rather comprehensive innovation literature field into a more relevant and coherent state of knowledge seen in the perspective of this PhD project.

Similar to the definition in chapter 2, Becheikh et al. (2006) use the Oslo manual as a way to define innovation in terms of: “implemented technologically new products and processes and significant technological improvements in products and processes”. Throughout the paper (Becheikh’s et al. 2006), innovation is seen as the dependent variable and approximately sixty explanatory variables are found. Becheikh et al. (2006) handle this rather extensive variation in the explanatory variables by creating a framework for integrating these findings in a more clear and well-arranged form. The framework consists of three parts; one part focuses on the dependent variable (innovation) and the other two parts are what Becheikh et al. term two “families” of explanatory variables; internal factors and external factors respectively. Through these two “families”, the sixty variables have

become seven internal factors and six external factors. The framework is reproduced in figure xx below.

Figure 3.2 Integrating the findings in a framework



Source: Becheikh et al. 2006

Type of innovation

Type of innovation describes how the distribution is between product and process innovation among the 108 studies included in the review (Becheikh et al. 2006). The investigation method says something about the research methods used in the 108 studies. All of them are quantitative and different kinds of statistical tools are used; the ordinary least square regression (OLS) is the most common being used in 37 % of the studies.²³ Measurement addresses how these studies measure the phenomenon of innovation. The two most common ways to measure innovation among the 108 studies are innovation counts and firm-based surveys (25% and 24% of the studies respectively).

The dependent variables – internal and external factors

First of all, dividing the dependent variables into internal and external factors is of course important in order to create an overview of the innovation theory literature. However, the two “families” of

²³ The qualitative approach is chosen in this PhD project because the field is rather undeveloped, which means that there is little guidance regarding what factors to measure in the scope of the research question (Shaw 1999). See appendix A and C for further details.

explanatory variables are also central in relation to investigating the phenomenon of innovation in further detail and advancing arguments for choosing the relevant literature for this dissertation. As shown in figure 3.3, Becheikh et al. (2006) divide the empirical studies conducted from 1993 to 2003 on innovation in the manufacturing sector into seven categories of internal explanatory variables and six categories of external explanatory variables. Each of these thirteen categories consists of several subcategories and variables due to the fact that they cover sixty variables altogether. The thirteen categories and the related subcategories (and when necessary, variables) are displayed below.

Figure 3.3 Internal and external explanatory variables

| Category | Subcategory/variable |
|----------------------------------|--|
| Firm's general characteristics | Size, age and ownership structure |
| Firm's global strategies | Strategy definition, corporate strategy and business strategy |
| Firm's structure | Formalisation, centralisation and interaction between units |
| Control activities | Financial versus strategic control |
| Firms culture | Resistance to change, TQM and culture as support for innovation |
| Management team | Leadership variables and management variables |
| Functional assets and strategies | R&D, human resource, operation/production, marketing and finance |
| Firm's industry | Sector, demand growth in the industry and industry concentration |
| Firm's region | Geographic location and proximity advantage |
| Networking | Interaction with universities/competitors/consultants and service providers/supplier/customers |
| Knowledge/technology acquisition | Formal and informal knowledge and technology acquisition |
| Government and public policies | Government policies |
| Surrounding culture | External financial support, power, risk, femininity-masculinity, collectivism-individualism. |

Source: Becheikh et al. 2006

These thirteen categories provide a fairly good representation of the current theoretical positions within the innovation literature (in relation to the manufacturing sector). Obviously, no study or research process (except reviews of the literature) is able to work with all these elements at the same time, which makes it pragmatic and appropriate to select certain categories or aspects. Reducing the number of areas also ensures a reasonable depth and concentration in the research project in terms of theoretical and empirical considerations; additionally, not all of the above-mentioned areas are equally relevant in relation to this research project. The selection of the relevant theoretical areas, however, must be made carefully and with respect for the most recent research on the field.

To ensure a careful selection of the most appropriate literature, the following four criteria have been used in the selection of the theoretical platform for this PhD project. **(1)** The theoretical area (or category) should be directly related to the research question of how to manage SMEs through the transformation from non-innovative to innovative? **(2)** As barriers to becoming more innovative are seen as a crucial element of this PhD project, the theory selected should also address this particular part (barriers) of the literature. **(3)** The third criterion is, in a more general sense, a question of choosing theory which is seen as more important and better in terms of addressing the current research. **(4)** The fourth and last criterion is related to my pilot study saying that, if possible, the chosen theory should be supported by the empirical data collected in the pilot study.

The first step to narrow down the main innovation literature position (the thirteen categories) is to use the barrier criterion. As mentioned in chapter 2, the majority of research and theory development in the innovation literature is seen from the viewpoint of successful innovators. Therefore, the selection criterion of choosing theories which address barriers preventing companies from being innovative is an efficient way to delimit the literature.

To sketch out the literature on innovation barriers, I have studied the innovation literature intensively to be able to explicitly specify the dialogue concerning this issue among scholars and practitioners in the preceding years. Though different, the literature reviews of the SME innovation literature (e.g. Baldwin and Lin 2002, McAdam et al. 2004 A. & B., Gellatly 1999) enable me to outline some barriers for becoming more innovative among SMEs. In my opinion, key distinctions between innovators and non-innovators are in many ways similar to areas which are innovation

barriers for the non-innovators as well. Altogether, the literature reviews identified ten areas which constitute the most significant distinctions between innovators and non-innovators (or barriers for the non-innovators).

All ten areas are represented in the thirteen categories (Becheikh et al. 2006) supporting the existence of a link between the two poles of the literature. This means that through criterion 2, I am able to delimit the theoretical field of interest of this dissertation into the following ten areas: Size, financing, marketing, structure, culture, R&D department, management, HRM, Strategy and network. To delimit the literature even further, thereby finding a rational and suitable theoretical foundation, each of these ten areas (addressing barriers to innovation) will be tested in the light of the other three selection criteria.

Starting with size, small and medium-sized enterprises (SMEs) are often credited with the potential to react faster to new opportunities through innovation vis-à-vis many large scale enterprises (LSEs) (Gray and Mabey 2005, Vossen 1998, McAdam et al. 2004). This ability to react agile and swift to opportunities, however, is mainly valid for an exclusive group of SMEs, for example small and medium-sized R&D based firms or very specialised suppliers. That kind of SME does not form part of my pilot study and is rarely present in the middle and western part of Jutland, which means that size does not meet criterion 4. Nor does it meet criterion 1 as size cannot be said to be directly related to managing the less to more innovative transformation process. This means that size is not an area of interest for this PhD project.

Concerning both financing (Gellatly 1999 and Freel 2000 B) and marketing (Penne et al. 2003 and Mosey et al. 2002), none of these areas meet criteria 1, 3 or 4 and therefore, they are not relevant for this study.

The question of how to design and organise an effective organisational structure has always been a vital element of management studies and these years, this question is very much addressed as a question of how we organise a structure which supports innovation activities. One of the major differences between innovators and non-innovators is the level of rigidity in the structure; innovators is less rigid organisationally (Tourigny and Le 2004) with a flat and more organic (flexible) structure which makes it easier to react to and implement changes (McAdam et al. 2004

A). Non-innovators are somewhat stuck in the opposite situation, restricted by a high level of organizational rigidity (Tourigny and Le 2004). Furthermore, their ability to cope with changes is hampered due to the high level of hierarchical structures and bureaucracy (McAdam et al. 2004 A).

Although structure meets criteria 1 and 2, it is not addressed particularly clear in the pilot study (criterion 4) and therefore, it is seen as less important and suitable in terms of forming part of this study (criterion 3). Another argument for disregarding structure (by using criterion 3) is the principle position of strategy which overrules the structure area by claiming that “structure follows strategy” (Amburgey and Dacin 1994) although some research argues contrariwise by saying that structure affects strategy (Frederickson 1984). However, structure following strategy position seems to be the most prominent view: “From a normative view, the “structure follows strategy” framework seems the more promising” (Burton & Obel 1995). Implementing a new strategy has, obviously, a great impact on structure and forces it to change in one way or the other. Consequently, structure is precluded from this study.

Although it indeed is a complex phenomenon, we know that the firm’s culture or basic values (Collin and Porras 2004) have a huge impact on general business behaviour and performance. Likewise, it is believed that a firm’s culture has a certain impact on the capability of making innovation; the culture should be dedicated to innovation and be familiar with the collective nature of innovation processes (Panne et al. 2003, O’Regan et al. 2006 B). Beliefs, values and norms can either support or hinder change and innovation activities depending on how these factors influence the actors; i.e. how these actors interpret the culture (Martins & Terblanche 2003). Still, culture is an intangible concept and the potential benefits derivable from it depend on the staff’s interpretation of the culture: *“In the majority of cases respondents who identified unique “cultures” in their organizations believe that those “cultures” had a positive effect on the performance of their companies”* (Choueke and Armstrong 2000).

Thus it is fair to say that culture meets criteria 1, 2 and 4 seeing that culture is also explicitly addressed in the pilot study. On the other hand, culture is probably one of the most complicated phenomena in organisational theory for which reason the area should be subject to anthropological and cultural research in its own right. This supports the notion that criterion 3 has not been met which excludes culture from this project.

The purpose of R&D activities is to make different kinds of innovation; thus it goes almost without saying that one may expect a rather strong relation between R&D and innovation. In a Canadian survey with 3,830 SMEs engaged in the service sector, Gellatly (1999) found that 40% (1,532 SMEs) were innovators in products, services or organisational contexts and that 60% (2,298 SMEs) were non-innovative firms. Among the innovators, 57% were directly involved in R&D activities and only 10% of the non-innovators were engaged in R&D activities (Gellatly 1999). The successful innovators report that a multidisciplinary character (Panne et al. 2003) of the R&D team is an important part of their normal business actions which is quite the opposite of what the unsuccessful innovators report (Therrien 2000).

Innovators assign a high priority to R&D and it also seems as if they are better at connecting innovation with the firm's core competencies increasing the probability of successfully completing the innovation process (Panne et al. 2003). Furthermore, successful innovators are twice as likely to agree that the production technologies change rapidly. In comparison, the non-innovators and the unsuccessful innovators are one third as likely to agree that technologies change (Therrien 2000).

Either the company has an R&D department or it has not; thus I will argue that the area of R&D actually does not meet criterion 1. That is, there is not necessarily a direct correlation between having an R&D department and managing a less to more innovation based transformation process. In addition to this, R&D departments are not that common in the typical SME placed in the rural district of western Denmark, especially not the small and micro-sized companies. Only the two medium-sized SMEs out of the five case companies²⁴ of this study have its own R&D department. Therefore, the R&D area only partly meets criterion 4 and it does not meet criterion 3. Consequently, the R&D area not will be part of the further research process.

Arguments have now been advanced for the exclusion of six of out of ten main areas addressing barriers to innovation among SMEs. The remaining four areas are strategy, management, HRM and network and I will argue that all four areas meet each of the four criteria for selecting a relevant theoretical foundation for this PhD project. All four areas represent potential barriers for becoming innovative (criterion 2) and they are directly related to managing the transformation process of

²⁴ The case study encompasses two medium-sized, two small and one micro-sized company.

becoming more innovative (criterion 1). These four theoretical aspects were also explicitly emphasised among the interviewees in the pilot study (criterion 4) and by meeting criteria 1, 2 and 4, these four areas have proved themselves to be important and well-qualified in terms of addressing the current research process (criterion 3). Another reason for excluding the six areas mentioned above and including the remaining four is the vice versa argument that the strongest evidence for separating innovators from non-innovators is to be found in the four remaining areas, strategy, management, HRM and network. This also appears from research conducted in the four areas replicated in the figure below.

Figure 3.4 Characteristics for innovators and non innovators

| | Innovators | Non-innovators |
|--------------------------------|---|---|
| Strategy | <p>Strategies are strongly correlated with the innovation process. <i>Gellatly 99</i></p> <p>Long-term strategic approach among innovators. <i>McAdam et al. 04 A.</i></p> <p>A clearly articulated innovation strategy and a management style suited to that. <i>Panne et al. 03</i></p> <p>Confidence in their (SMEs) ability to make long-term strategic new product plans. <i>Mosey et al. 02.</i></p> | <p>Seldom apply innovation strategies. <i>Gellatly 99</i></p> <p>Short term quick fix initiative instead of strategies. <i>McAdam et al. 04 A.</i></p> <p>SMEs tend to have intuitively derived strategies that reside mainly in the mind of the managing director. <i>Regan et al. 06 B.</i></p> |
| Management – leadership | <p>Systematic approach to design gives better assessments of time and cost in product development. <i>Millward et al. 05</i></p> <p>Better management attitude towards change and handling of worker resistance. <i>Baldwin and Lin 02</i></p> <p>Supporting organisational structure and management team and a more consultative style involving the employees in the decision making. <i>McAdam 04 B</i></p> <p>A firm’s prior experience with innovation projects will enhance innovative success. <i>Panne et al. 03</i></p> <p>Transformational and HR leadership, empowerment culture and staff creativity strategy are associated with innovation. <i>O’Regan et al. 06 B.</i></p> | <p>Dominant owner/manager restraining delegation and instead focusing on time and cost. <i>Millward et al. 05</i></p> <p>Difficulties in managing cross-disciplinary variables. <i>Vermeulen 05</i></p> <p>Difficulties in managing change and worker resistance. <i>Baldwin and Lin 02</i></p> <p>Usually a more authoritarian style. <i>McAdam 04 B</i></p> |

| | Innovators | Non-innovators |
|----------------|--|---|
| HRM | <p>Recruiting skilled labour (HRM planning). More planned incentive compensation. <i>Gellatly 99</i></p> <p>Higher proportion of technically skilled staff. <i>Freel 99</i></p> <p>Employ graduates (47.9%). <i>Freel 99</i></p> <p>More focused on training and development. <i>Baldwin and Lin 02</i></p> <p>Solving the problem with shortages of skilled labour. <i>Sabourin 01</i></p> <p>Recognition of employees as source of innovative ideas. <i>Therrien 00</i></p> <p>Firms prefer to use the informal learning system by training and hiring experienced workers instead of using the formal university education system. <i>Therrien 00</i></p> <p>Tentative evidence that higher proportion of technicians discriminates “novel” from “incremental” innovators both on product and process. <i>Freel 05</i></p> <p>HRM, training, development and linking that with product development is <i>the</i> difference between innovators and non-innovators. The more innovative firms train more staff! Innovation and training are linked! <i>Freel 05</i>.</p> | <p>Recruiting less skilled labour.</p> <p>Less planned incentive compensation. <i>Gellatly 99</i></p> <p>Lack of management competencies and skilled labour. <i>Freel 99</i></p> <p>Absence of higher skills levels = stuck in technology = less competitive. <i>Freel 99</i></p> <p>Employ graduates (30.8%) <i>Freel 99</i></p> <p>Lack of incentive structures and project working groups and no product champions. <i>Vermeulen 05</i></p> <p>Less focused on training and development. <i>Baldwin and Lin 02</i></p> <p>Do not see management and production employees as an important source of innovation compared with the more innovative firms. <i>Baldwin et al. 96</i>.</p> <p>Not solving the problem with shortages of skilled labour. <i>Sabourin 01</i></p> <p>It is difficult to hire well-skilled workers but easier to retain them. <i>Therrien 00</i></p> <p>Higher proportion of managers distinguishes non-innovators and incremental innovators from novel innovators. <i>Freel 05</i>.</p> <p>In the absence of higher skill levels in a competitive labour market, small firms become dependent on existing technology, further undermining competitiveness. <i>Freel 05</i></p> |
| Network | <p>Greater external collaboration with different agencies facilitated by social dynamics e.g. trust. <i>Freel 00</i></p> <p>Perception of value added through cooperation mostly in vertical links. <i>Freel 00</i></p> <p>Should be more “interconnectivity” e.g. cluster, network and university-SME. <i>McAdam 04</i></p> <p>Being engaged in activities linked to innovation drastically increases the likelihood of being a successful innovator. Collaboration with other firms is seen as an important success factor in successful innovative firms. <i>Therrien 00</i></p> | <p>Less external collaboration. <i>Freel 00</i></p> <p>Not being involved in any innovations activities. <i>Therrien 00</i></p> <p>Only 4% of the unsuccessful innovators used government R&D grant programmes. <i>Therrien 00</i></p> |

Source: Own work

A better understanding of each of these areas is a decisive factor in explaining what prevents some SMEs from being innovative. The focus of the remaining part of chapter 3 is to look into the specificity of transforming an SME from non-innovative to innovative by supporting the process in the four chosen areas. This is accomplished by combining and cross-examining the already existing literature on managing SMEs, growth related to SMEs and innovation management in general. Despite similarities between the four mentioned areas (management, HRM, strategy and network), a closer study of the literature reveals significant variation in perspectives and insights about the

specific context, issues and the range of managerial action available within SMEs. In this chapter, a combination of the SME literature and the more general innovation management literature will be used to identify key features among the four chosen areas which differentiate innovative SMEs from non-innovative SMEs. These key features also define the transformation process which non-innovative companies need to go through in order to become more innovative, thereby breaking down their production trap.

The SME sector is characterised by being a heterogenic group of firms with a huge variance in e.g. business settings, market conditions, the speed of growth, size, internal education levels, international network and relations etc. Because of this variance, one can expect to see quite different trajectories in the way the transformation process towards more innovative SMEs is fulfilled. Despite this variance, the end of this chapter attempts to combine the four areas in a model of how to overcome barriers to staying competitive. The aim is to establish a (normative) model which is compatible with at least the production intensive and not science based SMEs.

The chapter is structured as follows: Section 3.3 is devoted to the relation between management and leadership, section 3.4 focuses on HRM, section 3.5 deals with strategy and section 3.6 addresses external linkages and network.

3.3. The transformation process from non-innovative to innovative as addressed by management

Introduction

Like management itself, managing (understood as management and leadership) innovation is about 1) making decisions on resource allocation (people, equipment, knowledge, money etc.) and 2) managing different processes among these resources in order to achieve the firm's objectives (Tidd et al. 2001). Management or, more accurately, the way these SMEs are able to manage their way through the transformation towards being more innovative, is a crucial part of answering the research question.

Therefore, this section outlines basically two main aspects of management; one is **management development** (e.g. Gray and Mabey 2005 and Patton and Marlow 2002) and the other is the

distinction between management and leadership (e.g. Burgoyne et al. 2004, Dankbaar 2003, Foss et al. 2003, Yukl 2002 & 1989, Kotter 1990 and Drucker 1988) and the relation to **self-leadership** (e.g. Politis 2005, Murphy and Ensher 2001, Ernø-Kjølhede et al. 2001, Manz and Sims 1987 and 2001, Mollerup 2000, Dunphy and Bryant 1996). It will be discussed how non-innovative SMEs can approach different management activities as to support the transformation process. The arguments are grounded in a survey of the relevant literature and at the end of this chapter, two propositions will be stated to form the research process (theory-based proposition structure see appendix C). Before attending to the main theoretical discussion, some important definitions to the field of management must be established.

3.3.1 Theoretical definitions

The three primary theoretical constructions in relation to management (management, leadership and self-management) will be identified and defined below.

Management

In Italian, the word 'maneggiare' means leading by the hand ('manus' means 'hand' in Latin and 'ducere' means to 'lead'). Management is thus a concept that is used about the form of management which (by hand or very directly) controls and determines the development of well-defined activities which occur frequently. Some writers (Bennis and Nanus 1985, Zaleznik 1977) have a predilection for presenting management as in opposition to leadership or even as being mutually exclusive e.g. "managers are people who do things right and leaders are people who do the right thing" (Bennis and Nanus 1985) and "managers are concerned about how things get done, and leaders are concerned with what the things mean to people" (Zaleznik 1977).

Other writers (Kotter 1990 and Bass 1990) look upon management as a process distinct from leadership; the two, however, are not considered to be mutually exclusive. This perspective will be adopted in this project on the grounds that it is simply too restricted to look at this area as either management or leadership. Kotter (1990:4) **defines management** as an approach that in the short run (a few months) seeks to create predictability and order in the organisation by means of:

- A) The setting of operational goals that follow a detailed activity and time plan to which an appropriate amount of resources is allocated

- B) The assignment of employees to tasks in accordance with item A and establishment of an organisational structure to support the tasks in hand; and
- C) Direct supervision of results and rectifications of any mistakes

It is not especially clear from Kotter's definition that the manager is actually seen as an authority on a higher structural level than the employees. Rost's (1991) **definition of management** remedies that circumstance:

“An authority relationship that exists between a manager and subordinates to produce and sell goods and services”

Although the definition of management is arbitrary, the definitions above make it possible to claim that management is preferable when the task is to organise and systemise day-to-day production activities; especially, if these tasks are replicated on a continuous basis. That is also the reason for expecting management to be widely represented among non-innovative production based SMEs seeing that these normally experience quite a bit of replication in their ongoing production activity.

Leadership

In English, 'leadership' is translated into concepts such as counsel or instruction (guidance). The leader holds a leading position in order to be able to show an employee which direction the leader wants progress to take. House et al. (1999:184) define leadership as follows: “the ability of an individual to influence, motivate and enable others to contribute toward the effectiveness and success of the organization.” Jacobs & Jaques (1990:281) define the phenomenon as “the process of giving purpose (meaningful direction) to collective effort, and causing willing effort to be expended to achieve [that] purpose.” And Schein provides this definition: “Leadership is the ability to step outside the culture.... to start evolutionary change processes that are more adaptive.”

According to the above definitions, leadership is a question of influencing, motivating and involving the employees, thus encouraging them to develop in a way that is meaningful as well as value-generating in accordance with the pre-defined goals. Kotter (1990:5) **defines leadership**, in contrast to management (not mutually exclusive), as a management philosophy that is characterised by the leader's ability to:

- A) Formulate a long-term (several years) vision and a strategy for the realisation of the vision
- B) Communicate a vision and strategy to the employees and other relevant stakeholders in such a way as to support commitment and coalitions that facilitate the achievement of future goals; and
- C) Inspire and motivate employees to tackle the challenges involved when working with fulfilling the vision

He continues by claiming that the gain derived by the organisation from a leadership approach is often that leaders and employees generate changes and innovation at a high level: "e.g., new products that customers want, new approaches to labour relations that help make a firm more competitive" (Kotter 1990:6).

From the leadership literature (e.g. Miller and Shamsie 2001, O'Regan et al. 2006 B, Bass 1990), we know that there is a well-documented relation between leadership theories and organisational effectiveness. Quite a few leadership theories and considerations (e.g. Elenkov 2005, Yukl 2001, Amabile (1998) focus on how the leader can build and support an environment which releases the employees' working potential; Linda Hill (2004), however, goes one step further. In her leadership research (2004), she challenges the leadership concept even more by stating that future leaders should be able to create environments in which employees will be able and willing to lead, learn, change and manage on a continual basis on their own.

This way of framing the phenomenon of leadership gives reason to believe that innovative SMEs should practice leadership, in one way or the other, as a means to support the employees in creating innovation.

Self-leadership

Self-leadership is characterised by employees and managers taking initiatives and decisions primarily concerning their own field of responsibility and secondarily concerning cross-organisational tasks. The actors are self-leading when they are independent, self-responsible and self-initiating. An old Chinese saying provides an apt illustration of the philosophy of self-

leadership “The best of all leaders is the one who helps people so that, eventually, they don’t need him” (Lao Tzu, taken from Mans and Sims 1987).

In the literature (Mollerup 2000, Manz 1992), the concept of self-leadership is often presented as a way to increase capacity, to improve the ability to cope with changes, to raise effectiveness in general as well as the quality of working life. Local decision-making (Manz and Sims 1987 & 2001, Molleman 2000, Dunphy and Bryant 1996) seems to be a very central part of the concept and it should provide a breeding ground for strengthening both the production output and the overall working environment. When working with the concept of self-management, management itself becomes something that everyone needs to understand; management will be everyone’s concern. The better employees and managers understand management, the better relations and self-leadership systems will be created. The definition of **self-leadership** used in this thesis relates to Nahavandi (2006) and Manz and Neck (1999) as well as Manz and Sims (2001):

- “Developing positive and motivating thought patterns
- Personal goal setting
- Observation and self-evaluation
- Self-reinforcement” (Nahavandi 2006)

The leader’s main role becomes a question of creating the best possible conditions for others to lead themselves and to release other people’s potential as a way to empower the employees. Empowerment is a precondition for creativity and innovation (Politis 2005, Murphy and Ensher 2001) thus self-leadership is a way of supporting the employees to create more innovation which means that some kind of self-leadership activities could be expected among the innovative SMEs.

3.3.2 Subdividing the area of management

It is quite remarkable that after almost a century (Schumpeter 1912) of interest and at least 25 years of intensive research (Drucker 1985, Van de Ven et al. 1989 (2000), Christensen 1998, Tidd et al. 2001, O’Regan et al. 2006 A), managing innovation is still a difficult phenomenon for scholars to define and work with. Even though many different subjects have been “in” and “out” in the pursuit of adding new knowledge to managing innovation, one subject seems to have survived through it

all, namely management. You cannot work with innovation or any other element of doing business without taking management into account.

In the struggle to address the area of management, a subdivision of the theoretical field is needed and the following criteria will be used for pinpointing relevant areas within the management literature (management is to be understood in a broad sense covering management, leadership and self-leadership aspects). (1) The chosen area of the management literature should explicitly address the SME sector. (2) The chosen area should take a perspective on management which addresses the development of the whole organisation due to the main research question²⁵ of this PhD project. (3) As a counterbalance to relating to the whole organisation, the literature must also encompass an element of concrete management development or training as to create a platform linking the individual manager and her competencies to the transformation of the whole organisation. (4) The delimitation resulting in the process perspective (see chapter 1) is also a criterion for choosing management literature which supports this perspective.

Management (in the widest sense) is a complex and imprecise concept and despite more than hundred years of research, we do not have any unambiguous answers to what management is. However, it is possible to divide the management literature into four dominating research directions (Jacobsen and Thorsvik 2002, Yukl 1989). (A) Psychological investigations of personal character traits among managers. (B) Research into how the exercise of management in terms of management behaviour and different management roles may be optimised. (C) Investigations of the organisational level trying to explain how managers can give the entire organisation a common development direction by handling the continuum between power and influence. (D) Research into how managers should and ought to handle in some kind of situational approach (Jacobsen and Thorsvik 2002, Yukl 1989).

Working with these four fields of management research and theory, two seem more important and two seem less important to this PhD project. Looking at management in relation to personal character traits (A) and addressing what managers should do and how they ought to behave (situational approach D) are poorly related to the research question and intentions of this project.

²⁵ How can SMEs be managed as to develop existing competitive advantages with continuous innovation activities?

Two reasons support this argument; one is that the research question simply does not make mention of psychological traits or the “right” way to act and behave as a manager (criterion 2). The other reason is that there subsists only a weak link between these two theory blocks and the process perspective (criterion 4).

By contrast, optimising the management exercise by developing the manager’s behaviour (B) and the manager creating a movement involving the entire organisation by combining power and influence (C) are very much at the centre of what needs to be a cardinal point of this PhD project. Because these two aspects of the management literature are addressed in the SME literature (criterion 1), it concerns the whole organisation (criterion 2) as well as the more individual level (criterion 3). Finally, moving the entire organisation is a perfect example of the process perspective (criterion 4).

Still, a link to more concrete management theories within the two research directions is missing. Becheikh et al. (2006) take the initial steps by arguing that; “determinants of innovation enabled us to distinguish two types of variables: (1) leadership related variables, and (2) those related to managers. In general, the majority of these variables are significantly and positively correlated with innovation” (Becheikh et al. 2006). Earlier research is consistent in the claim that the right management and leadership activities can support the innovation competencies within the company (Gray and Mabey 2005, Constable and McCormick 1987). Combining leadership and management is, in other words, one way to address the question of how to transform from non-innovative to innovative through management.

In order to establish another link and a point of departure for addressing the discussion of combining leadership and management, this section will also discuss management as a question of training and development of the management. The reason is that frequent problems within SMEs encompass an insufficient amount of planning and a lack of management experience and competencies. (Huang and Brown 1999). Consequently, training and competency development are problems which relate to these SMEs, for which reason there is a need to address management development issues before attention can be directed to the management – leadership distinction.

However, it is primarily expedient to line up the differences between non-innovative and innovative SMEs from the perspective of management.

3.3.3 Non-innovative versus innovative SMEs and management

All kinds of innovation initiatives entail a demand for changes in systems, structures, human behaviour etc., for which reason an important management distinction between innovators and non-innovators is the ability to manage change and employee resistance (Baldwin and Lin 2002). The successful innovators are simply better at facing and solving management problems in relation to change management and handling the resistance from the workers (Baldwin and Lin 2002). In addition, non-innovators face a lot of uncertainty and often display a poor management attitude towards change and resistance (Baldwin and Lin 2002). Furthermore, they experience difficulties in managing the cross-disciplinary activities which we know to be so crucial for a successful innovation processes (Vermeulen 2005).

Innovative SMEs often use a consultative or transformational style trying to support the innovation process and involve the employees in the decision-making process (McAdam 2004 B, O'Regan et al. 2006 B), whereas in the non-innovative firms, it is more common to see a dominant manager/owner who uses a more authoritarian management style in an attempt to keep effectiveness high by focusing on time and costs (Millward et al. 2005, McAdam 2004 B). Managers in innovative firms put efforts into planning and designing the product development process, thereby reaching a much better estimation of the time and cost consumption of the innovation process (Millward et al. 2005).

Different studies (Politis 2005, Murphy and Ensher 2001) support the view that empowerment is a precondition for creativity and innovation. An effective transformational leadership style (the opposite of what Yukl (2001) calls the transactional leader) which supports creativity and innovation is what the literature (e.g. Politis 2005, Murphy and Ensher 2001, Manz and Sims 1987) often calls a self-leadership style. This particular style encourages employees to become more self-observational, self-reinforcing and enables them to reflect and place expectations on themselves (Politis 2005). Contrarily, we know that a more hierarchical leadership style and behaviour will be perceived as external control and have a restricting impact on creativity and innovation (Golemann 2002, Amabile 1998). The self-leadership style is rather incompatible with the hierarchical attitude derived from the "production philosophy" which is present in many non-innovative SMEs.

Frequently encountered management problems within SMEs are lack of planning, lack of management experience and contemptible competencies when it comes to managing growth (Huang and Brown 1999). Therefore, there are reasons to believe that non-innovative firms trying to gain competitive advantages through an optimisation of their production capacity in well-structured hierarchies are facing major difficulties in transforming themselves into being more innovative.

Management development activities and innovation

There is a growing knowledge base (e.g. Gray and Mabey 2005, Burgoyne et al. 2004) relating to how management and leadership development contribute to performance.²⁶ The connection between management development and innovation performance is a quite challenging factor to many SMEs because we know that SMEs, compared with LSEs, are engaged in management development activities to a less extent (Gray and Mabey 05). This difference is particularly pronounced when it comes to formal external management development activities whereas more informal and internal management development activities, in terms of coaching, mentoring and networking, seem to be areas in which the SMEs are making an effort (Curran 1998). Management development can be defined as e.g. Baldwin & Patgett²⁷ (1994:270) do “the complex process by which individuals learn to perform effectively in managerial roles”.

Results from the European Management Development research programme show that 71% of the small firms (191 firms with 20 to 100 employees) do not have a written management development policy and that 66% of the large firms (201 firms with more than 500 employees) do have a written management development policy (Gray and Mabey 2005). The reasons for these SMEs not to work with management development are numerous but the pressure from limited resources in terms of time, money and skills is most often cited. Research (Gray and Mabey 2005) also indicates that owner-managers of these SMEs are too focused on short-term performance and survival to pay any attention to management development activities. The management development activities are mainly used by UK firms to address areas like:

1. Improve communication skills of managerial staff
2. Improve flexibility in responding to customers' needs

²⁶ In this section, management development should be understood as both management and leadership development, even though the literature often uses management development as the only term.

²⁷ (See Paauwe and Williams 2001).

3. Broaden managers' understanding of core managerial skills
4. And, in small firms, to train non-managerial staff for future promotion to manager level (Gray and Mabey 2005).

Direct and speedy internal communication is often seen as a focal source of the flexibility which normally relates to the competitive advantages of the SME. This implies that the two first elements of management development activities (improving communication and flexibility) mentioned above are not the most urgent areas for the SME sector as such. On the other hand, broadening managers understanding of management and leadership and training the non-managerial staff are very crucial management development tasks for SMEs. For both SMEs and LSEs, there is a positive connection between management development strategies and the firm's overall performance and for the SMEs, there is also a positive connection between an active management development practice and growth (Patton and Marlow 2002). Cosh et al. (2000) also argue for a positive relation and they found that when management development is combined with a "bundle" of other HRM initiatives, the effect is even stronger.

Still, we need some examples of how to broaden managers understanding of management or the essential content of these management development activities. One activity related to developing a better understanding of management is "*developing skills connected to formal managerial roles and on application of proven techniques and solutions to known problems*" (Espedal 2004). Activities which normally are connected to leadership development activities are elements like: Developing individual knowledge/skills in terms of self-awareness, self-regulation, self-motivation and social awareness (Espedal 2004). At the organisational level, leadership development is linked to teams and networking "a focus on developing networked relationships among managers that enhance cooperation, integration, and commitment" (Espedal 2004).

To look at management development in an even more detailed manner, a research study (Mumby-Croft and Berman Brown 2004) examined a management development program provided for SME leaders by the West Midlands University (GB). The management development training issues were: Delegation, learning to coach, selling ideas, managing change, team selection and team building, team working, appraisals, dealing with customers, crisis management, communications, recruitment, communicating a vision, employee motivation, stress management, empowerment,

project management, cross-disciplinary activities, dealing with difficult and reluctant people, problem solving (see also Morrison 2003).

These management or leadership training activities are very much accomplished in an action learning context, where “concepts and ideas meet experience through exchange, combination, and reflection” (Espedal 2004). The context in which different management and leadership training activities are executed is often between theory and practice to secure that competencies and knowledge will be applied in the organisation (Espedal 2004, Morrison 2003).

3.3.4 The transformation process in terms of management

Whether the focus is on supporting the transformation process or on creating innovations themselves, some form of handling, control or management is needed. The movement towards increasingly self-managing employees necessitates an even more pronounced need for determining when management is required and what sort of management is needed. It is obvious that, not least in relation to the transformation process, something else than the classic American approach to management is required. There is reason to believe (Drejer 2004, Manz and Sims 1987, Ernø-Kjølhede et al. 2001) that some kind of combination between management, leadership and self-leadership is needed.

As mentioned above, I will now turn to the discussion of whether or not **management development**, the **distinction between management and leadership** and the concept of **self-leadership** (seen in relation to management and leadership) can support the transformation process.

Management – leadership relation and the transformation process

Several indications suggest that there are differences between management and leadership comprehensions and that it may prove difficult to combine the two phenomena (Bennis and Nanus 1985, Zaleznik 1977). However, much evidence (Burgoyne et al. 2004, Drejer 2004) indicates that most situations benefit from combining management and leadership rather than approaching the task from a pure management or leadership point of view.

The arguments for applying a leadership approach in the transformation process are numerous. First of all, moving the employees’ focus from operation to innovation requires a lot of leadership

abilities, that is “to influence, motivate and enable others to contribute to the effectiveness and success of the organization” House et al. (1999:184). Additionally, when it comes to being more innovative in a practical manner, the search and idea-generating processes should mainly be conducted and supplemented by means of a leadership approach which specifically opens up the prospect of and gives inspiration to seek out new paths and methods and challenges existing traditional ideas.

The argument for adding a certain degree of management to the transformation process is simply that the process will become more efficient if it is controlled by means of objectives, deadlines, limited resources and the expectation of regular feedback (Dankbaar 2003). This element reflects a management approach in the process.

Before further arguments are presented for the combination of these relatively diverse management approaches, the similarities and differences between the two phenomena must be established. Both approaches have the fulfilment of the objectives as a central task (Yukl 2001:6). Both approaches operate with determining the tasks to be solved, both approaches endeavour to create networks and relations that are capable of solving the tasks and both approaches attempt to ensure that it happens. In reality, the crucial difference between the two approaches is that they are each other’s worst enemy: A strong leadership approach will undermine all that which management represents and vice versa. Strong leadership dominance is to some extent bound to undermine order and efficiency, just as strong management dominance will discourage the entrepreneurs and innovative participants. Another example of the differences between the two can be found in the two theories’ underlying philosophy; whereas management theories rest mainly on exploitative ideas, the leadership theories rest mainly on explorative ideas. There is a great difference in attitude and in how you fulfil your aims depending on whether your basic values are taken from an exploitative or explorative point of view (March 1991).

But how are management and leadership combined in pursuit of the efficient management of the transformation process? Many theorists (Husted 1998, Kotter 1990, Yukl 2001, Ry Nielsen 2004, Zaleznik 2000, Johnsen 2002) have attempted to combine the paradoxical relations between the

management and leadership perception in a socio-scientific and organisation-theoretical perspective. Brown & Duguid²⁸ express the problem in the following way:

For example, a necessary tug of war exists between how companies generate knowledge in practice versus how they implement it through process. The tension reflects the countervailing forces that, on the one hand, spark invention, and on the other, introduce structure that transform those inventions into marketable products. In isolation, these forces can destroy a company, but conjointly they produce creativity and growth... The best-managed companies are those that can maintain forward progress, favouring neither practice nor process, but managing both.

Still focusing on the question of how to combine the two phenomena, Dankbaar (2003) responds in the following way:

Imposing limits on the autonomy of the knowledge workers without destroying their autonomy is what innovation management is all about. Who is setting the limits? That question is the heart of the debate about social relations in the knowledge economy.

Dankbaar (2003) may, however, be criticised for presenting the challenge as a mere question of determining restrictions for freedom and autonomy. A prerequisite is thus that the employees can work autonomously with a high degree of freedom; as already known, this prerequisite does not always exist, especially not in SMEs with a dominating operational approach. The management task is therefore a question of at least two things in relation to the transformation process. First, it is important to be able to create an atmosphere that encourages freedom and autonomy which, according to the arguments above, is best accomplished by means of an explorative leadership approach. Second, it is necessary to limit, goal orientate and control this freedom which, according to the arguments above, is best accomplished by means of an exploitative management approach.

The most important management task is to ensure that the framework for the transformation process is appropriate and this means that objectives, deadlines, available resources and agreement on

²⁸ Cf. the article: Creativity Versus Structure: A Useful Tension. MIT Sloan Management Review summer 2001

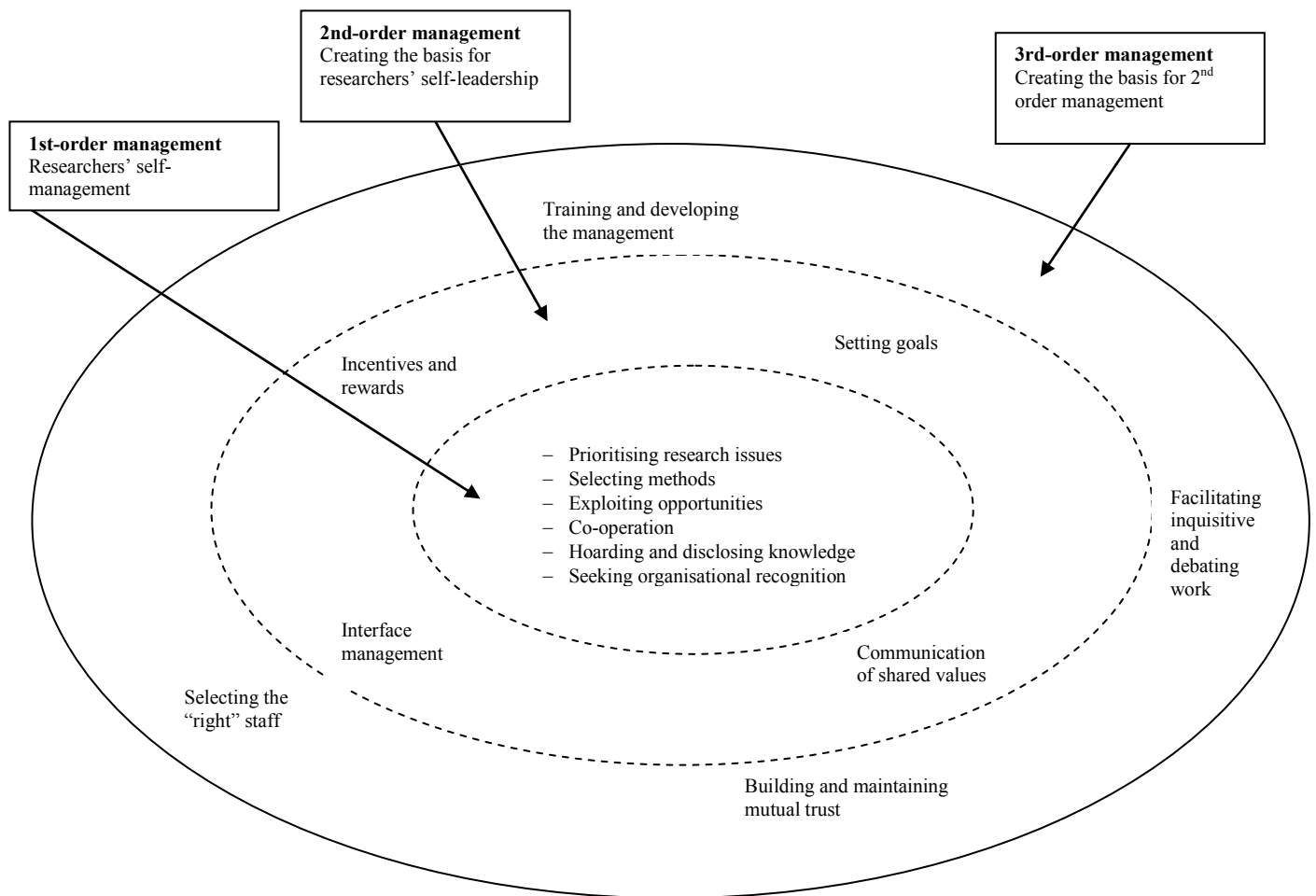
communication must be settled before initiating any transformation process. Provided this framework is established (managed), it will be possible to implement a real leadership approach in terms of influencing, motivating and changing employee behaviour as well as carrying out search and idea-generating activities to support and secure a dynamic transformation process.

Looking at the fundamental philosophy behind the two concepts (management and leadership), it is apparent that there is a great difference between them. It is therefore reasonable to discuss if it is possible for one company to act on the basis of management and leadership simultaneously. If management and leadership are to be combined, then we need theories or concepts capable of addressing some kind of assimilation.

Management, leadership and self-leadership in combination

The concept of first, second and third order management (Ernø-Kjølhede et al. 2001) is such an assimilation, where a management dominated approach is more distinct at some levels and ideas about autonomy (self-management) and leadership are more distinct at other levels. The first, second and third order management model (see the figure below) enable us to look at a combination of management, leadership and self-leadership

Figure 3.5 “First, second and third-order management”



Source: Ernø-Kjølhede et al. "Managing university research in the triple helix." Published in: Science and Public Policy, volume 28, number 1, Feb. 2001.

“First, second and third-order management” - contributions to the transformation process?

Although the model addresses different ways of managing university research, there are a number of similarities between managing knowledge workers in the context of universities and in the context of SMEs. Whether you are managing researchers or SME employees in the transformation process, you will be managing a developing and altering process of creating new activities across organisational and professional boundaries. In addition, you will be facing high levels of insecurity in terms of defining the results of these processes and it will often be difficult to specify when these results will be reached and what kind of increased value the results will add to the organisation. Sometimes it will be difficult even to recognise the individual employee’s contribution.

On the first-order management (or self-leadership) level, the focus is very much on the leadership philosophy because creating the space for the employees to be self-leading requires that they are able to trust the managers and meeting them with elements of a management attitude will indeed destroy the foundation for first-order management. On the second-order management level, both management and leadership approaches occur. The management elements are expressed through areas like “setting goals” and “incentives and rewards”. Setting goals is explicitly one of the factors that are related to management activities and so is working with motivation and rewards. Leadership activities also focus on incentives and rewards but compared to a management approach, leadership activities will normally be more devoted to interface management and communication of shared values. On the third-order management level, all elements (facilitating inquisitive and debating work, training and developing the management, building and maintaining trust and selecting the “right” staff) are leadership inspired; the management aspect of the third level can be seen as selecting the “right” staff and training and developing the management.

By setting up a framework (first-order management) which allows high levels of autonomy, good conditions for challenging and developing the human resources will emerge. Still, this autonomy should be controlled or managed towards the strategic visions and goals of the company and that is where certain elements of second and third-level management have their legitimacy.

It is possible to imagine an organisation driven more or less purely by management activities, but it is very difficult to imagine an organisation driven strictly on leadership activities. A management approach, however, cannot stand alone; it is merely a precondition for leadership. For sure, managing the transformation process towards a higher degree of innovation takes some of both philosophies. SMEs who have not previously been innovation active and who really want incrementally to substitute existing competitive advantages with more innovation based advantages presumably need to focus more attention on leadership activities. The reason for this assumption is that SMEs who have been focusing on operation and day-to-day activities for several years tend to be more caught up in the management philosophy (Drejer 2004), meaning that these SMEs are quite good at following detailed activity plans, adding in appropriate amounts of resources and setting it all up in a well-defined organisational structure. But when it comes to first-order management and leadership elements, many of these SMEs will find themselves much more challenged. A successful transformation process still requires these leadership elements because they transmit the freedom

and openness that is necessary to support the employees in relation to the search and idea-generating activities, which are fundamental for a higher innovation level as well as the transformation process as such. On the other hand, it is still important not to focus on leadership activities at the expense of the control elements of management; the aim is to balance management and leadership (Drejer 2004) in the pursuit of supporting the transformation process.

Management and (self) leadership, then, are to be combined as to transform SMEs from non-innovative to innovative.

3.3.5 Conclusion and forming propositions for the empirical test of the management area

In this section,²⁹ I want to sum up the relevant aspects of management as to be able to form a hypothesis which is suitable for an empirical test. The main conclusions for that purpose are lined up below.

Non-innovative SMEs are characterised by a transactional dominant manager/owner who employs an authoritarian management style in trying to keep the effectiveness high by focusing on time and costs; simultaneously, the manager/owner has difficulties in managing the cross-disciplinary activities. Often it is a hierarchy based management style which tries to exercise control thereby curbing creativity and innovation. This kind of management approach is often less competent when it comes to managing change activities and employee resistance.

To successfully carry through the transformations process, actors in SMEs should be keenly aware of how to generate a management development strategy. SMEs should, besides focusing on the managers themselves, also concentrate their attention on non-managerial staff which has the potential of being promoted to the management level. A management development strategy should focus on extending managers' understanding of core managerial skills in terms of change, employee resistance and cross-disciplinary activities and should be executed in an action learning context.

Managers in SMEs need to be aware of the trade-off between management and (self) leadership as an important aspect of understanding the differences between non-innovative and innovative SMEs. The Triple Helix model was analysed in order to examine how management and (self) leadership

²⁹ As well as in the following three sections (HRM, strategy and network).

may be combined in order to fulfil the transformation process. Different aspects of management control are incorporated in respectively second and third-order management in the form of training and developing the management, selecting the right staff, incentives and rewards, settings goals and interface management. At the second and third-order level, the actors may be motivated in a leadership-oriented way by building and maintaining mutual trust, facilitating inquisitive and debating work and communication of shared values. At the first-order level, creative search and idea-generating processes can be conducted and create at least first-order innovation activities³⁰ through activities where employees on their own prioritise work issues, select methods, exploit opportunities, cooperate, hoard and disclose knowledge and seek organisational recognition.

In more general terms, these SMEs must be capable of providing settings that support explorative self-managing activities as well as exploitative dominated resource allocation (management activities) to secure the overall development of the company. This requires a fundamental understanding of ways to combine management, leadership and self-leadership. In the section above, earlier studies, theories and empirical studies favoured a particular combination by which the employees are challenged and developed by means of leadership and self-leadership approaches whereas management activities focus on goal-setting, resource allocation and deadline enforcement.

The conclusions referring to this section (management) are reproduced in figure 3.6 below as to display this area in terms of how to transform non-innovative SMEs into innovative SMEs.

³⁰ This phenomenon is more explicitly explained in section 3.4 regarding HRM

Figure 3.6 The transformation process in terms of management

| Initial position Characteristics of the non-innovative SMEs | The transformation process (characteristics of the needed transformation process) | New position Characteristics of the innovative SMEs |
|--|---|--|
| <p>Weak ability to manage change and employee resistance.</p> <p>Difficulties in managing the cross-disciplinary activities.</p> <p>A too biased and narrow focus on a dominant, authoritarian and transactional management style (mostly management focus).</p> | <p>Create a written management development plan and improve management skills by fulfilling the plan in an action learning context. The plan should broaden the managers understanding of core managerial skills (e.g. the ability to handle change, resistance and cross-disciplinary activities).</p> <p>Create an atmosphere that encourages freedom and autonomy, which is best accomplished by means of an explorative leadership approach. Simultaneously, this freedom should be limited, goal-oriented and controlled by means of an exploitative management approach. As a way to combine management, leadership and self-leadership approaches, the triple helix model was addressed.</p> | <p>Strong at facing/solving management problems in relation to change management and handling employee resistance.</p> <p>Able to handle cross-disciplinary activities.</p> <p>A combination between management, leadership and self-leadership in terms of a consultative, transformational and controlling style depending on whether the focus is on innovation or operational day to day activities.</p> |

Source: Own work

From this point of reference, the following two propositions will be related to management theory.

P1: The transformation process will be supported by a written management development plan which has the focus of improving managerial skills in an action learning context.

P2: The transformation process will be supported by the management being simultaneously able to create an atmosphere of freedom and autonomy based on an explorative leadership approach with a limited and goal-orientated exploitative management approach.

3.4 The transformation process from non-innovative to innovative SMEs as addressed by HRM

Introduction

Innovation emerges through people; thus, the stimulation which employees receive from management, colleagues, coaches and other different actors in terms of Human Resource Management (HRM) activities has a major impact on the employees' attitude towards creativity and innovation. There is growing evidence that HRM activities are good measures of improved organisational performance as well as innovation (Shipton et al. 06). That is why it, for obvious reasons, is uncontroversial to say that well-conducted HRM practices lead to innovations; the question is rather what is the exact content of these HRM activities and how are they managed?

Therefore, this section outlines first of all a definition of HRM and a subdivision of the HRM literature as to choose the most relevant literature and establish some arguments for doing that. In the main theoretical discussion, two theoretical positions³¹ will be analysed and discussed as to address non-innovative and innovative SMEs and the transformation process between them.

3.4.1 Theoretical definitions

The concept of HRM was developed in the USA in the 60s and 70s which makes it fair to argue that it was scholars in the USA who coined the notion of HRM and made it widely known and used across the world (Brewster 2004). The literature is actually quite united in how to frame the purpose of HRM (see the following paragraph) whereas the literature is much more diverse when it comes to defining the concept of HRM (Ferris et al. 1995).

The following three contributions are rather classical in their way of framing the field of HRM and broadly speaking, they form the HRM field in quite similar ways. One of them is Beer et al. (1985)

³¹ One is the so-called hard approach represented by the internal labour market approach and the other one is the so-called soft approach represented by the high commitment HRM approach (Baron and Kreps 1999).

who represent a view on HRM which divides the field into four well-established typologies: Employee influence, human resource flow (in, through and out of the organisation), reward systems and work systems. Another one is Decenzo and Robbins (1988) who also work with four well-known areas: The acquisition, maintenance, motivation and development of human resources. A third example of such a well-established frame for HRM very much in line with the first two is Fombrun et al. (1984) and their five-step HRM cycle: Selection, performance, appraisal, rewards, and development. Thus, the field as such is both well-established and it holds a clear set of research objects.

However, things turn out somewhat less unambiguous when it comes to a more proper definition. As we see in almost any definition related to the organisational theory of social science, a clear and unambiguous definition is uncommon and HRM is no exception. Different researchers imply different definitions and they refer to diverse empirical evidence (Brewster 1995). Ferris et al. (1995) have, despite the rather motley pattern of definitions, formulated one which is broad but quite respected covering both academic and practical issues:

“Human Resource Management is the science and the practice that deal with the nature of the employment relationship and all of the decisions, actions, and issues that relate to that relationship. In practice, it involves an organization’s acquisitions, development, and utilization of the employees, as well as the employers’ relationship to an organization and its performance.” (Ferris et al. 1995).

Because this definition is quite wide-ranging in its content, I consider it appropriate to touch upon some supplementary approaches to understanding HRM. The main idea of using these additional perspectives is to subdivide the HRM literature thereby selecting the parts most relevant to this thesis and its research question.

HRM; a large scale enterprise issue?

A very typical critique of the HRM literature is that it is created within and almost entirely relates to large scale enterprises. However, a growing body of knowledge and evidence indicates that the correlation between HRM and different kinds of efficiency are found in SMEs as well (de kok 2003, Hornsby and Kuratko 2003, Sels et al. 2006, Shipton et al. 06). The actual stage of studying

relations between HRM and smaller businesses is still in embryo and consequently, it is rather explorative and descriptive (Sels et al. 2006). However, small business managers face the same HRM challenges as LSE managers do and the way in which HRM is handled is often a good predictor of the survival of small businesses (Sels et al. 2006, Julien 2001). Furthermore, Dun and Bradstreet (2001) show that management incompetence, particularly in relation to HRM, is the main reason for smaller firms being unsuccessful.

In the HRM literature, there is a debate on whether the SMEs are conducting less sophisticated and effectfull HRM due to the lack of resources in terms of money and HR experts (Bayo-Moriones and Merino-Diaz de Cerio 2001, de Kok and Uhlaner 2001) or whether HRM practices in SMEs actually equilibrate LSEs' way of handling HRM seeing that SMEs provide an ideal basis for developing efficient HRM practices through direct communication, flatter hierarchy, greater flexibility and a more directly impact on each employee and her performance (Golhar and Deshpande 1997, Sels et al. 2006).

Sels et al. (2006) have conducted a study whose main research idea was to investigate whether an intensive investment in HRM is profitable for smaller organisations. Sels et al. (2006) measured the HRM intensity on training, selection, compensation, careers, performance management and participation. The following three hypotheses were formulated: (1) HRM intensity has a direct positive effect on productivity, (2) the productivity is created by lowering the voluntary employee turnover rate and (3) HRM has positive total effects on profitability, liquidity and solvency. These hypotheses were tested through structural equation modelling against three performance measures which were: Voluntary turnover in small businesses, labour productivity in small businesses and financial performance in small businesses.

HRM intensity turned out to have a strong impact on productivity (supporting hypothesis 1 in the Sels et al. study). The study found HRM intensity to have a negative impact on voluntary turnover (no support for hypothesis 2). Sels et al. (2006) explain this by referring to the shortage of qualified staff which gives rise to high labour mobility. HRM intensity also has a positive impact on profitability, solvency and liquidity (hypothesis 3 is supported). Sels et al. (2006) explain this link by arguing that HRM intensity increases productivity which lowers the personnel cost

correspondingly which again enhances the financial performance (profitability, solvency and liquidity).³²

The study (Sels et al. 2006) adduces evidence in support of intensive HRM activities having the potential to offer a surplus in small businesses. This is in accordance with prior empirical work showing the profitability of HRM activities in relation to large enterprises. By referring to the results of Sels et al. (and other contributions; de kok 2003, Hornsby and Kuratko 2003, Shipton et al. 06), I argue in favour of using the HRM literature in relation to this study even though it addresses the SME sector. The literature will, however, still be employed with respect to the fact that the majority of the research in this field refers to LSEs.

3.4.2 Subdividing the area of HRM

The following aspects will be used to subdivide and address the relevant parts of the HRM literature. Firstly, some arguments will be put forward as to clarify that HRM is not only a large scale issue but also an SME issue and thus able to relate to this thesis. Secondly, the differences between so-called “hard” and “soft” approaches to HRM will be analysed and explained. The reason for focusing on these two positions within the HRM literature (“hard” and “soft”) is that they can be related to the differences between non-innovative and innovative SMEs.

“Hard” and “soft” HRM

The “soft” way of looking at HRM is related to seeing the employees as an investment which have the potential (if the right HRM strategies are used) to deliver a competitive advantage. This “soft” perspective has its roots in the human relation tradition (Storey 2007) and it emphasises the “human” and qualitative element. The so-called “hard” way of conducting HRM is related to a more classic economic thinking looking at the employees as a cost which needs to be minimised in order to maximise efficiency and profit. The emphasis is on employees as a resource which ought to be planned and optimised as any other economic element (Storey 2007). It was the so-called Michigan/New York school (Formbrun et al. 1984) which introduced a rational orientated view on HRM and they focused on how to optimise the resources (addressing the R in HRM). The human

³² Although investing in a HRM department and HRM activities will lower the solvency and liquidity, both through the direct and in-direct investments, there will still be an overall increase in profitability of approx. 10%. This means that for every unit invested on the HRM intensity, the average increase in profitability will be approx. 10%.

resources were a factor which managers should understand how to exploit effectively to successfully fulfil the business strategy.

Baron and Kreps (1999) address the hard HRM as an “internal labour market” approach and they address the soft SHRM as a “high commitment human resource management” approach, which is why I now turn to these approaches.

A more specific way of addressing the “soft” approach to HRM is via the so-called strategic human resource management literature position. Wright and McMahan (1992) define strategic human resource management as “the pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals” (Wright and McMahan 1992). Most of the literature addresses the link between business strategy and HRM as SHRM (Brand and Bax 2002); whereas HRM addresses the daily operation, SHRM “is more linked with company-level progress or organizational performance” (Wand and Zang 2002). SHRM studies are in a broad sense the explication of the strategic role that HR potentially play in organisational functioning. SHRM stems from the idea of linking the strategic development of the organisation with the HR activities (West et al. 2006). The SHRM perspective views HR as a much more integrated part of the organisational effectiveness and sees the employees as means by which to fulfil the strategy, thereby creating a sustainable competitive advantage. SHRM defines how an organisation achieves its intentions and goals through people and Armstrong (2006) grounds the SHRM on three propositions:

“First, that human capital is a major source of competitive advantage; second, that it is people that who implement the strategic plan; and, third, that a systematic approach should be adopted to defining where the organization wants to go and how it should get there” (Armstrong 2006).

If the organisation wants to become more innovative, the SHRM approach requires that the organisation focuses on the human capital as a cardinal source of competitive advantage, acknowledges that it is people who implement the strategy and puts all these elements together in a systematic strategy for the future development.

Furthermore, SHRM differs from the more classic (hard) HRM tradition in that SHRM research is often conducted on an organisational level of analysis and the focus is on bundles or systems of HR activities rather than on single defined areas (Laursen 2002, Laursen and Foss 2003). Focusing on this organisational level of analysis has enabled the SHRM literature to address several empirical based studies in which HRM systems are positively related to (organisational) factors like turnover, productivity, product/service quality, profitability and market value (West et al. 2006) due to a higher innovation level (Laursen 2002, Laursen and Foss 2003, Leede and Looise 2005 and Jimenez and Sanza-Valle 2005, Wang 2005, Sels et al. 2006).

Due to the characteristics of internal labour market and SHRM, these two theoretical areas will be used as ways to subdivide the HRM literature. This delimitation aims to address the non-innovative and the innovative SMEs and to explicate a potential transformation process from a HRM point of view. Before turning to these two aspects of HRM, I will discuss the differences between non-innovative and innovative SMEs in relation to HRM.

3.4.3 Differences between non-innovative and innovative SMEs in relation to HRM

Human Resource Management (HRM) provides an additional distinction between innovators and non-innovators in the way that innovators perform HRM in a more planned and efficient manner than non-innovators do. Innovators have better planned incentive compensation programmes (Gellatly 1999, Baldwin et al. 1996), a higher proportion of technically well-skilled staff (Freel 1999), more graduates among the staff (Freel 1999), they better recognise the staff as a supply of innovative ideas (Therrien 2000) and they are more efficient in tackling shortage of skilled labour (Sabourin 2001). Furthermore, innovators are more focused on training and development of the human asset than non-innovators are (Baldwin and Lin 2002) and they prefer to hire experienced workers and educate their own staff through highly specialised and informal learning systems as an alternative to the more formal university education system (Therrien 2000). In a study of 3,065 Canadian SMEs in the manufacturing sector, Branzei and Vertinsky (2006) found that firms focusing on human capital strategies stimulated the development of novel capabilities to a significantly higher degree. Creating new capabilities supports both external knowledge attraction and the internal cross-disciplinary knowledge creation and sharing (Branzei and Vertinsky 2006) which in many cases will be first-order innovation activities.

It is quite evident that there is an important connection between HRM and the level of innovation activities among SMEs and Freel (2005) is even more radical in his expression, *“the most consistent and reliable statistical associations recorded concern the relationship between innovativeness (in both products and processes and in manufacturing and services) and firm-level training. Simply put, the most innovative firms train more staff”* (Freel 2005). Thus, HRM is closely linked to product development and innovation and there is an essential disparity between innovators and non-innovators in terms of the way in which HRM is executed.

The non-innovative firms recruit less skilled labour and because of the absence of higher skilled workers, they are often stuck in certain technologies which further undermines competitiveness (Freel 1999, Freel 2005), they focus less on planning incentive compensation programmes (Gellatly 1999), they pay little attention to building innovation project groups and it is rare to see product champions (Vermeulen 2005), they do not see management and production staff as central sources of innovation (Baldwin et al. 1996) and they do not solve shortage of well-skilled labour problems (Sabourin 2001). The non-innovators are like the innovators more inclined to build and use their own informal learning and training system (Therrien 2000) but they are in general less focused on training and development in terms of HRM activities (Baldwin and Lin 2002).

Among others, there are especially three arguments (Laursen 2002) often used to explain the role played by HRM in companies struggling to become more innovative. Firstly, many HRM practices intend to increase the level of decentralisation; secondly, the practices aim to strengthen cross-disciplinary activities and thirdly, the cross-disciplinary behaviour combines different knowledge sources by which new knowledge with the potential of facilitating innovation is created (Laursen 2002, Branzei and Vertinsky 2006).

In the following theoretical discussion, a comparison between non-innovative SMEs and the internal labour market and innovative SMEs and SHRM will be made. The aim is to analyse whether or not the internal labour market and SHRM can be said to represent the non-innovative and innovative SME respectively. This enables me to address the transformation process between non-innovative and innovative SMEs and to create a theoretical platform for the empirical tests.

3.4.4 The transformation process in terms of HRM

Many SMEs are faced with a dual set of problems related to HRM. First of all, HRM is a particularly vital problem for SMEs; the human resources are relatively closer linked to developing a competitive advantage for SMEs as they are relatively more labour intensive than LSEs (Brand and Bax 2002). Second of all, even though HRM challenges have top priority (Huang and Brown 1999), many SMEs are faced with serious HRM difficulties (Brand and Bax 2002). To theorise on the difficulties for SMEs to handle the HRM area and to address the transformation process from non-innovative to innovative, two different theoretical approaches will be analysed. The first one is the “hard” internal labour market approach to HRM and it will be used as to see if it can be related to the way in which non-innovative SMEs mainly conduct their HRM. The other one is Strategic HRM as it frames the “soft” HRM approach nicely and it will be used as to examine whether or not it can be said to be an exponent for the innovative SMEs.

Internal labour market and HRM

Below internal labour will be presented and its relation to the non-innovative SMEs will be discussed.

Although different authors use different definitions of internal labour market, a common way to characterise it involves employment relationships in a combination of some of the following elements:

- A contract (not necessarily an explicit one) between employer and employee
- Long-term attachments between the organisation and its workforce
- Promotion from within except for a few designed entry ports
- Important skills have to be learnt from on-the-job training
- Formal rules and procedures governing employment relationship
- An emphasis on seniority
- Grievance procedures and due process arrangements designed to ensure fair treatment of employees (Baron and Kreps 1999).

Actually, the internal labour market philosophy is not a market at all but more likely an “administrative system for allocating labor” (Baron and Kreps 1999). The internal labour market

model (with its advantages and disadvantages) appears within different frameworks; from a heavily inflexible and unresponsive stereotypical bureaucracy to a first tier Japanese manufacturing firm with an intrinsically committed and flexible workforce (Baron and Kreps 1999).

One of the major characteristics of the internal labour market is that new employees only have one entry port to the company and that is normally at the lowest level within the organisation. The philosophy is that it is cheaper and more efficient³³ to promote already employed people whenever a position is free and only hire new employees at the lowest level of the organisation. People within the organisation only need to acquire job specific knowledge when promoted to a position on a higher level, whereas a new employee taken into the organisation on a higher level will need to acquire both job specific and firm specific knowledge. New employees at the lower level also need both job specific and firm specific knowledge but it is much cheaper to create that on a lower level just as it is easier to align people to culture and strategy from this lower position (Baron and Kreps 1999).

This recruitment system (within the internal labour market) is part of the implicit contract between the employer and the employee and it supports the idea of long-term attachment because (almost) everyone has to start from the bottom of the pyramid and may over time graduate to higher levels in the organisation. This long-term employment also plays a role in building employee loyalty through the psychology of escalating commitment. The idea is that the longer a worker is contentedly employed in a company, the more committed and loyal she will be to the particular company. However, one should, of course, note the word contentedly and management in an internal labour market system creates contentment facilitating surroundings by means of elements like: Seniority rights for promotion, tying wages to jobs and seniority and formalising other kinds of grievance procedures as to keep the “contentment level” high. These internal routes, determining promotions, pay and other rewards, really make up an internal labour market as well as it creates a superior climate (Baron and Kreps 1999).

Some empirical evidence supports the internal labour market philosophy by referring to companies practicing the philosophy with reduced grievances and disciplinary activities, greater organisational

³³ The employer has a richer database for making staffing decisions than newly hired individuals.

commitment, reduced employee turnover and absenteeism and longer employment periods as results (Baron and Kreps 1999).

The most common critique of the internal labour market system is the co-optation device used by the employer to get the workers to buy into the business and then promulgating various bureaucratic rules and procedures by which the employer fosters an illusion of fairness. Hence, the internal labour market system may seem as a divide-and-conquer way of manipulating and controlling the workforce. The system threatens the workers by always having a cadre of other workers willing to take their place which also reduces the old guard's (who has achieved higher positions in the hierarchy) incentives to change anything. The internal labour market may be seen as insular, conform and bureaucratic from a certain perspective but it may also simply be seen as the company's way to economise on labour costs and to create solid labour market transactions and supervision (Baron and Kreps 1999).

The internal labour market as a way of conducting HRM in SMEs

In this section, I will analyse and discuss how an internal labour market approach to HRM can influence and support an SME in its struggle to transform from a non-innovative to an innovative company.

The structure in an internal labour market is often quite hierarchical and, in some respects, even bureaucratic with a predetermined promotion system and rules and procedures for the employer to follow (Baron and Kreps 1999). This does not support any innovation activity or transformation process due to especially three arguments (of decentralization, cross-disciplinary and knowledge creating activities, Laursen 2002) which are often used to explain the role played by HRM in the firm's struggle to become more innovative. In the internal labour market system, there are only slim possibilities of working decentralised and cross-disciplinary and thus of creating new knowledge.

Another characteristic of the internal labour market is that new employees mainly enter the organisation at the lowest level which excludes new employees and thereby new competences from a higher level in the organisation. In addition, long-term employees working their way up from the lower to the upper level in the hierarchy typically develop a strong attachment to the culture, values and the preferred procedures (otherwise they would not advance) which is likely to create a

repetitive and “right” way of doing things. It does not encourage the employees to create new ways of doing things neither does it encourage the development of new knowledge, competencies or capabilities. This poses a problem in terms of transforming into more innovation active seeing that Branzei and Vertinsky (2006) found that firms focusing on human capital strategies stimulate the development of novel capabilities to a significantly higher degree. Creating new capabilities supports both external knowledge attraction and the internal cross-disciplinary knowledge creation and sharing (Branzei and Vertinsky 2006)³⁴ which in many cases will be first-order innovation activities. As it is, the internal labour market does not support these kinds of knowledge development activities among the employees and therefore, it will be naive to expect any transformation towards a higher innovation level from that side.

Innovation or any kind of transformation are unattainable when addressing the internal labour market from the critique mentioned above saying that the system is characterised by a divide-and-conquer philosophy where manipulation and control is part of managing the workforce. Even if we adopt the more positive critique saying that the internal labour market is a way to economise on the labour costs and optimise the labour market transactions and supervision, it is still difficult to see how that can support innovation activities.

In other words, there are reasons to claim that the internal labour market is not an appropriate way of conducting HRM if the objective is to become or sustain an innovative company.

Strategic HRM

Strategic HRM (e.g. Armstrong 2006, Storey 2007 and 1989, Boxall and Purcell 2000, Baron and Kreps 1999³⁵) will theoretically be analysed as to see how this HRM position may contribute to answering the question of how to transform non-innovative SMEs into innovative SMEs.

Wang and Zang (2005) found that when companies (in China) want to develop in terms of mergers, acquisitions, organisational change, innovation or other kinds of growth activities, a strategy for strategic HRM (SHRM) is very crucial. Wang and Zang (2005) divide the HRM field into functional HRM and strategic HRM and conclude their study by stating that SHRM is; “*more*

³⁴ In a study of 3,065 Canadian SMEs in the manufacturing sector.

³⁵ Baron and Kreps term it: “high commitment HRM”. This perspective will, among others, be analysed later in this section.

linked with innovation performance and task accomplishment across levels". Furthermore, Wofford (2002) argues that strategy and HRM ought to be linked as strategic planning improves actions for integrating HRM in the development of a more innovative and competitive company. Also Holt Larsen (2005) argues that HRM and strategy are as thick as thieves and that it makes no sense and is hardly possible to talk about HRM in a non-strategic way. Finally, Pucell (2001 in Holt Larsen 2005) states that almost all HRM models are integrated in the business strategy and that therein lies the difference between HRM and Personnel Management. HRM is a kind of second-order strategy particularly related to implementing the business strategy.

The rational purpose of strategic HRM

The overriding idea of initiating and developing a strategy based HR approach is to have an organisational common platform for understanding and manoeuvring the longer-term people management activities from. This should enable the organisation to obtain competitive advantages through HRM (Lengnick-Hall et al. 1990). Without any doubt, SHRM is a long-term project dedicated to creating strategic capabilities in terms of well-skilled, committed and motivated people on a level which has the potential of developing or sustaining a competitive advantage (Armstrong 2006).

The aim of SHRM is to provide a direction for the organisation; a synthesis between developing the employees' competencies and realisation of the business strategy action plans. Dyer and Holder (1988) address the aim of SHRM and its ability to create synthesis by saying that SHRM should offer: "unifying frameworks which are at once broad, contingency based and integrative".

Approaches to strategic HRM

It seems that the literature (e.g. Armstrong 2006, Storey 2007 and 1989, Boxall and Purcell 2000) is quite united when it comes to defining the main themes or approaches to SHRM. In any case, the approaches which are most commonly addressed and discussed within the SHRM literature, including high commitment HRM, will be lined up below.

There seems to be especially three areas (Armstrong 2006, Storey 2007, de Leede and Looise 2005) which may be termed approaches to SHRM and to which the literature shares a common support. The first one relies on the **resource based view of the company** (Armstrong 2006, Storey 2007, de

Leede and Looise 2005), the second one deals with aligning a **strategic fit between the HR strategy and the business strategy** (Armstrong 2006) and the last approach aims to explain how SHRM is interconnected to managing the employees in the direction of **high commitment HRM** (Baron and Kreps 1999, Armstrong 2006). Each of these three main elements of SHRM will be described.

The resource based view and SHRM

A basic idea within the resource based approach is that a company can create a competitive advantage and obtain added value from handling the resources strategically and effectively. Grant (1991) argues that the most important source of competitive advantage lies within the company in terms of people and the knowledge they represent. In Grant's (1995) point of view, the internal resource based view, this is much more important than how the company positions itself relative to the market conditions.

The resource based view is in line with SHRM in its ambition to invest in people and develop their skills enabling the company to learn and apply the acquired knowledge to the actual products or services more effectively than its rivals (Hamel, Doz and Prahalad 1989). It is an inside the company and out perspective viewing the company as a package of more and less tangible resources and capabilities; resources and capabilities which are so crucial to success or failure in relation to the market competition (Kamoche 1996). One advantage of this inside out perspective is that the company is less dependent on the environment. This is, of course, interesting in times with high external turbulence. Grant (1995) has in a resource based strategy context formulated it like: "When the external environment is in a state of flux, the firm's own resources and capabilities may be a much more stable basis on which to define its identity. Hence, a definition of a business in terms of what it is capable of doing may offer a more durable basis for strategy than a definition based upon the needs (e.g. markets) which the business seeks to satisfy".

Another reason for focusing on the resource based view in relation SHRM is that competitive advantages which rely on effective management of people in terms of processes, skills, competencies, capabilities, knowledge and learning are often unique and definitely difficult to imitate.

It is important to recognise that the resource based view has an inherent risk of overstating the means of internal resources and capabilities and thereby neglecting external forces in terms of innovation and change in the business or in a wider society perspective (Armstrong 2006).

The fit between business strategy and SHRM

When the literature debates the link between business strategy and SHRM, it is mainly a question of creating a vertical link by integrating HR activities into the business strategy ensuring that HR activities can support the business development process as it is (Armstrong 2006, Ritson 1999). Accordingly, HR strategies play a more functional “downstream” role and are termed second or third-order strategy activities, whereas the business strategy is “upstream” in its movement and named first-order strategy (Ritson 1999).

It is becoming more and more obvious, due to turbulence in the environment, that a successful business strategy requires at least a congruent HR practice that promotes a proper setup of employee behaviour (Kamoche 1994, Brand and Bax 2002). However, the link between strategy and HRM still defies generalisation and the empirical proof of linking HRM and small business performance is incipient (e.g. Freel (2005a, 2005b) shows that there are some empirical links between HRM and SME performance). Brand and Bax (2002), Armstrong (2006) and de Leede and Looise (2005) have in three different works proposed conceptual frameworks for linking strategy and HRM in SMEs; below Brand and Bax’s framework will be presented in brief.

In their effort to link business strategy and SHRM in SMEs, Brand and Bax (2002) apply three well-known and normative theories. In the business strategy area, they build on Miles and Snow’s (1978) four typologies: Defender, prospector, analyser and reactor. Then Brand and Bax use Mintzberg as an argument for labelling the company as either more mechanical or more organic. Where the mechanical organisation stands for a standardised and bureaucratic model, the organic organisation represents mutual dependencies between participants, diffusion of power and commitment to the common goal of the company (Brand and Bax 2002). Finally, Brand and Bax involve the SHRM theory by addressing contracting with employees in terms of recruitment, assessment and rewarding. This contracting can either be “hard” focusing on transaction costs, “Taylorism” in the reward policy and “employ people in jobs rather than in careers”³⁶ (Brand and

³⁶ It relates directly to Baron and Kreps’ internal labour market perspective.

Bax 2002) or it can be “soft” focusing on reciprocal social processes, visions, values and a culture defined by long-term relationships.³⁷ “Hard contracts match the characteristics of mechanical organizations; organic regimes rely more on soft contracting” (Brand and Bax 2002).

In this scenario, Brand and Bax recommend the following conceptual links between business strategy, type of organisational structure and type of SHRM contract. From Miles and Snow’s four typologies, there are two situations in which the link is not self-evident. One is when we take the perspective from the reactor strategy as it is characterised by *not* having any clear strategy which renders it irrelevant in this context. The other one is the defender strategy as it can have two different trajectories depending on whether the defender strategy focuses on price or quality. If price is the main object to “defend”, a mechanical and hard contracting approach is the most likely approach. If quality is the main aim of the defender strategy, Brand and Bax expect an organic organisational structure supported by soft SHRM contracting. The remaining two strategy patterns are more unambiguous; the prospector strategy is connected with organisational characteristics such as innovation, flexibility and decentralisation and is therefore commendable for developing an organic structure maintained by soft SHRM contracting. If a company follows the analyser strategy by imitation and optimising efficiency and stability, the recommendation is also clear pointing to a mechanical structure and a more “hard” HRM contracting system.³⁸

Brand and Bax (2002) argue for the link between strategy and SHRM in SMEs through this conceptual model and give an example of how a changed strategy will be followed by a change in the structure and the SHRM contracting. If a company follows an innovative strategy (prospector) with an organic structure and soft contracting and for whatever reason chooses to change this strategy into a more rational strategy, we can expect commitment to decrease and employee turnover to rise and: “gradually the nature of the organization will change into a more mechanical direction as management is forced to put more emphasis of external controls because of a decreasing intrinsic motivation of the workers. In the end this process will lead to a corrosion of the organization’s related distinctive competencies and, consequently, to an undermining of its innovative power” (Brand and Bax 2002). *Ceteris paribus*, one can expect that the same arguments may be used to explain how changing an analyser strategy into a prospector strategy will create an opposite change in structure and the SHRM contracting system.

³⁷ Relating to Baron and Kreps’ high commitment HRM.

³⁸ Miles and Snows typologies on strategy will be further discussed in section 3.5.

This conceptual model of business strategy and SHRM in SMEs is what Brand and Bax (2002) call general support for the idea that SHRM is relevant for small companies. Still, empirically supported research is needed in order to confirm these links, as Brand and Bax's work is descriptive and basically just represents some theoretical guidelines.

High commitment HRM and SHRM

High commitment human resource management can be described as HR practices focusing on "getting more from the workers by giving more to them" (Baron and Kreps 1999). The approach embodies several highly complementary HR practices which rely on economic and social-psychological processes (Baron and Kreps 1999).

If a company has created a high commitment HRM system, the employees will work in the best interest of the organisation, based on a deep understanding of how to run the team, department or the whole organisation. Employees are flexible; they are willing to take on assignments different from the normal work if it is in the interest of the organisation. Employees work with their brains as well as their hands. They use judgments and help with improvements by contributing with ideas and information (Baron and Kreps 1999). In highly committed organisations, the hierarchy is flat and the potential differences in status are invisible (Armstrong 2006).

The means of a high commitment and high involvement organisation consist in guaranteed employment, everyone forming part of a team and the symbolic distinctions being eliminated (equality). There is an emphasis on self-managing teams and team production with well-established job enlargement and job enrichment activities. The compensation is proportional to competitive wages and superior benefits and often incentive compensation based on team performance. There is an extensive focus on socialisation and training of employees – including cross-training as well as open information on all aspects of the enterprise. The open channels of communication facilitate idea generation among the employees. Normally, there will be a de-emphasis on hierarchy resulting in a flat and moveable structure in a high commitment HRM organisation. A strong culture of teamwork and an extensive screening of employees to secure a cultural fit are also typical characteristics of the set up in organisations which are defined as a high committed HRM organisations. However, the employer expects the staff to be self-directed and self-managed and

able to contribute to the overall development of the company including contriving new ideas and flexible solutions to current challenges (Baron and Kreps 1999). These high commitment HRM aspects are linked with a lot of complementarities implying that if a company follows some aspects they are likely to want to do others as well.

The high commitment philosophy is based on an idea of raising the performance of the company through the above-mentioned impact on its employees. The performance development is measured on variables such as productivity, quality, levels of customer service, growth, profits and ultimately, share holder value (Armstrong 2006). This means that high commitment is not a philanthropic project alone aimed at developing the employees and strengthening their competencies; on the contrary, it is basically measured in terms of classical “hard” economic based figures.

Limitations and critique of SHRM

Due to the fact that most HR strategies consist of many different HR activities, it is important to note that there need to be a fit in order to create an alignment with the rest of the activities in the organisation; both on a horizontal and a vertical level. Fitting the HR strategies to the organisation on a horizontal level is about consistency between the different HR activities. It could, for instance, be between the amount of investment in training, the design of job and the rate of remuneration (Storey 2007, Baron and Kreps 1999). The vertical alignment refers to the link between the business strategy and the HR strategies. It takes considerably different HR strategies to fulfil an innovation based strategy compared to a cost-leadership strategy.

It should also be mentioned that formulating a strategy in general or an HR strategy in particular is not a rational and linear process. Consequently, talking about a strategic fit between these two dimensions is somehow rather naive. Real-life SHRM does not follow a track where it at a certain point fits the business strategy. Moreover, managing SHRM is a question of trying to balance a kind of reciprocal relation between business strategy and HRM strategy.

High commitment HRM and SHRM can in many cases be seen as well-integrated systems which are highly complementary to individual HR-practices leading to a highly performing workforce; however, there are also a number of negative side effects, e.g.: The work environment is often stressful, the employees feel that a heavy responsibility rests on them, peer pressure is usually

intense and employees find it difficult to unwind when at home. Many employees thrive in that atmosphere; others do not. In addition, the costs may be substantial and it may be difficult to practice a high commitment HRM or SHRM in full.

SHRM as a way of addressing the transformation process within SMEs

In this section, I will analyse and discuss how a SHRM (including the high commitment HRM) approach to HRM can influence and support an SME in its struggle to transform from a non-innovative to an innovative company.

It is quite obvious that SHRM as well as high commitment HRM are closely linked to innovative and competitive companies (including SMEs). It is evident when Brand and Bax (2002) argue that a company chasing a prospector strategy focusing on innovation, flexibility and decentralisation ought to develop a flat organic structure and that these elements should be coupled and held together by a soft SHRM approach (or a high commitment HRM system).

Due to the literature (e.g. Brand and Bax 2002, Baron and Kreps 1999, Freel 2005a & 2005b, Amrstrong 2006, de Leede and Looise 2005, Branzei and Vertinsky 2006 and Laursen 2002), it is possible to claim that SHRM supports an organic structure, an innovative prospector strategy and thereby has the potential to support both the transformation from non-innovative to innovative as well as to keep a company on a high innovation level. Employees work on a self-managing basis and in the best interest of the company with a deep understanding of the whole business. There is a heavy focus on (cross) training, socialisation and open communication. Working with their brain, employees are flexible and willing to take on assignments different from their normal jobs. From this position, employees are a source of new information, creativity, ideas and suggestions to continuous product/service development.

As Brand and Bax (2002) argue, a company with an analyser strategy (non-innovative) based on a hard transaction cost HRM approach is actually able to gradually change the structure, strategy and thereby raise the innovation level by changing the HRM focus towards a SHRM approach. SHRM is also an excellent exponent for decentralisation, cross-disciplinary activities, learning and new knowledge creating. It makes it possible to create new capabilities which in many cases will be first-order innovation activities. We know that these elements are preconditions for and fairly good promoters of innovation (Laursen 2002, Branzei and Vertinsky 2006).

In spite of the fact that SHRM systems can be expensive as well as stressful with a lot of responsibility and pressure, it is possible to claim that SHRM represents a way to transform the non-innovative SME into a more innovation active SME as well as to maintain a high innovation level.

3.4.5 Conclusion and propositions for the empirical test of the HRM area

In this section, I want to sum up the relevant aspects of HRM as to be able to form a hypothesis which is suitable for an empirical test. The main conclusions for that purpose are lined up below.

From the literature, we are able to characterise non-innovative SMEs as conducting a “hard” version of an internal labour market HRM approach which has some of the following characteristics: There is a bias towards a hierarchical and bureaucratic structure with predetermined rules and procedures. HRM activities are centralised and do not encompass cross-disciplinary activities. There is a reluctance to hire new competences on a high organisational level not facilitating new knowledge or capability creation among the employees. Altogether, internal labour market has the potential to constitute the non-innovative SMEs and to maintain SMEs in non-innovative positions over time as well.

To raise the probability of fulfilling a successful transforming from a less innovative SME to a more innovative SME, a SHRM or high commitment HRM approach should be followed. Even though SMEs typically work with SHRM activities in an informal, variant and emergent way, it is possible to conclude that SMEs due to transforming towards more innovative should work purposeful with SHRM. By operating systematically with a SHRM approach, the SME is potentially able to create situations characterised by decentralisation, cross-disciplinary activities, learning based development of the employees and is thereby able to create new knowledge and hence innovation. The company has the possibility to change its focus from an internal labour market to a SHRM perspective and thereby develop towards a more innovation based company. Thus SHRM has, based on the literature, the potential to position non-innovative SMEs onto higher innovation activity levels as well as maintain a high innovation level.

The conclusions referring to HRM are reproduced in the figure below as to display this area in terms of how to transform non-innovative SMEs into innovative SMEs.

Figure 3.7 The transformation process in terms of HRM

| Initial position Characteristics of the non-innovative SMEs | The transformation process (characteristics of the needed transformation process) | New position Characteristics of the innovative SMEs |
|--|---|--|
| <p>Internal labour market approach to HRM.</p> <p>Hierarchical structure, predetermined rules, no cross-disciplinary activities, not creating new knowledge or capabilities.</p> <p>Employees are into long employment, promotion from within, only job specific training, emphasis on seniority and rules, thereby creating repetitive quality products/services.</p> | <p>Changing HRM attitude from “hard” towards “soft” (e.g. from internal labour market to high commitment HRM).</p> <p>OR</p> <p>Changing strategy (e.g. from analyser to prospector) which will be followed by a change in structure and a new HRM contracting system. A system going from internal labour market towards SHRM.</p> | <p>SHRM or high commitment HRM approach to HRM.</p> <p>Organic structure, handling cross-disciplinary activities and creating individual development through learning, knowledge and capabilities.</p> <p>Employees are self-managing and flexible working in the best interest of the company and taking on assignments different from normal work, thereby creating new products/services.</p> |

Source: Own work

From this point of reference, the following two propositions will be related to the HRM theory.

P3: The transformation process will be supported by changing the HRM philosophy from an internal labour market (hard) approach to a strategic HRM (soft) approach.

P4: Linking the strategic HRM contracting system with the business strategy will support and develop the transformation process.

3.5 The transformation process from non-innovative to innovative SMEs as addressed by strategy

Introduction

Innovation does not exist in a vacuum. It involves complexity, uncertainty and change in the context of internal and external relations. Thus a firm which is trying to accomplish a better innovative performance must build up strategic capacity to learn from the past and position the firm for the future (Tidd et al. 2001). Developing a strategy takes at least a plan for market and national *positions*, technological *paths* and organisational *processes* (Teece and Pisano 1994). From this point, strategy is a question of positioning the firm in relation to the market by manoeuvring the firm's structures and processes, thereby trying to achieve a competitive advantage.

Due to the dynamics in the global economy and the pressure from both the Far East and Eastern Europe, the Western companies need to be more and more focused on how to defend market shares. However, Western managers are in these years centring much of their attention on a strategy approach which relates to the old economy characterised by operation factors such as operation plans, lean production, sticking to the core business etc. (Drejer 2004). These kinds of strategic approaches and actions are poorly related to the challenges in the environment constituting one of the current challenges among Western companies today. Drejer describes it in the following way:

This generates a need to regard strategy as something else and more than we regard strategy at present – the challenge is to regard strategy as a balance between (innovative) business development and effective operations". (Drejer 2004)

When it comes to strategy theory, none of the leading strategic thinkers³⁹ have created a theory or model which is able to handle the need for business innovation and effective operations simultaneously and that is the reason for Drejer (2004) to state that strategy theory is poorly related to current empirical challenges. Furthermore, it is fair to say that strategy development, planning and fulfilment are more important than ever.

3.5.1 Theoretical definitions

Many scholars have contributed with definitions on strategy (e.g. Ansoff and McDonnell 1990, Mintzberg 1987, Johnson, Whittington and Scholes 2005, Thompson 2001) whether it is a plan or process orientated perspective. Johnson, Whittington and Scholes (2002) have coined a definition which has a quite superior approach to strategy and because it has evaded being linked to any specific school, it is suitable in relation to this PhD project. Johnson, Whittington and Scholes (2002) have a short version and a longer version of **defining strategy**; the short one says:

“The long-term direction of an organization” (Johnson, Whittington and Scholes 2005)

And the longer version says:

“Strategy is the direction and scope of an organization over the long term, which achieves advantage for the organization through its configuration of resources within a changing environment and to fulfill stakeholder expectations” (Johnson, Whittington and Scholes 2005)

These definitions address strategy as a question of how to outline a direction for the organisation which has the potential to create advantages by organising the resources in a way fitting to the environment. Creating advantages means to preserve a surplus better than average in the line of the current business which will give the concerned company a strong competitive position.

From this general and superior definition of strategy, I will now turn to an overview of the strategy literature as to be able to subdivide it in relation to this PhD project.

³⁹ E.g. Andrews' SWOT analysis (1967), Porter's positional advantages (1980, 1985, 1996), Hamel and Prahalad's core competencies (1994) and Grant (1995) or Teece's et al. (1997) dynamic capabilities.

3.5.2 Subdividing the area of strategy

Through the ages, the understanding of strategy has experienced different great periods during which different paradigms have had their decade(s) of being state of the art. First, there was a period of a long-term planning paradigm (initiate before 1950) whose aim was to distribute the economic resources, the content was financial planning and profit maximisation, the implementation elements were budgets and action plans. Then a period (Selznick 1957, Chandler 1962, Ansoff 1965, and Andrews 1967) of strategic planning constituted the main stream approach; the aim was to apply the resources to the most promising areas, the content was about satisfying the customers' needs in order to create profit and the implementation plans were entering strategic budgets and choosing the right market and product segments. The next was the paradigm of product-market strategies (from 1980 to 1995 Porter) and the aim was to balance cash flow and to create competitive advantages. The content was about sustaining competitive advantages as a way to create profit and the implementation elements rotated around strategies for the whole company, for a particularly strategic business unit or a certain function. These years' (Drejer and Printz 2006) state of the art strategy addressed a complex strategic leadership paradigm which aimed to combine and solve problems lying in between technology, sociality, business and political issues. The content consisted in trying to handle these dimensions both on an external as well as an internal basis as to survive in the business.

Along this historical evolution through these different paradigms, one particularly central question has been part of the ongoing debate within the strategy literature, and that is; is strategy a matter of top management planning future activities or is strategy a matter of an incremental and successive process during which management, employees and stakeholders are working conjointly with the strategy? This has been one of the most central questions within the strategy literature over the years. The question has evolved through the strategy literature and given rise to two main "schools"; one of them is called the "rationalist" school and it still argues that the best way of creating competitive advantages is to create a master plan for future activities; this school has been primarily influenced by Ansoff (e.g. 1965). The other one is called the "incrementalist" school and here, the arguments point at a common and successive process as the ideal way of generating competitive advantages. This school has very much been formed by Mintzberg (Mintzberg 1987 and 1975).

Ansoff and Mintzberg have vigorously argued in favour of their respective “schools” and why “their” school should be recognised as the right and preferable way to understand and conduct strategy. As far as the strategy literature (Drejer 2006) is concerned and arguing currently, I think it is fair to say that neither of these so-called schools is in a position to claim victory. Conversely, it is possible to argue that a combination of the different approaches is a safer bet for finding a passable track and be crowned with laurels. Despite the fact that Mintzberg actually is the founder of the incremental process approach to strategy, it is mainly he who originally contributed to the development of a concept of combining plan and process. In his article from 1994⁴⁰, Mintzberg argues for the fallacies of working with strategy as a plan alone. Mintzberg had already in 1985 (in Mintzberg and Waters 1985)⁴¹, argued for the advantages of working with strategy as a combination of plan and process, as the authors claimed that the most efficient way of conducting strategy is to work deliberately and emergently in parallel.

In sum, the strategy literature is currently approaching a complex strategy leadership paradigm where the aim is to combine the deliberately planned strategy with the emergent process based part of strategy. Taking this context as a current way to understand and approach strategy, the strategy literature still needs to be subdivided in order to be applicable to the current thesis. In this situation, however, the work of Mintzberg (together with Lampel 1999) is also useful for that purpose, as he has divided the strategy literature into 10 different approaches to strategy. Mintzberg calls each of these approaches a school and defines a school as a coherent theory concept developed in international recognised research settings with an appurtenant management philosophy and doctrine. The aim is to subdivide the strategy literature by analysing the 10 schools through the following four selection criteria. First of all, the school should be able to address the empirical context of supplier dominated and production intensive SMEs, secondly, it should be capable of addressing the technology and economic based literature and thirdly, the school should relate to non-innovative SMEs as well as innovative SMEs and some kind of transformation process from one strategy to another. The fourth and last selection criterion is that the school should contain elements from both the deliberate planning part of the strategy literature as well as the emergent process part.

⁴⁰ “The Fall and Rise of Strategic Planning”

⁴¹ “Of Strategies, Deliberate and Emergent”

Mintzberg specifies ten different schools and in the following, I will examine how each of them meets the four selection criteria. The first one is the **cognitive school** which is a quite theoretical approach looking at strategy as a mental process and based on an interpretative or constructivist view (Mintzberg and Lampel 1999). This means that the potential of this school is related to supplier dominated and production intensive SMEs, but the school does not address any innovation level or transformation process as such and it is primarily related to the emergent (descriptive) perspective.

The **cultural school** (Rhenman 1973 and Normann 1977) sees strategy as a collective process relying on anthropological perspectives and it became a huge issue in the USA in the 1980s as a reaction to the successful Japanese management approaches. The focus is on perpetuation rather than change (Mintzberg and Lampel 1999). As already mentioned, the cultural school does not relate to supplier dominated and production intensive SMEs, neither to non-innovative versus innovative SMEs or the transformation process as such. The cultural school is based on the emergent (descriptive) perspective and does not pay any attention to the planning and deliberate part of strategy

The **power school** (Pfeffer and Salancik 1978, Astley 1984) refers to a thin body of literature stating that the power is used either on a micro or on a macro level as to persuade, confront or bargain the strategy through. Beside power, the power school addresses aspects such as politics, conspiracy and force (Mintzberg and Lampel 1999). This school does not address any of the first three selection criteria and is based solely on an emergent (descriptive) perspective.

The **learning school** (March and Simon 1958, Weick 1979, Quinn 1980, Hamel and Prahalad 1990) is based on a descriptive approach and challenges the prescriptive dominated schools, especially the planning and positioning schools, by looking upon strategy as an incremental and emergent process. The learning school interprets strategy as something created by and through different situations (Mintzberg and Lampel 1999). The learning school has the potential to address the supplier dominated and production intensive SMEs as well as it can be related to both non-innovative and innovative SMEs and it has the potential to address the transformation process. But the school has, as mentioned, a narrow scope in terms of the descriptive and emergent perspective.

The **environmental school** (Hannan and Freeman 1977) is the school farthest away from addressing strategy at all; its focus is solely on the environment and it views strategy formulation as a reactive process (Mintzberg and Lampel 1999). The focus is too narrow (descriptive and emergent) and far away from today's business environment which is the reason for claiming that the school is not relevant for this project.

The **entrepreneurial school** (Schumpeter 1934, Cole 1959) relates to a visionary process where the chief executive bases the strategy process on a kind of mysterious of intuition. The school relies on a descriptive approach; however, the leader maintains close control of both formulating the vision as well as the implementation process. This kind of dominating leader behaviour is in opposition to the other (above-mentioned) descriptive schools as far as they involve the stakeholders much more in the strategy process (Mintzberg and Lampel 1999). The entrepreneurial school has the potential to meet the first three selection criteria but it does not embrace both planning and process approaches to strategy.

The **planning school** (Ansoff 1965) approaches strategy through a comprehensive plan with distinct steps and checklists supported by budgets and operation plans. This kind of strategy thinking appeals to managers who like to be able to overview and control the whole strategy project (Mintzberg and Lampel 1999). This school has also the potential to meet the supplier dominated and production intensive SMEs and it can be related to non-innovative SMEs but presumably not to the innovative SMEs and therefore not to the transformation process either. Obviously, this school is also too one-sided with a bias in favour of the prescriptive planning approach.

The **positioning school** (Hatten and Schendel 1977) is pretty much what could be called Porter's (1980, 1990 and 1995) approach to strategy and it interprets strategy as a matter of defining the best possible generic position for the company. The strategy emerged from a detailed analysis of the industry context which makes the "planners" to "analysts" who work with a large range of data trying to deliver the prescriptive "truth" about the strategy (Mintzberg and Lampel 1999). This school also has the potential to meet the first three selection criteria, but it evidently fails to comply with the last criterion of bringing both planning and process into play.

The **design school** (Selznick 1957) also relates to the prescriptive conviction as it sees management as the body who formulates a clear, simple and unique strategy based on both analysis and intuition. This strategy will afterwards deliberately and through conscious thoughts be implemented (Mintzberg and Lampel 1999). This school could easily meet the first three selection criteria, but due to the bias in favour of the planned and prescriptive approach, it does not meet the last selection criterion.

The **configuration school** (Miles and Snow 1978, Chandler, 1962, Mintzberg 1979) does actually approach strategy as a transformation process and Mintzberg sees the school as building on a more extensive and integrated literature. The school's approach also combines the descriptive and the prescriptive perspectives. The descriptive thinking is clear in the way the school perceives organisations as coherent clusters of different characteristics and behaviours which are used to configure each company in its own place or state. In this manner, the configuration school describes the organisation in different states and besides that, the school also addresses how to transform between these states "And so, a literature and practice of transformation – more prescriptive and practitioner orientated (and consultant promoted) – developed" (Mintzberg and Lampel 1999). This school actually meets all four selection criteria; it addresses the supplier dominated and production intensive SMEs, it relates to both non-innovative and innovative SMEs and it explicitly relates to the transformation process from one state to another. In addition, this school (as the only one of Mintzberg's 10 schools) involves both perspectives of plan as well as of process.

Accordingly, the subdivision of the strategy literature entails focusing exclusively on the configuration approach and Miles and Snow's (1978) theories and models. The reason for using Miles and Snow's theoretical concept is that they, through their theoretical concepts, use four typologies (defender, prospector, analyser and reactor) which I consider suitable for representing both the typical non-innovative SMEs' as well as the innovative SMEs' approach to strategy. Miles and Snow (1978) also show how companies are able to transform from one state to another through what they call the adaptation process. In section 3.3.4, the Miles and Snow theories will be analysed and discussed in relation to this PhD project.

3.5.3 Non-innovative versus innovative SMEs and strategy

Innovation and uncertainty go hand in hand. However, companies with an articulated strategy for innovation and for capturing value for innovation are in a much better position to deal with this inherent uncertainty.

Seeing that firms concerned with innovation by definition are concerned with the ability to earn good profits in the future as well, it should be rather evident that one could expect a link between strategy and innovation. And sure, there is a correlation between innovation and strategy; innovators pursue strategies more explicitly and directly than non-innovators (Gellatly 1999) and they have a longer-term strategic approach as well (McAdam et al. 2004 A). The term more explicitly means that innovators have more apparent and articulated strategies for future activities including innovation strategies (Panne et al. 2003). Preparing these strategies somewhat supports a common self-fulfilling prophesy among SMEs saying that when innovators have confidence in their intelligence to make long-term strategies for innovation and new product development, they will in fact be more innovative (Mosey et al. 2002). We have seen strategies for a number of different key areas in the firm (e.g. corporate, management, HRM, innovation, marketing, production and financing) and more recently, a staff creativity strategy which is also related to innovation (O'Regan et al. 2006 B). In fact, O'Regan et al. (2006 B) found that there is a close interaction between strategy, leadership, organisational culture and innovation: *“The analysis indicated that strong leadership and culture styles irrespective of the style itself, as well as strong strategy characteristics resulted in greater emphasis placed on innovation”* (O'Regan et al. 2006 B).

Referring to Souitaris (2002), there seems to be two very central strategy related areas which have an impact on the firm's level of innovation. Having an ongoing innovation budget (Khan 1990 and Twiss 1992) and a written and clearly defined and communicated long-term strategy (Rothwell 1992 and Swan and Newell 1995) have proven to be positively related to innovation. But what is strategy and how should it be performed?

In the case of the non-innovators, resources will rarely be allocated to conceiving innovation strategies as this is outside the defined scope of interest for the organisation. Instead, innovation or ideas for changes will often remain as thoughts and ideas in the mind of the manager/owner (O'Regan et al. 2006 B). As a result of this personalised and management focus, we see more

isolated initiatives in the short term which should be labelled quick fixes rather than strategies in the strict sense (McAdam et al. 2004 A). Another point underlining the existence of a strategy and innovation correlation is that non-innovators seldom have an innovation strategy at all (Gellatly 1999). Another crucial difference between innovators' and non-innovators' ability to innovate is access to reliable external information and the ability to process this information. The history is rich in examples of how wrongly timed innovations fail to capture any attention and/or value from the market. Advanced and reliable information about how a specific value chain is structured and changes to be expected in the future is often crucial input to the innovation process and the configuration of the final product or service.

3.5.4 The transformation process in terms of strategy

In this section, the focus is on the configuration school (in terms of Miles and Snow's theoretical contributions) as to see how this approach to strategy addresses non-innovative and innovative companies and the transformation process between them (from non-innovative to innovative).

Miles and Snow (2003) have created a theoretical model positioned pretty much in between the classical discussion of plan or process or, in Miles and Snow terminology, the "situationist" and the "generalist" approach to strategy. According to Miles and Snow, the "situationist" (process) view is characterised by a line of reasoning stating that two companies cannot have the same strategic settings and therefore, it is not possible to use a general approach to strategy. The strategic approach must take the context, contingency and situation into consideration. In contrast, the generalists argue that there is some universal working aspects in terms of e.g. market share, quality and price. These elements create the basis for the generalists to claim that it is possible to generalise and predict rational strategic activities (Miles and Snow 2003).

Miles and Snow entered the fray with the subtlety of choosing the middle ground, addressing what they call strategic "equifinality", the idea that in a particular industry and environment, a company does always have more than one way to prosper. However, there is not an endless number of ways to prosper – that is where the configurational mark is placed – and Miles and Snow (2003) argue that the company has to choose one out of four basic strategy types populating the business environment. One is (1) the defender strategy where businesses prosper through stability, reliability and efficiency. Another is (2) the prospector strategy where prosperity is created through

stimulating and meeting new product market opportunities. Companies choosing (3) the analyser strategy prosper through purposely being more innovative than defenders but doing it more cautiously and selectively than prospectors. Adopting (4) a reactor approach to strategy can hardly be called a strategy because reactors fluctuate in their relation to the environment and to strategy work as such. Miles and Snow (2003) argue and show by means of their empirical cases that any kind of industry or business (product or service based) and any kind of sector (private, public or non-profit) can adopt any one of the four types of strategy. That means that a certain business in a certain sector does not have a predetermined strategy style.

Beside these four basic strategy types, Miles and Snow (2003) also introduce the idea of an adaptive cycle which is a matter of recognising that any kind of company continuously cycles through sets of decisions as to transform from one strategy style to another or to go even deeper into the current style. Miles and Snow view the adaptation process as especially being formed in three domains and these are 1) the product market domain which refers to entrepreneurial problems and solutions, 2) the domain of producing and delivering products which refers to problems and solutions in the engineering domain and 3) the domain of internal roles, relationships and organisational processes which refers to problems and solutions within the administrative domain.

Below, each strategy style and the process of organisational adaptation will be presented, analysed and discussed in relation to the transformation process between non-innovative and innovative SMEs.

Defenders

The defender style will be analysed through the following three steps: (1) Addressing the three adaptive problems (entrepreneurial, engineering and administrative) from a defender perspective, (2) discussing how these problems can be solved in terms of organisation and management and (3) relating it to the costs and benefits of this way of adaptation (Miles and Snow 2003).

Basically, a defender strategy is grounded on an **entrepreneurial problem** of abandoning a share of the potential market and profit in order to create stability by supplying a sharply defined market segment with well-defined products or services. Despite the fact that a company faces a changeable and turbulent market, the defender approach tries to focus on the stability in the environment. The

defender companies will actually experience a great deal of stability even though the industry is dynamic (Miles and Snow 2003). The defenders "Deliberately create stability through a series of decisions and actions which lessen the organization's vulnerability to environmental change and uncertainty" (Miles and Snow 2003). By using this approach, the defender meets the market with narrowness and stability which create an entrepreneurial problem (optimising product market potential) in terms of not exploiting the full market potential. Normally, defenders meet this challenge by directing their product/service to a limited segment of the market. This selected part of the market is often the most profitable part and the defender provides a broad range of products or services in combination with competitive pricing and usually excellent customer service (Miles and Snow 2003). The defender stays competitive by focusing on reducing costs and simultaneously increasing quality implying that product or service developments outside the market segment are not part of the scenario. When the defender company creates any kind of development and growth of products or services, it will be incrementally and strictly related to the current activities.

This entrepreneurial setup surrounding the defender strategy creates benefits of sustaining strong competitive advantages in a well-defined niche but it creates underlying weaknesses in terms of lack of adaptability to dynamic and major shifts in the market conditions (Miles and Snow 2003).

The **engineering domain** is very important to the defender and it is here that most resources and efforts are spent. The defender strategy is very much about producing and distributing the present goods or services as efficiently as possible which is the reason for focusing on updating the current technology and production/distribution systems. This entails heavy investments in technology efficient high volume production and a vertical integration bias which is justified by a stable demand from fairly loyal niche customers. The solution to defenders' engineering problems is therefore a matter of improving: "Quality and inventory control, materials handling, production scheduling, and methods of distribution" (Miles and Snow 2003).

For the defender, the engineering domain is characterised by tapping into the benefits of being well-optimised on the current production or service supply; however, he may be vulnerable to changes in the environment due to the long-term payback on investments in the current technology (Miles and Snow 2003).

The **administrative problem** facing the defender is fundamentally a question of how to support the creation of efficient and stable production. The most central administrative systems are planning, structuring and control mechanisms which are consistent with a focus on an efficient production to the defined market niche. Financial and production activities are the most important and therefore the areas which receive the most attention. Leaders from these departments are the ones to make the crucial strategic decisions. These leaders follow a problem solving and plan – act – evaluate philosophy and they are prone to organise the activities in a functional structure within which the control power is centralised and the coordination mechanism is simple and standardised. Different kinds of conflicts will be solved through the hierarchy and reward systems within the functions, especially finance and production (Miles and Snow 2003).

Using the administrative system in this manner is to the defender's advantage because it supports stability and efficiency. It, however, suffers from the same disadvantages as the entrepreneurial and engineering domain do seeing that this administrative system of the defender strategy is poorly suited for responding to change or new product or market opportunities (Miles and Snow 2003).

Prospectors

The prospector style will like the defender style be analysed by addressing the three adaptive problems (entrepreneurial, engineering and administrative), by discussing how these problems can be solved in terms of organisation and management and by relating it to the costs and benefits from this way of adaptation (Miles and Snow 2003).

The **entrepreneurial problem** for the prospector style is in broad terms the opposite as for the defender as it focuses on ways to locate and exploit new products, services and market opportunities. The focus is on product and market development and the prospector tries to seize: “a reputation as an innovator in product and market development” (Miles and Snow 2003). The prospector approach to the entrepreneurial area is therefore a question of continuous development through a large capacity to scan the environment for new trends, opportunities and business propositions. Due to these scanning activities, the prospector will often be the creator of not only rapid change in the current business domain but also broadly within the industry. Growth is primarily achieved through successful market and product development and it often occurs in

sprints. The downside is that the prospector's heart sometimes beats more for developing innovation rather than for earning money (Miles and Snow 2003).

The entrepreneurial advantages of using the prospector style is that product and market innovations keep the company in a fluid balance with a change environment. The price to pay, however, takes the form of low profitability and heavy pressure on resources.

The prospector **engineering problem** consists in being into a too long-term period of exploiting a certain technology due to the fact that entrepreneurial activities will always have primacy. From the focus on what to innovate, the appropriate production technology is seldom developed before late in the product development process. The solution is for the prospector to concentrate on well-developed prototype technologies as well as on multiple production technologies for a wider range of products. The prospector style relates to a belief that the key to development and earnings goes through people rather than through routinisation and mechanisation of the production flow (Miles and Snow 2003).

This approach to the engineering area has the advantage of being able to response quickly to a changing and dynamic environment but the disadvantages is that the prospector cannot create maximum efficiency in relation to production and distribution due to the wider range of technologies used (Miles and Snow 2003).

The main **administrative problem** for the prospector is how to facilitate and coordinate the diffusion of activities. As the most important and strategically crucial areas are marketing, research and development creating a continuous stream of potential new products or services, it takes a large amount of management resources to facilitate and coordinate the available resources. The solution is to hire managers from outside or to promote them from within as to be able to coordinate the start-up and dissemination of activities. The planning approach is broad trying to determine a problem (in terms of new products or markets) and can actually not be concluded before some action is taken. The structure is often based on divisions with horizontal information and complex coordination mechanisms. The control mechanism is decentralised whereas the problem and conflict solving is a horizontal affair with focus on integration among the variety of activities (Miles and Snow 2003).

This kind of administrative system supports the flexibility and the effectiveness of handling many different activities but it also fosters and substantiates many situations of sub-optimising and weak exploitation of the resources (Miles and Snow 2003).

Analysers

The analyser style will in the following be analysed by addressing the three adaptive problems (entrepreneurial, engineering and administrative), followed by a discussion of how these problems can be solved in terms of organisation and management and by relating it to the advantages and disadvantages from this way of adaptation (Miles and Snow 2003).

The analyser style is more or less a combination of the defender and the prospector approach as it seeks to benefit from the strengths of both defender and prospector. The cardinal **entrepreneurial problem** is based on the dichotomy between efficient production of well-known products to well-known customers and exploration of new product and market opportunities. This means that the problem is to balance the focus of the defender (production) and the prospector (development). As a solution, the analyser attempts to create a domain within which there is a combination of products and markets, some are stable and efficiency optimised and others are changing in pursuit of catching up on the most promising innovations in the industry; “With a stable portion of its domain reasonably well protected, the Analyzer is free to imitate the best of the products and markets developed by the Prospectors” (Miles and Snow 2003). The analyser uses a surveillance approach mostly based on marketing and less on research and development as to create growth both by means of market penetration and product market development (Miles and Snow 2003).

An obvious advantage for the analyser is large savings on research and development due to the imitation of prospector innovations in combination with the efficient production activities of more stable product market activities. The risk and potential disadvantage is that the analyser is not able to balance the defender and the prospector roles ending up in poor and misbalanced activities (Miles and Snow 2003).

The **engineering problem** for the analyser consists in the already mentioned dualism of combining stability and flexibility. The question is how the analyser can make a production relying on

routinisation, formalisation and mechanisation go hand in hand with creating a suitable technology for rapidly adapting to new product or market activities. The solution is to form a dual technological core of stable technology supporting the defender approach which simultaneously encompasses a group of researchers or engineers which is able to deliver the needed progress in relation to the technological capabilities. It is important to note that this combination within the technological core will, at its best, create moderate technical efficiency (Miles and Snow 2003).

The advantage is related to the ability to serve a dual working domain and the disadvantage is that the analyser will never achieve complete effectiveness or efficiency (Miles and Snow 2003).

For the analyser, the **administrative problem** lies in creating structures and processes that are capable of matching the challenging demands from a strategy trying to take advantage of both defender and prospector approaches. The solution is for the management to make use of expert groups in marketing, research and production. A lot of resources and focus should be devoted to intensify planning and coordination between marketing, research and production. The activities should be organised in a matrix structure with both functional production units and product development project groups. Due to the matrix structure, the control system is moderately centralised with both vertical and horizontal feedback elements. The coordination mechanisms are both extremely complex and expensive because the two systems of production and development are handled and managed in one structure (Miles and Snow 2003).

The potential analyser benefits derivable from the administrative system is when it is able to balance the two worlds of stability and flexibility and the cost is related to restoring an equilibrium in a misbalanced system (Miles and Snow 2003).

Reactors

As opposed to the three above-mentioned strategic styles, reactors are not trying to change into a certain style or some kind of alignment pattern. The reactor is inconsistent and unstable in its adaptation to the environment due to one out of three reasons: 1) The management fails to articulate any strategy at all, 2) the strategy is formed but no internal patterns are created among technology, structure and processes, 3) the management persists in a strategy and structure which no longer fit the environmental conditions.

Miles and Snow argue that the typical reactor is locked in its domain as it is not possible for the company to come within reach of one of the other three more deliberate strategy styles. “Reactors represent a “residual” type of behavior in that organizations are forced into this response mode when they are unable to pursue one of the three other stable strategies of Defender, Analyzer, or Prospector” (Miles and Snow 2003). Over time, the reactors simply do not react consistently to their environment which results in no adaptation, badly timing and weak economic results (Miles and Snow 2003).

Before Miles and Snow’s (2003) theoretical strategy concept will be further analysed and related and compared to this PhD project, I will turn to Miles and Snow’s idea of how to transform between the different styles or how to adapt to a specific strategic style to an even greater extent.

The adaptation process

This adaption process is related to an understanding of the ongoing process within any company continually adjusting to the environment.

Miles and Snow (2003) argue that any kind of company continuously cycles through sets of decisions within three areas. These sets of decisions refer to three different kinds of problems which relate to entrepreneurial problems (selecting and adjusting the product market domain), engineering problems (producing and delivering the products) and administrative problems (establishing roles, relationships and organisational processes) (Miles and Snow 2003). Each of these three main areas within the adaptation process is interrelated and needs (especially in mature companies) more or less simultaneous attention from the dominant decision-making group regardless of whether the aim is to transform further within a certain strategy style or it is to transform more radically from one style to another.

Accomplishing organisational adaptation and alignment between the environment and the internal organisational activities is a difficult and complex process which basically can happen through three approaches. One is by natural selection or by change; some organisations just happen to have a suitable structure and an aligned and balanced relation between the environment and the entrepreneurial, engineering and administrative domain (Alchain 1960). The second approach is

called the rational selection and relates to the idea that successful managers must deliberately select, adopt and discard different kinds of organisational activities as to create an aligned and efficient balance between the organisation and its environment (Miles and Snow 2003). The third approach is the strategic choice (Child 1972) in relation to which Miles and Snow (2003) argue that the organisational structure is partly predetermined by the environmental conditions which put a lot of pressure on the top management as it is expected to be responsible for making sustainable strategic choices which can create a balance between the three (entrepreneurial, engineering and administrative) internal domains and the environment. When Miles and Snow (2003) address the organisational adaptation process, they are convinced that it should be on a par with the strategic choice approach and thereby support the idea of seeing adaptation as a balance between a partly determined environment and the continuously changing internal organisational processes.

The administrative domain is a particularly important part of the organisational adaptation process, because this domain is normally faced with a duality of expectations. On the one hand, the administrative domain should be able to handle lagging aspects in terms of a rationalisation of the organisational structure and processes in relation to the existing strategic focus. On the other hand, the administrative domain should simultaneously be able to handle leading aspects in terms of new sprouting product and market opportunities.

Today's adaptation decisions will have an impact on tomorrow's structure as it: "Frequently occurs by moving sequentially through the entrepreneurial, engineering and administrative phases, but the cycle be triggered at any one of these points" (Miles and Snow 2003). Through this adaptive cycle, a company can transform from one strategy style to another. A company who wants to develop towards a prospector strategy will most likely start by making decisions in the entrepreneurial domain (changing the product market variable) and will "before long make prospector-oriented decisions in the engineering domain, and then in the administrative domain, then even more so again in the entrepreneurial domain, and so on" (Miles and Snow 2003). Through a certain number of these adaptive cycles, a company will be aligned as a prospector, analyser or defender. The reactor company will not align to any kind of stimulus neither from external nor from internal activities and therefore, it will remain an incongruent and weak performing reactor company (Miles and Snow 2003).

Strategy as a means to address the transformation process between non-innovative SMEs and innovative SMEs

In this section, I will analyse and discuss how Miles and Snow's strategy concept may influence and support an SME in its struggle to transform from a non-innovative to an innovative company.

As the reactor company does not focus on a specific position and does not have any intentions related to change or development, it is not considered to be relevant for this analysis. The other three strategic styles, however, are indeed relevant and interesting in terms of the non-innovative to innovative transformation process. The defender company adopts a strategy of protecting the existing product market and customer setup and the company does not try to develop or change anything in this setup. The defender does this by having a solid focus on optimising the production (engineering domain) and creating rather comprehensive structures and control systems (administrative domain) as to secure an efficient production flow. This implies that this kind of company actually "defends" the non-innovative position which, in relation to this PhD project, should be interpreted as wrong and inappropriate. But Miles and Snow's original book was written in 1978, some decades before the globalisation changed the agenda for creating a competitive position. In the late 1970s, it was, due to Miles and Snow's (2003) research, possible to defend a position with a stable production, market and customer setup. Even though such a strategy is not recommendable (e.g. Gray and Mabey 2005, Drejer 2004, Vossen 1998) today, it is apparently a strategy which many western SMEs are adopting and trying to exploit.⁴² In other words, the defender approach is, from a strategic literature point of view, a way to address the non-innovative SMEs.

The prospector company has the opposite approach to strategy and to addressing innovation. The prospector searches for opportunities for product or service development and new business activities and is therefore a good exponent for how the innovative SME works with strategy. Prospector companies "prospect" continuously for new business opportunities by locating and utilising new products, services and market opportunities (entrepreneurial domain) and they do so in

⁴² In a Canadian survey with 3,830 SMEs engaged in the service sector, Gellatly (1999) found that 40% (1,532 SMEs) were innovators in products, services or organisational contexts and that 60% (2,298 SMEs) were non-innovative firms. 2,036 SMEs constituted the Danish part of the CIS 4 survey (2004) and 52% of these SMEs were non-innovative from 2002 until 2004.

a cross-functional, flexible and decentralised structure. The prospector faces some challenges in terms of production flow and has a tendency to maintain an inefficient product technology too long.

The analyser approach to strategy is characterised by the company trying to position itself in between the defender and the prospector. It is a company with two core aspects, one focusing on the stable and ongoing production to well-known market conditions (defender) and the other is about exploring the environment for new opportunities and innovations (prospector). The analyser also tries to employ this double core approach when it comes to structure, coordination and planning.

The transformation process from non-innovative to innovative SMEs may, with Miles and Snow's strategic concept in mind, follow a process from defender via analyser to prospector; an organisational adaptation process (in terms of Miles and Snow) or a transformation process from a non-innovative to an innovative position. By addressing the transformation process from defender to prospector, it will be normal (Miles and Snow 2003) to start with the entrepreneurial domain by changing the product/service in relation to the market. These initial prospector style decisions and reflections will be followed by reflections and decisions relating to the engineering domain, simply because a new product market relation will prompt new questions and a need for new ways of handling the production through the company. Changes in the production setup and in the engineering domain will in return necessitate changes in the administrative domain in terms of a need for change in the management coalition focus, structure, coordination mechanisms, reward systems, degree of centralisation etc. This change in the administrative system will put even more pressure on the entrepreneurial domain for further changes in the direction of the prospector style and so on (Miles and Snow 2003).

3.5.5 Conclusion and forming propositions for the empirical test of the strategy area

In this section, I want to sum up the relevant aspects of strategy as to be able to form a proposal which can be related to the empirical data. Based on the literature, it is possible to argue for some distinctive differences between non-innovate and innovative SMEs in relation to strategy. Innovators write down their strategy and they work on a longer term and are better articulated about the strategy work as such. If the strategy focuses on innovation and budget funds are dedicated to innovation, it will further strengthen the ability to innovate and thus separate the non-innovative from the innovative SMEs. For the non-innovative SMEs, strategies often remain as thoughts in the

mind of the owner and initiatives are just short-term surface activities not involving funds or action plans.

As representatives for the configuration school, Miles and Snow (2003) argues for a concept (or configuration) which separates companies in relation to which strategic approach/style they are using. By using Miles and Snow's (2003) concept, is it possible to address both the non-innovative as well as the innovative companies and the transformation process between them. The defender strategy style is adopted when innovation activities will be incredibly unlikely and this style can therefore be seen as an exponent for the non-innovative company. The opposite style is called the prospector style, peculiar to companies which explore all kinds of internal and external opportunities to become even more innovative among product, services and market approaches. The analyser is a hybrid between defender and prospector trying to get the best from both "worlds". The reactor is devoid of any purposeful or goal-oriented strategic activity at all. Taking Miles and Snow's strategic concept into consideration, it is possible to argue that non-innovative SMEs will most likely be following the defender (or reactor) strategy style. On the other hand, innovative SMEs will most likely be following the prospector (or analyser) style.

The transformation process (or adaptation process) from non-innovative SMEs to innovative SMEs is characterised by the management's and employees' ability to reflect and make decisions towards other domains than the ones which are normally in focus. That is, a defender will normally start out by reflecting and making decisions in relation to the entrepreneurial domain as a way to transform toward the prospector style. Gradually, more and more reflections and decisions in all three domains will be increasingly related to the prospector style until the company is aligned in terms of the new style.

The conclusions referring to how strategy can address non-innovative and innovative SMEs and the transformation process between them are reproduced in the figure below.

Figure 3.8 The transformation process in terms of strategy

| Initial position Characteristics of the non-innovative SMEs | The transformation process (characteristics of the needed transformation process) | New position Characteristics of the innovative SMEs |
|---|---|--|
| No resources allocated to strategy. | Bringing strategy from mind to paper and communicate it to all important stakeholders. | Explicitly and directly pursuing a long-term and well-articulated innovation strategy. |
| Strategy remains as thoughts in the mind of the management. | Approaching business development by reflecting on a long-term basis. | Dedication to innovation is a self-fulfilling prophecy. |
| Short-term and random surface activities. | Focusing on developing a written strategy with explicit attention on innovation. | Innovation budget. |
| No plan for or focus on innovation. | Initiating an adaptation process toward a closer focus on scanning the environment for opportunities to capitalize on openings | The prospector style scanning the environment |
| Defender style with focus on the efficient production and administrative stability. | for product or service development. | to exploit new product, service and market opportunities. |
| No reaction to change in market. | Continuing the transformation process with adaptation in the engineering, entrepreneurial and administrative domain. | Responding quickly to changes in market trends. |
| Reactor style with accidental reactions. | Developing multiple production technologies and searching for problems and solving them in cross-functional and decentralised structures. | Analyser style partly with a prospector focus. |
| Analyser style partly with a defender focus. | | |

Source: Own work

From this point of reference, the following two propositions will be related to the strategy theory.

P5: The transformation will be supported by the development of a written and explicit long-term well-articulated strategy with attention on innovation.

P6: The transformation process will be supported by initiating an adaptation process changing the entrepreneurial, engineering and administrative domains towards a prospector strategy.

3.6 The transformation process from non-innovative to innovative SMEs as addressed by network theory

Introduction

It is true but not terribly profound to claim that every company is embedded in a network of external influences and relationships which can be labelled its environment; this environment is not a homogeneous entity but rather composed of a complex set of factors such as products, labour market conditions, the customers, the industry, governmental regulations, relations with financial and raw material suppliers and a great variety of other stakeholders. Each factor tends to influence the organisation in its own unique way – in the middle of all this is where network activities take place. We know that network systems play an important role not only when it comes to organising innovative activities but also when these activities are measured in terms of cumulative economic outcome (Gay et al. 2005, Cowan et al. 2002). Firms in general and SMEs in particular need to collaborate and network more by creating stronger links to external knowledge bases and by sharing knowledge, equipment and people on a continuously larger scale (Freel 2000).

In the coming years, we will presumably see a growing emphasis on external linkages and networks when it comes to creating innovations. In any case, that is what Chesbrough (2003) argues when he claims that we are in the midst of a paradigm shift; we are moving away from believing in the concept of the more closed innovation process and embracing the more open innovation process entailing much interaction and networking with external actors. McAdam (2004 A) supports the idea and advertise for more “interconnectivity” in terms of cluster cooperation, networking and stronger relations between e.g. SMEs and universities.

In this section, network will be defined followed by a subdivision of the network literature as to be able to address the differences between non-innovative and innovative SMEs and the transformation process between them in terms of the network literature.

3.6.1 Theoretical definitions

Almost any organisational theory phenomenon is subject to a great variety of definitions; network is no exception. However, Bergman and Feser (1999) have made the following definition of **business networks** which is both appropriate and suitable in relation to this PhD project.

“A group of firms with restricted membership and specific, and often contractual, business objectives likely to result in mutual financial gains. The members of a network choose each other, for a variety of reasons; they agree explicitly to cooperate in some way and to depend on each other to some extent.” Bergman and Feser (1999).

Hence, business networks are a question of gaining mutual financial benefits; however, there is a need to define these financial gains more directly and that is what Becheikh et al. (2006) do when they address network activities as a way to create innovations. Throughout their research studies within the manufacturing sector from 1993 to 2003, Becheikh et al. (2006) found that network activities have either a positive (Beugelsdijk and Cornet (2002), Coombs and Tomlinson (1998), Kaufmann and Tödting (2001), Ritter and Gemünden (2003), Souitaris (2002) or an insignificant (Debackere et al. (1996), Freel (2003), Love and Roper (2001), Papadakis and Bourantas (1998)) impact on the company’s ability to create innovations. Networking is therefore a determinant for innovation and the network activities are about compensating the single company’s restricted access to and gaps in areas such as resources, information, knowledge and different competencies (Romijn and Albaladejo 2002). The networking activities take place between the company and other firms, industrial groups, universities, research centres, consultants, suppliers and customers and it is widely accepted that these inter-organisational activities create both product and process innovations (Ritter and Gemünden 2003). To define business network further in relation to innovative activities, Becheikh et al. have made the following statement:

“The innovation process is not necessarily linear but it is often an evolutionary, non-linear, and interactive process between a firm’s departments and the firm and its environment” (Becheikh et al. 2006).

Due to this non-linear and interactive innovation process, it is possible to argue that networks are an important and sometimes necessary part of creating innovations. In addition, networks are also

about exploiting the potential synergies of networking by creating a whole which is bigger than the sum of its parts.

3.6.2 Subdividing the area of network

Looking at inter-organisational research as an over-all frame for this area, it is possible to focus it on four different theory societies. These are the transaction cost theory, the agency theory, the resource based theory and the network theory and each of them will be presented shortly as to be able to choose the most relevant area in relation to this PhD project.

The **transaction cost theory's** cardinal contributor is Williamson (1975, 1981 and 1985) whose work revolves around a main question of whether the company should externalise or internalise its activities. Williamson defines a transaction as something which occurs: "When a good or service is transferred across a technologically separable interface. One stage of activities terminates and another begins" (Williamson 1985).

The theory is strictly based on a rational approach aiming at economic studies of how trading partners can protect themselves from the risk of being in an exchange relationship (Shelanski and Klein 1995). That is, the company should, by calculating its transaction cost of producing the next stage of the production line themselves or having it made outside the company, be able to make the right decision. Williamson regards the market (external) as the most efficient way to organise any kind of transaction, if all things were rational. However, Williamson's (1985) work describes some restrictions in relation to this rationality in terms of opportunism, insecurity and complexity. In addition, Williamson points out three important characteristics worth mentioning about the transaction (Williamson 1985), that is, the frequency it is made with, the insecurity which is related to the transaction and the asset specificity of the know-how used in fulfilling the transaction. Therefore, the decision between internalisation and externalisation of the transaction is difficult and ambidextrous in spite of the fact that the decision will determine the amount of inter-organisational activity or rather the interaction with other companies because Williamson (1975, 1981, 1985) does not focus on the network activities as such, the focus is purely a matter of deciding where to carry out the transaction.

Agency theory is occupied with discussing the relation between a principal and an agent. The theory focuses on efficient ways to organise inter-organisational relations. Fama and Jensen (1983) and Eisenhardt (1985, 1989) are some of the cardinal contributors to the organisational behaviour approach of agency theory. The agency theory is about creating contracts between the principal and the agent and the question is whether or not it is profitable to engage in developing and exploiting the content of these contracts. The agency theory reflects especially on how to organise information and risk-bearing costs in relation to the creating these contracts.

It is possible to describe two headlines in the agency theory, one is the positivist agency theory and the other is the principal-agent theory. The positivist approach centres its attention on how to manage the conflicting goals of the principal and the agent on an organisational level and almost completely of the owner and the manager of a certain company. The emphasis is on how to create situations (contracts) where the principal can curb the agent either by ownership and outcome or by information so that the principal can verify the behaviour of the agent (Eisenhardt 1989).

The principal-agent approach addresses the more general relationship between employer-employee, lawyer-client and buyer-supplier. This part of the agency theory is more abstract and mathematically based and therefore difficult to relate to for organisational and social science scholars. The focus is to determine the optimal contract when it comes to balancing the continuum between outcome and behaviour for different kinds of principals and agents (Eisenhardt 1989). Eisenhardt (1989) has phrased the link between the positivist agency theory and the principal-agent approach in the following way: “Positivist theory identifies various contract alternatives, and principal-agent theory indicates which contract is the most efficient”.

Still, the overall problem domain for the agency theory is that due to self-interest, bounded rationality, variety in risk aversion and information and goal asymmetry between principal and agent, it is not possible to create the rational optimisation in the relationship as the theory actually aims at (Eisenhardt 1989).

The **resource based view** theory addresses the question of how the company can become less dependent on external stakeholders by developing or acquiring internal resources. The resource based theory can be divided into three different positions, one focuses on creating competitive

advantages; another is based in the neo-classical microeconomics and the last one captures evolutionary theory (Barney 2001). Due to the fact that this PhD project is based on the technology and economic based paradigm, the most important and relevant position within the resource based view is the one focusing on competitive advantages.

Within this literature position, Porter (1980, 1985 and 1996) is a cardinal contributor and Porter has throughout his work been focusing on analysing the external environment of the company. This industry insight is afterwards used to develop the best suitable internal resources to meet the opportunities and threats that the industry brings. From these analyses, Porter (1980) argues that creating competitive advantages is a question of choosing one out of three appropriate generic strategies. One is to differentiate one's company from the business mainstream in order to appear unique in the eyes of the customer. Another is to align all activities as to become the overall cost leader of the industry. The third and last generic strategy is to focus on a certain segment within the industry as to specialise with a particularly focus (Porter 1980). Each of these three generic strategies makes a number of specific demands on the actors within the organisation in terms of competencies and resources. Thus, the question of gaining a competitive advantage or not is a matter of availability, development and appropriate use of the existing resources.

The **network theory** is based on a network paradigm within organisational research and manifests itself through the following five categories: Social capital, network organisations, knowledge management, social cognition and group processes. Social capital can be viewed both from a macro as well as from a micro perspective, but the remaining four categories are listed from a macro towards a micro perspective (Borgatti and Foster 2003). As this section focuses on how to transform non-innovative SMEs to innovative SMEs as addressed by network⁴³ the centre of attention will be on network organisations. Even though social capital, knowledge management, social cognition and group processes are members of the network paradigm, they will be delimited from this section due to the micro perspective and lack of direct relation to the research question.

Organisational networks can be defined as: “repetitive exchanges among semi-autonomous organizations that rely on trust and embedded social relationships to protect transactions and reduce their costs” (Borgatti and Foster 2003). The general arguments in the literature are that 1) due to the

⁴³ And because the unit of analysis is the company.

turbulence from globalisation, both the market and the hierarchy turn out somewhat inefficient as ways to organise the production and that 2) the organisational networks are the right answer (Borgatti and Foster 2003, Miles and Snow 1992, Powell 1990). The literature (Borgatti and Foster 2003) has argued that the organisational network has the ability to balance and optimise the task of efficient production in a turbulent and global world. Despite the appreciative evaluation made in relation to the organisational networks, the explicit ontological status of the research has generated “diverse, varied, inconsistent, and contradictory” findings (Sydow & Windeler 1998). However, recent research on networking and innovation shows that network relationships with suppliers, customers, other professionals and trade associations have impacted innovation performance and productivity positively (Pittaway et al. 2004).

Having addressed four central elements in the inter-organisational literature and research, it is now time to select the most relevant and appropriate position in relation to this PhD project. The first selection criterion is that the theory should be able to address the empirical context of supplier dominated and production intensive SMEs.⁴⁴ Secondly, it should be able to relate to the technological and economic based paradigm and thirdly, the theory should add to the research question and thereby the discussion of the transformation process lying between non-innovative SMEs and innovative SMEs.

The transaction cost theory does meet the first two selection criteria as the theory addresses supplier and production intensive SMEs and relates explicitly to the technology and economic based paradigm. But the transaction cost theory is not occupied with innovation or innovation activities and is therefore not in keeping with the third selection criterion. Regarding both the agency theory and the resource based view, the same picture emerges; they meet the first two selection criteria but fail to meet the last criterion of addressing innovation and innovation activities. However, it will be fair to say that the resource based view may (and sometimes does) contain elements of approaching innovative activities based on the analytical work. The network theory addresses all three selection criteria as it relates to supplier dominated and production intensive SMEs as well as the technology and economic based paradigm and in contrast to the three other positions, network theory also addresses how to create and develop innovations. Therefore, organisationally based network theory is the position to be addressed and further analysed in this section.

⁴⁴ Thereby relating to the unit of analysis which is the company.

3.6.3 Non-innovative versus innovative SMEs and network

Some of the advantages, identified from studies on business networks, are risk sharing, gaining access to new markets and technologies, speeding products to market, pooling complementary skills and creating access to external knowledge (Pittaway et al. 2004). Especially SMEs are in a position to gain advantages through networks as Adam (1982) argues that to successfully innovate “The indispensable and compelling need is for small firms to seek external advice and information to fill the void in management expertise and resources”. We know that many innovations are products of a variety of contributions from different actors in a network (Bougrain & Haudeville 2002) and that companies therefore require more and more collaboration, informal as well as formal, with other companies (Fisher and Varga 2002). But what are the differences between a non-innovative and an innovative SME in the perspective of network activities.

Due to the dynamics in almost any industry and the lack of large-scale advantages, SMEs very often need to look for some kind of inter-organisational alliance or network relation to make innovations or radical changes. Recent research has shown that companies with close network relations to customers, suppliers, research institutions and competitors have higher product and process innovation rates (Ritter and Gemünden 2003). Other evidence supports that innovators do have more external interaction with different players in connection with the innovation process, especially in vertical links (Freel 2000 C). This interaction is very important because SMEs which are engaged in innovation activities with external partners significantly increase the probability of being successful innovators (Therrien 2000). The network interaction concerning innovation does not only support in-house innovation but it also creates better access to knowledge which supports an early innovation adoption (Ericson & Jacoby 2003). The organisational network also develops social relationships, trust and reciprocity which promote the knowledge transfer which in many cases is first-order innovations (Almeida and Kogut 1999). McAdam (2004 A) supports the idea and advertises for more “interconnectivity” in terms of networking and stronger relations between SMEs and universities.

When looking at the non-innovative firms, however, the table turns; they have less external collaboration (Freel 2000 C) and they are in general not involved in any joint innovation activities (Therrien 2000). Another characteristic of the non-innovative companies is that if they have high technical and commercial skills, they are less likely to see the advantages of entering into

relationships with other firms (Gales and Boynton 1992, Kitching and Blackburn 1999). Contrarily, companies with weak external relations often lack the technical and commercial skills required to create network relations (Ahuja 2000, Ericson and Jacoby 2003). In a study of 228 small British manufacturers, difficulties in finding a suitable partner and lack of trust were rated the two most important barriers to developing and participating in network activities (Freel 2000).

3.6.4 The transformation process in terms of network

All companies form part of external relations and networks no matter what kind of attitude they have to the phenomenon in other respects. There is a great and growing body of literature (Ojasalo 2008, Ritter and Gemünden 2003, Freel 2000, Becheikh et al. 2006) telling us that network activities support the creation of innovations. However, it is the individual company's choice to decide whether or not they want to focus on (and trust in) the network⁴⁵ as a way to organise activities which can support the creation of innovations and in general, the development of competitive advantages. This section addresses two main aspects in the ongoing discussion of which role a network plays; one is the links or relations (Ritter and Gemünden 2003, Freel 2000, Becheikh et al. 2006) between a focal company and a line of stakeholders and the other one is network competencies which are important for a company who wants to benefit from the network. These two main areas within the network literature (Ojasalo 2008, Ritter and Gemünden 2003, Freel 2000, Becheikh et al. 2006) will be related to the this PhD project by discussing the transformation process from non-innovative SMEs to innovative SMEs.

As network by definition is about making efficient use of the links to network partners, the following five general groups of partners will be analysed: Suppliers, customers, competitors, universities and government/support agencies. The aim is to outline how often and with whom the most innovative SMEs interact.

Links with suppliers

The link between the focal company and its suppliers is without any doubt an important source of innovation. New product development and improvement is the most commonly cited reason for sustaining supplier network relations (Freel 2000 B). Very often the supplier is asked and able to contribute to the product development process with elements which are not obvious or clear to the

⁴⁵ Ritter and Gemünden (2003) even talk about the networked economy.

producer and the result is that the supplier literally influences the scope of innovation (Freel 2000, Sako 1994). Freel (2000 B) investigated 228 small manufacturers and found that the most innovative firms in this sample are significantly more likely to have a collaborative arrangement with their suppliers. In situations where the supplier relationship is longitudinal and the requisite knowledge is rooted in technology or people, it is even possible to transfer tacit knowledge which, without the network relation, was not attainable (Freel 2000 B).

Rothwell (1992) argues that companies using sub-contracting and network relations are capable of creating product innovations requiring sophisticated production technology without heavily investing in the advanced product equipment. Along the same lines, it may be anticipated that small firms are able to in a way “extend” their knowledge base through suppliers and thereby enhance their probability of creating innovations (Freel 2000 B).

Links with customers

Links with customers are also known as user-driven innovation and Rothwell and Gardiner (1985), Shaw (1999) and von Hippel (1988 and 2005) is important contributors. The crux of this position is that understanding user needs and behaviour is crucial for creating innovations. The innovation process can be characterised as ongoing interaction between the users and the manufacturers as to create innovation. When it is done successfully, it “identifies re-innovation opportunities, new uses and new users” (Shaw 1999).

Freel (2000 B) argues that in at least four areas, links with customers can create considerable contributions to the product development and innovation process. Firstly, the product development process is supported by customer-injected technical, managerial and user-based skills. Secondly, the customers are believed to be best equipped to decide where to place and optimise the product on the continuum of price and performance. Thirdly, the post delivery learning and the product adapting process can be reduced as the users have had an impact on design and product features. Fourthly and finally, in terms of long relationships, customers also support the product improvement and thereby lengthen the life span of the product (Freel 2000 B).

Freel (2000 B) addresses the question of geography by claiming that small firms are not more dependent on local customers than larger firms are and that both innovative and non-innovative

companies are more likely to have interacted with customers outside their own region about innovation.

Links with competitors and other firms

The importance of horizontal linkages rather than more general vertical supply chains is considerable; “Inter-firms linkages outside the value chain have been the subject of the greatest attention within the small firms’ literature” (Freel 2000). The literature (Freel 2000, Karlsson and Olsson 1998) suggests that there is scope for a significant gain when collaborating with competitors in relation to the following aspects; “complementing and supplementing internal product development efforts, cost and risk sharing, accessing new markets and transfer both technology and (tacit) knowledge” (Freel 2000).

It is anticipated (Freel 2000) that highly innovative firms develop more and stronger relations to companies outside their own vertical supply chain (competitors) than less innovative companies do. Innovative companies are confident that network activities, also with competitors, will give rise to mutual benefits and open up the prospect of positive activities which would not be possible independently. This substantiates the claim that inter-firm collaboration can lead to a positive financial gain for the participating firms. However, it is important to note that only a relatively small number of companies enters into horizontal links with competitors (14.1%)⁴⁶ compared to vertical relations with suppliers (51.5%)⁴⁷ and customers (47.5%)⁴⁸. In spite of the benefits derivable from creating and developing links with competitors, Freel’s (2000) figure shows that many companies still are reluctant to engage in common activities with competitors due to a fear of negative consequences in terms of market share and profit losses.

Links with universities and colleges

Many studies have confirmed the link between companies’ ability to innovate and proliferate and the proximity to the knowledge and insights of universities and colleges (Freel 2000, Johnson and Tilley 1999). Politicians all over the world seem to buy the message by supporting an increasing number of science parks and by motivating researchers to collaborate with the business community.

⁴⁶ In Freel’s (2000) investigation of 228 small manufacturers.

⁴⁷ In Freel’s (2000) investigation of 228 small manufacturers.

⁴⁸ In Freel’s (2000) investigation of 228 small manufacturers.

Two elements support the claim of connecting SMEs and universities as a means to raise the innovation capability. First and foremost, the basic and applied research knowledge is a well-known occasion for innovation (Drucker 19xx) which diffuses from the scholars through personal contacts to the management of the companies (Acs et al. 1990). The other explanation focuses on SMEs' ability to access university networks and thereby access complicated technology based knowledge which otherwise would be impossible for the SMEs to attain due to limited resources (Freel 2000).

Although there is only little evidence substantiating the claim that physical proximity to universities encourages SMEs to innovate or improve their performance, the majority of the literature persists in supporting that a link between SMEs and higher education institutions has a positive effect on innovation (Johnson and Tilley 1999). Wilkinson et al. (1996) provide the empirical evidence in their research by establishing that 90% of the most innovative firms had formal links to universities.

Links with government and support agencies

The main challenge of the links existing between SMEs and different kinds of government and support agencies is that they are often bilateral and therefore not interesting from a network perspective. The literature (Freel 2000, Oughton and Whittam 1997) addresses the fact that these government and support agencies focus on providing specialist advice and information or introductory services encompassing initiating and starting up development projects.

In the United Kingdom (Freel 2000), the links between support agencies and small companies are normally direct and longitudinal because the government or support agency is expected to be able to supply and backup a network of sophisticated expertise (Freel 2000). The government has a role to play "in brokering greater collaboration between firms or between firms and universities" (Freel 2000).

Even though Freel (2000) refers to much literature in order to confirm the claim that companies having linkages with the public sector experience an improvement in their innovative capabilities, he did not find significant evidence for that proposition in his research (Freel 2000).

Network competencies

As mentioned above, different kinds of network linkages between the focal SME and its stakeholders are likely to increase the ability to generate product and process innovation (Ritter and Gemünden 2003). The question, however, is how the company actually creates these links and network relations and how the company handles, uses and exploits the network as to create a competitive advantage.

Ritter and Gemünden (2003) argue⁴⁹ that there are substantial differences in how companies handle their network relations and that the approach chosen is determined by their network competencies and four organisational antecedents. The phenomenon of competencies is here to be understood as both a matter of the competencies as such in terms of knowledge, skills and qualification but also as a matter of being able to use these competencies in a practical contextual process. Therefore, Ritter and Gemünden (2003) approach network competences from two main perspectives; one is a matter of task execution and the other is a matter of qualifications.

Network task executing

The task executing part is subdivided into two kinds of tasks; one referring to relationship specific tasks and another referring to cross-relational tasks. The relationship specific task is about creating and developing a single relationship and the literature addresses three central elements within this area. These three elements are initiating, exchanging and coordinating the single relationship activities. Initiating individual relationships are evidently necessary and it happens continuously in terms of changing external circumstances.

The typical way to initiate new relations to stakeholders is through “visits to trade shows, monitoring industry-related journals, and exploiting hints from existing partners” (Ritter and Gemünden 2003). The exchange element is about exchanging products, services, information, know-how and personnel as a way to fulfil some relationship specific tasks. The coordinating aspect relates to the task of synchronising activities in both organisations as to gain some network synthesis; it is normally a matter of establishing formal roles and procedures for the cooperation (Ritter and Gemünden 2003).

⁴⁹ On the basis of research into 308 German mechanical and electrical engineering companies and their network relations.

The cross-relational tasks are basically inspired by the general management literature and focus attention on the following four things: Planning, organising, staffing and controlling. Planning is the classical analytical work centring around auditing internal resources and external opportunities as to place realistic expectations on the network activities (Ritter and Gemünden 2003). Organising is about finding solutions and balancing elements such as resource allocation, meeting each other's needs, communication systems and methods. To apply these network activities, the individual participant must contribute with some human resources seeing that the network management task: "involves guidance and coordination of employees involved in relationship management activities" (Ritter and Gemünden 2003). Finally, there is a cross-relational task addressing control both as an internal aspect, which is about controlling one's own (focal) organisation and its contribution in terms of quantity and quality, as well as an external aspect of controlling the interaction (other network actors' contribution) within the network structure (Ritter and Gemünden 2003).

Network qualifications

Ritter and Gemünden (2003) divide network qualifications into specialist qualifications and social qualifications, respectively. The specialist part refers to technical, economic, legal and contractual skills which are important for understanding the product, price setting and for handling the collaboration surrounding the innovation process. Finally, Ritter and Gemünden (2003) consider the experience gained from interaction with network partners as a crucial aspect of specialist qualifications. The social qualifications essentially reflect on a person's ability "to exhibit independent, prudent, and useful behavior in social settings" which in further details is about: "communication ability, extraversion, conflict management skills, empathy, emotional stability, self-reflectiveness, sense of justice, and cooperativeness" (Ritter and Gemünden 2003).

Organisational antecedents and network

Ritter (1999) has exposed four antecedents which have an impact on the company's ability to perform in a network. The first of these is a company's access to financial resources as to be able to pay for the necessary network surroundings⁵⁰ both in terms of physical aspects as well as management resources. The management resources should be dedicated to handling personnel relationships and to avoid double work and inefficient information diffusion. However, sufficient access to these resources will also ensure an expedient management of the network with precise

⁵⁰ Communication systems, computers, traveling expenses etc.

goal orientation and competency development as a consequence (Ritter 1999, Ritter and Gemünden 2003).

The second organisational antecedent relates to human resource management and thus selection, development and assessment of employees. The proposition is that HRM activities can be angled towards the network activities by focusing the selection process of getting new staff on network aspects, e.g. the job description can address network competencies and network experience. Furthermore, HRM development can obviously be related to network management activities such as communication and conflict management. Finally, the chosen assessment and reward approach can be used as to maintain employees and support the network activities, e.g. salary can be partly linked to measures of different success criteria for the network cooperation. Ritter (1999) argues that companies who align their HRM activities with supporting and creating network successes will attract, develop and promote well-skilled “networkers” and employees and thus strengthen their network competencies (Ritter 1999, Ritter and Gemünden 2003).

The third organisational antecedent having an impact on network competency addresses what Ritter (1999) calls integration of communication structures. Attention is turned to how information is exchanged between different departments within the company. Ritter (1999) measures this integration of communication structures as the degree of information exchange between all departments in the company. High degrees of integration in the communication structures are about making formal and informal information available on a cross-functional basis and ensure that people dealing with network and relationships get appropriate information on time. Companies with antecedents of high degrees of integrated communication systems will strengthen both task execution and employee competencies towards efficient network activities and consequently develop their network competencies (Ritter 1999, Ritter and Gemünden 2003).

Finally, Ritter (1999) addresses the fourth antecedent which rely on the corporate culture and Ritter characterises it as “the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration” (Ritter 1999). When these patterns of assumptions are deemed valid and appropriate to solve problems, they will be taught to new employees as the right way to behave. To support and develop the network competency, it is important that the corporate culture is open; defined by Ritter as

“emphasizing flexibility, spontaneity and individuality in contrast to control, regulation, and stability” (Ritter 1999). Being successful in creating an open corporate culture, the company is in a position to potentially gain advantages such as: An entrepreneurial spirit, employees taking responsibility and making decisions in agreement with the culture and creating competition and differentiation (Ritter 1999). Having this open culture approach will support an external orientation and lead to better task performance and more qualified employees in terms of handling network relationships. That is, an open culture will strengthen the network competency of the company (Ritter 1999).

In their study of 308 German mechanical and electrical engineering companies, Ritter and Gemünden (2003) were able to test and significantly prove the hypothesis stating that there is a relation between each of the four antecedents and the degree of network competency within the company and also significantly prove that there is a positive relation between the degree of network competency and the degree of innovation success.

3.6.5 Conclusion and formation of propositions for the empirical test of the network theory

In this section, I want to sum up the relevant aspects of network theory as to be able to form a proposition suitable for an empirical test. The main arguments and conclusions are stated below.

The non-innovative SMEs do not have brisk or well-organised network links to neither suppliers, customers, competitors nor other relevant stakeholders (Freel 2000 C) and they do not participate in any experiments or project with external actors in an attempt to become more innovative (Therrien 2000). Some of these SMEs will presumably abstain from participating in any network relationship or link due to their conviction that it is not possible to gain any advantages by being active in a network. Many of these non-innovative SMEs take the view that they are so highly skilled on a technical and commercial level that network activities cannot afford them any advantages (Gales and Boynton 1992, Kitching and Blackburn 1999). On the other hand, non-innovative companies with few external relations who have a desire to develop more and better network activities often lack the technical and commercial skills needed for creating these relations (Ahuja 2000, Ericson and Jacoby 2003). In more general terms, Freel’s (2000) survey of 228 British manufacturing companies uncovered that problems finding a suitable partner and trust issues are the two most important impediments for entering into a network relation.

To create a transformation between the non-innovative and the innovative SME from a network perspective, it is important to address three overall areas of: Creating links to stakeholders, developing network competencies and focusing on four organisational antecedents.

The literature (Ritter and Gemünden 2003, Freel 2000, Becheikh et al. 2006) is quite homogeneous in relating well-developed and dynamic network relations to a stronger probability of creating innovation. Network activities are fundamentally related to these links as they are an inevitable and decisive part of the network perspective.

Being able to create constructive links to suppliers will support the transformation process as these links will raise the probability of product and process innovation. Suppliers are in fact willing and able to contribute to the innovation process, often with sophisticated production technology, within areas which are not obvious for the focal organisation. Customers' ability to develop advanced products and identify re-innovation opportunities implies that links with customers may contribute to the transformation process. The customers may contribute with technical skills and an ability to balance the price/performance continuum and by improving product design, they lengthen the life span of the product. Involving competitors in the transformation process is about supplementing the product development processes by transferring technology and knowledge. Transforming by means of developing links with knowledge institutions like universities is basically about applying research based knowledge and engaging in university based networks. Finally, links to government and support agencies also have a potential impact on the transformation process in their capacity as providers of specialist advice and introductory services in connection with the start-up of development projects.

Developing network competencies essentially addresses the transformation process from non-innovative SMEs to innovative SMEs because these network competencies actually determine the network qualifications and the ability to execute network activities. Consequently, the transformation process can be viewed as the degree of network competencies; that is, a low degree will relate to the non-innovative and the higher the degree of network competencies, the further the company has transformed towards an innovative company.

Executing network tasks is about relationship specific and cross-relational tasks. The relationship specific tasks can be divided into initiating, exchanging and coordinating single relationship activities. The cross-relational tasks are about handling classical management challenges in terms of planning, organising, staffing and controlling cross-functional activities within the organisation. Network qualifications are mainly about a dual focus on specialist and social qualifications. The specialist part addresses hard areas such as product, price and technicalities whereas the social part refers to soft elements such as communication, empathy and emotional stability.

Additionally, this section about network concerned itself with four organisational antecedents which also have the potential to transform the non-innovative SME into an innovative SME. Having a sound foundation of sufficient resources surrounding these four antecedents (finance, HRM, communication structures and an open corporate culture) serves as a transformation process contributor.

The conclusions of this section (network theory) are reproduced in the figure below displaying this area in terms of how to transform non-innovative SMEs into innovative SMEs.

Figure 3.9 The transformation process in terms of network

| Initial position Characteristics of the non-innovative SME | The transformation process (characteristics of the needed transformation process) | New position Characteristics of the innovative SME |
|---|--|---|
| <p>Weak and inactive relations to potential network partners.</p> <p>No participation in external experiments and/or innovation activities due to a lack of trust and suitable partners.</p> <p>Do not view the network as a provider of advantages due to a belief that one's own competencies are unique.</p> <p>Companies wanting to join a network often lack the required competences.</p> | <p>Developing links to stakeholders by initiating, exchanging and coordinating single relationship activities. Internal cross-relational activities, planning, organising, staffing and controlling, should be handled with a view to being more network orientated.</p> <p>Securing a sufficient amount of financial resources dedicated to network activities.</p> <p>Developing the human resources in the company both regarding technical and social skills.</p> <p>Focusing on the communication system, formal as well as informal making sure that it supports the network activities.</p> <p>Paying attention to the basic assumption so that a corporate culture can be developed ensuring that all actors know how to extend the network activities and advantages.</p> | <p>Well-developed and strong links to important stakeholders.</p> <p>High level of network competencies both in terms of task executing and qualifications.</p> <p>The company is well-padded in terms of financial resources, HRM abilities, communication skills and an open corporate culture.</p> |

Source: Own work

From this point of reference, the following two propositions will be related to the network theory.

P7: If the SME is initiating and developing external relations with relevant and innovative stakeholders, the transformation process will be supported.

P8: The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported

3.7 Theoretical generalisations

So far, this PhD project has identified, described, analysed and interpreted four theoretical areas in relation to the research question of how to transform from a non-innovative into an innovative SME. These theoretical considerations have been single-structured (or silo based) and have actually served as a foundation for this section which is about comparing, relating and generalising **between** these four theoretical positions in a multiple-structural way. First of all, I will briefly sum up the theoretical areas and then I will argue for the expediency in fitting or aligning the four theoretical areas in three patterns. Creating a fit or alignment of the four theoretical areas allows me to form three transverse patterns; one for the non-innovative SMEs, one for the innovative SMEs and one for the transformation process. At the end of this section, I will line up two new propositions related to the generalisations made in this section (3.7) in coherence with the eight propositions already mentioned in this chapter as to address the empirical chapter (chapter 4). Due to the fact that this PhD relies on a theoretical orientated proposition structure, the results of testing these propositions are the main and cardinal research product which constitutes the field contributions and findings (Brinberg & McGrath 1985. See also app. A).

The basis - four theoretical areas

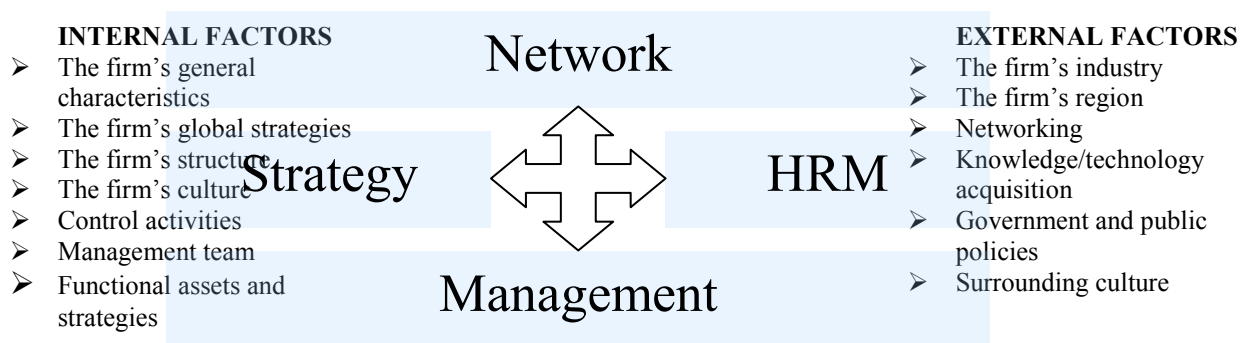
The basic research question⁵¹ has governed the literature reviews and the literature analysis in terms of a literature deconstruction and reconstruction of the most relevant theoretical aspects. These theoretical aspects have been chosen on the basis of the following arguments. First of all, the theory has to relate to the research question, i.e., the SMEs must be supplier dominated and production intensive and innovation is to be understood in terms of the Oslo Manual's definition of innovation. The theory is also chosen within the technology and economical innovation based paradigm (Fuglsang and Sundbo) as this paradigm is the most precise and relevant way to address the research field. By relating to the article of Becheikh et al. (2006)⁵², it was possible to address an

⁵¹ How to manage SMEs through the transformation from non-innovative to innovative?

⁵² "Lessons from innovation empirical studies in the manufacturing sector: A systematic review of the literature from 1993-2003"

entire decade of empirical innovation studies within the manufacturing sector. Becheikh et al. (2006) were able to explicitly refer to sixty variables which have had an impact on the innovation level and capability in the concerned companies. To create an overview and due to the fact many of these explanatory variables refer to the same main area, Becheikh et al. create a theoretical frame of seven internal factors and six external factors. By using four selection criteria in relation to this PhD project, the following four theoretical aspects were chosen; Management, HRM, strategy and network. These four theoretical areas are considered the theoretical foundation for working with the research question trying to acquire some knowledge of how SMEs can be transformed from non-innovative into innovative companies. The figure below reproduces the 13 factors from Becheikh et al.'s work and the four factors which are the theoretical construction which is used to address the transformation process within this PhD project.

Figure 3.10 The theoretical model



Source: Own work

Each of the four theoretical positions were related to characteristics of the non-innovative SME as well as the innovative SME in order to capture and conceptualise the main phenomenon of this PhD project, namely how to transform the non-innovative SME into an innovative SME. However, until now, chapter 3 has not tried to argue for or generalise the relations between the four theoretical positions; that, however, is the focal point now.

Fit or alignment

The idea of creating a fit or alignment between different theoretical contributions is neither new nor easy to handle. As described in section 3.3.4, Miles and Snow (2003) use the word “equifinality” to explain that companies always have different ways to prosper and to reach the same goal; these

different ways, however, are not infinite. Miles and Snow's theory on strategy mentions four ways to prosper. Equifinality is a combination of the word equi, which comes from equal and is about combining different forms, and finality, which refers to final and is about ending a series of activities. That is, equifinality is about combining different aspects into a (more or less) homogeneous and delimited position. Cummings and Worley (2005) also address the word equifinality; first of all by referring to the opposite situation, namely how closed systems can be constituted by cause-and-effect relationships between the initial condition and the final state of the system. However, open systems, such as the biological and social, function quite differently and Cummings and Worley (2005) explain this by saying that: "The idea of equifinality suggests that similar results may be achieved with different initial conditions and in many different ways. This concept suggests that a manager can use varying degrees of input into the organization and can transform them in a variety of ways to obtain satisfactory outputs. Thus, the function of management is not to seek a single rigid solution but rather to develop a variety of satisfactory options". From this concept of equifinality (Miles and Snow 2003, Cummings and Worley 2005), I will argue that in open social systems, due to an endless amount of variables influencing each other, there is no single definitive right way to manage or transform a certain organisation. Instead, the challenge is to align the relevant variables as to achieve a satisfactory goal.

The variety of ways to develop or transform the organisation must, however, somehow be aligned with the situation or context. The effectiveness of a system (transformation or developing process) is namely to a certain degree dependent on the extent to which the different subsystems are aligned with each other (Cummings and Worley 2005). Cummings and Worley (2005) explain it by arguing that "Alignment refers to a characteristic of the relationship between two or more parts. It represents the extent to which the features, operations, and characteristics of one system support the effectiveness of another system".⁵³ Therefore, I will argue that by relating (creating relationships) and generalising between the four theoretical positions, I will be able to support the effectiveness of the next system. In relation to this PhD project, that is the same as establishing three patterns, namely the non-innovative SME, the innovative SME and the transformation process between them. Establishing these three patterns generates a structure of a higher order which can contribute with new perspectives on and questions to the empirical data. In the following section, I will reflect on

⁵³ The organisational theory is rich in examples of how different theories can support each other in different contextual situations (Cummings and Worley 2005).

and argue for how the four theoretical positions can be generalised and aligned in relation to the non-innovative SMEs.

3.7 1. Non-innovative SMEs - a constitution of the theory

We know that a large part⁵⁴ of the SMEs are non-innovative and thus under growing pressure from an intensive global competition in relation to price, quality and market share. There are quite many reasons⁵⁵ to believe that these non-innovative SMEs need to become continuously more and more innovative in their approach to the market in order to defend existing market shares and especially to gain new ones. However, this PhD project has argued that to support these non-innovative SMEs transforming towards being more innovative, it is necessary to address the phenomenon of being a non-innovative SME. By comparing, relating and generalising the theoretical aspects treated of so far, the aim of this section is to outline what constitutes these non-innovative SMEs.

In many cases, non-innovative SMEs face a lot of uncertainty because they are trapped in an unbalanced or unaligned situation. The focus on creating competitive advantages through parameters like price, quality and market shares is more or less misguided due to the increased global competition and the new division of labour, especially between the Western World and the Far East. The uncertainty can also be seen as the SME leaders' own unclarified attitude to the production approach which they have known and employed successfully for several years and the (for them) new market approach relating to innovation and quick and continuously changing processes. For these non-innovative SME leaders, creativity and innovation are still unknown and, in many cases, mysterious concepts; concepts which they know to be important, but they lack knowledge and insight to figure out how to change and in many cases, they lack courage to actually complete the necessary change processes.

Being a non-innovative SME has a rather heavy impact on the way in which management, HRM, strategy and network relations are understood and executed. And vice versa, seeing that it can be argued that the way these SMEs handle and execute management, HRM, strategy and network is the reason for them being stuck in a non-innovative position.

⁵⁴ In some surveys, the majority, in others approx. 50%.

⁵⁵ See chapters 1 and 2.

3.7.1.1 The non-innovative SME – related to management, HRM, strategy and network

A frequent management challenge among non-innovative SMEs is basically lack of management experience and lack of ability to plan and handle growth (Huang and Brown 1999) and it just gets even more challenging when we know that SMEs are engaged in far less management development training activities than LSEs are (Gray and Mabey 05). The most commonly mentioned reasons for the lack of management experience and education are short-term focus and restricted resources in terms of time and money (Gray and Mabey 2005). The management approach among these SMEs is often dominant, striking an authoritarian attitude poorly related to handling change, employee's resistance and internal cross-disciplinary activities, which relate to the way these SMEs handle HRM as well (Millward et al. 2005, McAdam 2004 B, Baldwin and Lin 2002, Vermeulen 2005). The management seeks to maintain control of the employees' work and behaviour which restricts the innovation ability (Golemann 2002, Amabile 1998).

If we look at the management approach among the non-innovative SMEs in more general terms, it is, in many ways, too prone to focus on the management philosophy (in opposition to leadership). This philosophy relates to a short-term perspective and an exploitative way of thinking and handling management and it contributes to maintaining the non-innovative position.⁵⁶ This management philosophy leaves its distinct marks in the HRM approach of the company as the non-innovative SMEs do not perceive the management or the production staff as important sources of innovation (Baldwin et al. 1996). In addition, the non-innovative SMEs perform three HRM activities which support innovation (Laursen 2002) ineffectually and these are decentralisation, cross-disciplinary activities and cross-disciplinary activities combined with different knowledge sources. I argue that the non-innovative SMEs' bad performance of these three HRM activities can be related to the management (opposite leadership) approach. Non-innovative SMEs tend not to focus attention on HRM activities such as motivation programmes, training or development in general (Baldwin and Lin 2002) although they often recruit less skilled labour (Freel 1999, Freel 2005).

Another link between the non-innovative SMEs' approach to management and HRM becomes clear when addressing HRM as an either hard or soft philosophy. The hard way of conducting HRM does in many respects address a management approach as it regards employees as a cost which by all means should be minimised to increase profits. Employees are a resource that should be optimised

⁵⁶ On the other hand, it means that these SMEs normally are quite effective when it comes to accomplishing their day-to-day goals through detailed activity plans and well-structured internal systems.

like any other resource such as economy, raw materials and machinery. Baron and Krebs (1999) have conceptualised this hard approach to HRM through what they call the internal labour market consisting in contractual long-term relationships, promotion from within, learning from on-the-job training, emphasis on formal rules and seniority, all of it optimised in administrative HRM systems. The internal labour market approach is used in a wide range of companies ranging from the prototype of an industrial inflexible production plant to a top tier Japanese manufacturing firm. These different companies, however, have some things in common; they use a HRM system which relies on a well-structured hierarchy with rules and procedures to control the employees so that they do what is expected from them and therefore, their HRM activities keep them non-innovative in their business thinking and their approach to the market.

As we can see, there exists a number of links between the ways in which management and HRM are interpreted in non-innovative SMEs and this position may also be related to the way in which strategy is approached in non-innovative SMEs. The non-innovative SME conceives innovation based strategies outside the scope of interest and strategy in general is often something which is short-termed related to a few low prioritised activities. Moreover, the strategy is kept in the mind of the manager rather than written down and expressed throughout the organisation. Here, there is an explicit link to the management thinking and the internal labour market HRM approach as the strategy is kept in the mind of the manager and only communicated to the employees when and to the extent that the manager finds suitable. The strategy work becomes synonymous with the manager and his/her management and internal labour market focus.

As these non-innovative SMEs often have an internal production focus and seldom react strongly to changed market conditions, they will be biased towards a defender strategy,⁵⁷ the main objective of which is to create stability and efficiency in production and administration. The non-innovative SME defends status quo in terms of keeping the existing products, market and customer relations as they are. This is accomplished through comprehensive structures and control systems as to “defend” an efficient production flow and thus also the non-innovative position.

The non-innovative SME adopting a defender strategy does not try to change anything, quite oppositely, it tries to support the existing systems and optimise them as rationally as possible.

⁵⁷ It may also be an analyser strategy with a defender focus or a reactor strategy as these are strategy approaches devoid of any deliberate strategy focus whatsoever.

Herein lies the explicit link to the management and internal labour market philosophies as the management approach focuses on the functional based hierarchy that supports and optimises a rational exploitation of the available resources. An extension of this approach can be seen in the internal labour market HRM thinking which emphasises a carefully controlled minimisation of the labour costs and an exploitation of the available (human) resources.

Non-innovative SMEs are not particularly network activity oriented and normally, they do not participate in inter-organisational innovation projects or simply share knowledge in the context of more common production activities (Freel 2000 C, Therrien 2000). If these non-innovative SMEs have high technical or commercial skills, they are not interested in network cooperation (they try to defend their position); if their skills are lower, they are not interesting for other companies and therefore not invited to join in any network activities (Gales and Boynton 1992, Kitching and Blackburn 1999, Ahuja 2000, Ericson and Jacoby 2003). Accordingly, non-innovative SMEs do not have good or profitable network links to either suppliers, customers, competitors or other relevant stakeholders (Freel 2000 C).

When addressing four important organisational antecedents (Ritter 1999) supporting well-organised network activities, it becomes quite clear how the non-innovative SMEs' network activities may be linked to the management, HRM and strategy perspective. These antecedents refer to the need for organisations to have suitable resources in terms of finance/management,⁵⁸ HRM, communication structures and an open corporate culture. For the non-innovative SMEs, I have already argued that they adopt a management (in opposition to leadership) approach and an internal labour market HRM approach which are far from what Ritter (1999) calls suitable and supportive organisational antecedents. In terms of the communication structures, Ritter (1999) argues that good antecedents are about the ability to secure formal and informal communication on a cross-functional level. Non-innovative SMEs, as I have argued, may be good at formal communication structures but they are not good at handling the informal communication and not in the least able to handle the cross-functional communication as they are working and thinking much more lateral. When it comes to having a corporate culture which supports the network activities, Ritter (1999) argues that it requires creation of an openness which is about emphasising flexibility, spontaneity and individuality in contrast to control and stability. Also here, it is very evident that the non-innovative

⁵⁸ Ritter talks about financial resources sufficient to be able to pay for the network surroundings and management resources sufficient to handle interpersonal relationship and communication.

SMEs do not meet the criteria for being a company with focus on or the ability to handle network relations. Actually, as the non-innovative SME has a direct focus on control and stability, it is as far away from having any organisational antecedents in relation to an open culture as possible.

Ritter (1999) argues that these four antecedents should be orientated towards network activities, network experience, network competencies and network cooperations and neither the management, internal labour market nor the defender strategy perspective relate by any means to such kinds of network abilities. A company with a defender strategy will have a rather biased focus on internal affairs and not have any particular focus on external or network relations. That is why it is fair to argue that the non-innovative SMEs do not honour the expectations placed on a company trying to benefit from creating innovation in different network relations.

3.7.1.2 The non-innovative SMEs – a generalisation

Above, I have reviewed (instead of dealing with one theory at the time) the four theoretical positions and related them to each other and to the phenomenon of the non-innovative SME. By analysing, relating and theorising about the four theoretical areas of management, HRM, strategy and network, I have created an intersection between them which I will generalise to the non-innovative SME in the following.

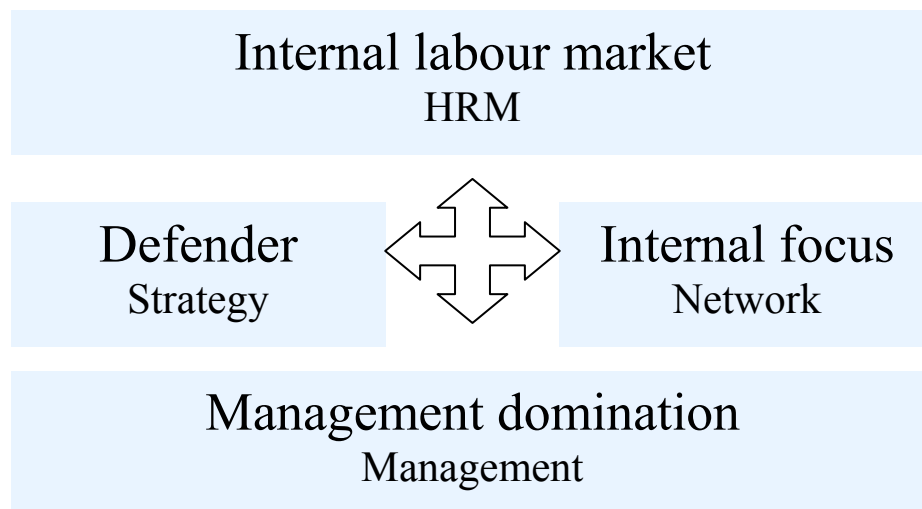
By applying the theory, the non-innovative SME may be characterised as a company extremely effective at producing goods in well-structured industrial systems which has an internal focus on optimising the existing production flow as it is. The conviction among these non-innovative SMEs, stating that management, internal labour market, defender strategy and a reverse network perspective are the right way to support the efficiency of the production activities, is both strong and somehow right. In addition, the synthesis (between management, HRM, strategy and network) can create an aligned and efficient production based company. So it is possible to argue that these non-innovative SMEs are in a state of balance but an untenable balance due to the fast changing global competition (see e.g. chapter 1).

The non-innovative SME can therefore be characterized as a company in a state of stability supported by well-organised and optimised organisational systems. It becomes quite evident when looking at the management approach which from a less developed and less experienced stage adopts

an authoritarian management style which emphasises short-term profit based on exploitation of the accessible resources. Such a management attitude is closely related to a common “hard” HRM perspective within the non-innovative SME saying that employees are not an important source of innovation but should be optimised without any focus on employee training, development or cross-disciplinary activities. This HRM perspective is conceptualised in the so-called internal labour market which relates closely to a management mindset as it seeks to optimise human resources in a well-structured HRM administration. A defender strategy really fits nicely with the management and HRM thinking within the non-innovative SME as it is about creating and defending a stable and effective production and administration. It goes almost without saying that this internal focus on management, HRM and strategy implies that the interest in being related to any close network partner is almost non-existent in the non-innovative SME. In any case, the non-innovative SMEs should not consider embarking on any close network activity due to improper organisational antecedents in terms of a heavy management focus, an internal labour market approach, bad cross-functional communication abilities and a culture too closed.

Addressing the non-innovative SME from the mentioned four theoretical areas conjures up an image of a potentially aligned and well-organised production based company with an internal focus. Many material goods, much growth and profit have been created in such kinds of aligned systems which somehow fortify the company’s position while simultaneously retaining it in a non-innovative position. Being in that non-innovative position is untenable. As I argued in chapter 1, there are several reasons to believe that these non-innovative SMEs are under increasing pressure to become increasingly innovative in their market approach to survive in the short or medium long term. That is, these non-innovative SMEs have to change their day-to-day production focus to avoid being trapped in a fast changing global competition.

Figure 3.11 The non-innovative SME



Source: Own work

Before looking at the transformation process, I will now turn to a constitution of the theories in an innovative SME perspective.

3.7.2 Innovative SMEs – a constitution of the theory

We know that being innovative is directly correlated with success as it raises profitability, growth, market share and productivity (Gellatly 1999, Baldwin et al. 1994) but we are, however, much more unsure about how to become or stay innovative. As this PhD project's research question is about how to manage the transformation process from non-innovative to innovative SME, it is necessary to address the phenomenon of innovative SMEs. I will do that in this section by working across the four theoretical areas of management, HRM, strategy and network as from these positions to constitute the innovative SME.

The innovative SMEs gain many advantages from being in that position; one is the already mentioned economic aspects. Another one is that by developing the ability to constantly and rapidly change the internal organisational setup in relation to changes in the environment, they prepare themselves for new future market conditions about which we can say that change and adaptation will be necessary. A third advantage is that being an innovative SME will fulfil many employees'⁵⁹ self-esteem needs in terms of working with change and development in a self-leadership context with applying different knowledge elements onto new products or processes. The last potential

⁵⁹ Still, other employees focus on stability and monotony covering lower level needs.

advantage of being innovative, which I will mention here, is the organisation's and its actors' self-perception which will be influenced by the position as well. There is certainly a lot of good emotional energy and self-fulfilling prophecy in having a self-perception which relates to successful innovation activities.

Becoming and staying an innovative SME have much to do with the way in which management, HRM, strategy and network relations are understood and executed. How to relate these four theoretical aspects to each other and to the innovative SME is the centre of attention below.

3.7.2.1 The innovative SME – related to management, HRM, strategy and network

Successful innovative SMEs are good at leading change and handling employee resistance and they normally do it through a transformational leadership style which involves employees in the decision-making and thereby raising the innovation activity. This transformational approach to management relates to a self-leadership line of thinking characterised by leading employees being concerned with creating an environment which encourages the employees to be independent, self-responsible and self-initiating. The leaders in these innovative SMEs are focused and qualified when it comes to thinking, working and coordinating on a cross-functional level. They have recognised how important these cross-functional activities are when it comes to creating first-order innovation activities. By being aware of the link between leadership and innovation, I will argue that the innovative SMEs ipso facto are more orientated towards management and leadership training and development which also support the innovative position (Patton and Marlow 2002).

Another important aspect of the innovative SME is its ability to combine explorative self-managing activities with exploitative management activities. The reason why this ability is so important is that the explorative part should support leading the self-initiating knowledge creation and development and the exploitative part should support managing optimal resource allocation. Or in more simple terms, exploration relates to innovation and exploitation relates to producing it. The Triple Helix model was used to exemplify how such a combination between management (exploitation) and leadership (exploration) can be practiced in order to support and sustain an innovative SME.

In the innovative SME, the main approach has to be the transformational (self) leadership approach seeing that this way of handling employees is expected to be the source of new ideas and

innovation. That is, management should be seen as elements that need to be addressed in order to ensure that the knowledge creation and innovation activities do not merely result in good intentions but that they are actually produced and thus contribute to the earnings. But for the employees to be motivated and empowered in relation to the innovative activities, the basic approach has to be transformational and leadership-based. This primary importance attached to the leadership approach can also be related to a description of the innovative SME in terms of HRM. Innovative SMEs conduct HRM in a so-called soft way which means that the focus is on strategic and high commitment human resource management. These innovative SMEs consider HRM a strategic and important asset for creating an overall development of the organisation and they perceive the human capital as a crucial source for creating innovations and competitive advantages (Freel 2005, Laursen 2002, Laursen and Foss 2003, Leede and Looise 2005 and Jimenez and Sanz-Vall 2005, Wang 2005, Sels et al. 2006). Innovative SMEs concentrate much attention on training and development of these employees, recognising training and development as requisites for developing novel capabilities which are a central source of innovation.

Baron and Krebs (1999) have developed the high commitment HRM concept from several highly complementary HR practices which represent how innovative SME carry out HR activities. This high commitment concept is evident both in the leadership⁶⁰ approach and in the HRM approach as it proposes high levels of decentralisation (the hierarchy is flat) and heavy cross-disciplinary activities with strong links which also have the effect of creating new knowledge and thereby facilitating innovation (Baron & Krebs 1999, Laursen 2002, Branzei and Vertinsky 2006). By implementing a high commitment HRM philosophy, the employees have a deep understanding of and interest in the company, employees and systems are flexible resulting in heavy and increasing cross-functional activities⁶¹ and employees provide new ideas, flexible solutions and improvement whenever possible. This is supported by extensive an emphasis on socialisation, training, cross-functional training and open informal communication systems.

When it comes to relating leadership and high commitment HRM with strategy within the innovative SME, Brand and Bax (2002) and O'Regan et al. (2006 B) advance all the arguments. Because Brand and Bax (2002) claim that a soft organic (high commitment) HRM approach should

⁶⁰ The high commitment approach also refers to self-managing teams.

⁶¹ It is the task rather than the function which decides where, how and by whom the challenge should be handled.

explicitly be related to a prospector strategy and that the prospector strategy relates to innovation,⁶² flexibility and decentralisation. O'Regan et al. (2006 B) claims that there is close interaction between strategy, leadership, organisational culture and innovation. In this manner, leadership, high committed HRM and the prospector strategy clearly constitute the innovative SME.

The innovative SME works with strategy on a long-term basis, it is strongly dedicated to innovation and employs a written, apparent and well-articulated strategy which is communicated to all important stakeholders. Workers within the innovative SMEs strongly believe in the company and their own ability to create innovations and through their own self-perception and self-fulfilling prophecy, they actually produce more innovations. Through the prospector strategy, the innovative SME emphasises scanning the environment in order to exploit new product, service and market opportunities and thus create the ability to respond quickly to changes in market trends.

In line with the prospector strategy, the innovative SME has an external orientation for which reason network relations and activities are an obvious part of doing business. Both the leadership and the HRM approach also address socialisation and cross-functional interaction making it natural for these leaders and employees to continue their interaction on an inter-organisational basis. The innovative SME shares knowledge⁶³ and risk when creating access to new market and technology opportunities in network relations with other innovators, especially with customers, suppliers, research institutions and competitors.

Innovative SMEs are plentiful in network competencies in terms partly of knowledge, skills and qualifications⁶⁴ and partly of practical execution⁶⁵ of network activities. Finally, Ritter (1999) addresses four organisational antecedents which characterise the network approach of an innovative SME. These are resources (financial/managerial), HRM abilities, communication skills and an open corporate culture. Of course, the company needs financial resources to fulfil an innovation strategy supported by network activities and obviously, the culture⁶⁶ is an important factor as well. But Ritter (1999) expresses in relation to the managerial, HRM and communication skills the need for

⁶² Brand and Bax (2002) also call the prospector strategy an innovation strategy.

⁶³ Knowledge-sharing is the source of new capabilities and innovation and this process is even stronger if it happens on an inter-organisational level.

⁶⁴ Referring to technical, economic, legal and contractual skills.

⁶⁵ Referring to behaviour in social settings such as communication abilities, extraversion, conflict management skills, empathy, emotional stability, self-reflectiveness, sense of justice and cooperativeness.

⁶⁶ There is a number of cultural aspects implicitly inherent in the leadership and HRM approach.

antecedents which in several aspects can be related to a leadership dominated approach, high commitment HRM and a prospector strategy.

3.7.2.2 The innovative SMEs – a generalisation

From a transverse angle, I have analysed, compared and related the four theoretical areas to the innovative SME. It showed that there are quite clear links (or even a pattern) between the four theoretical positions when related to innovative SMEs. This makes it possible for me to reflect and generalise on the phenomenon of innovative SMEs.

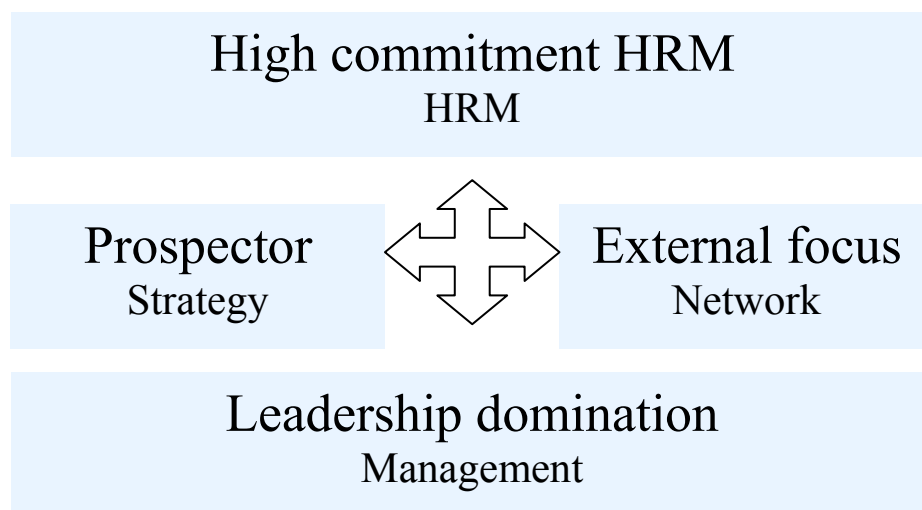
The innovative SME can be characterised as a company which gains many advantages from its position in terms of economic surplus, ability to cover employee self-esteem needs to a great degree, ability to handle and react in turbulent environments and a general strong competitive position on the market. This position can be generalised by a leadership dominated approach, a high commitment HRM, a prospector strategy and highly active network relations. To stay innovative, the SMEs create a synthesis or a certain pattern between its particular way of addressing management, HRM, strategy and network.

Therefore, these innovative SMEs are in a state of balance or alignment despite the fact that they are approaching a turbulent and changeable market. They somehow meet the market on its own conditions and cope with the turbulence of having a heavy focus on leadership and self-leadership. This (self) leadership focus seeks to prepare and develop the employees so that they themselves are able to handle the change and turbulence and transform it into company relevant activities. The main idea of the (self) leadership philosophy is to create optimal conditions for the employees to create new knowledge-based capabilities and innovations. This leadership conviction of looking at employees as independent, self-responsible and self-initiating has an inevitable impact on the HRM philosophy. That is, the innovative SME needs to conduct an HRM policy which is soft and based on the idea of “getting more from the workers by giving more to them” (Baron and Kreps 1999) in term of several interrelated HRM activities. Having this clear focus on a dominant (self) leadership and high commitment HRM approach, it will influence how the strategy is formulated (or vice versa, when the strategy is formulated, it will influence the management and HRM approach). Anyway, the only way to retain an aligned balance is to address a kind of innovation based strategy which in relation to Miles and Snow (2003) is the prospector.

In a way, the prospector strategy with its external focus “feeds” the high committed employees and the (self) leadership approach with new knowledge and new market opportunities. Furthermore, the prospector strategy with its focus on innovation and new product opportunities relates directly to leaders and employees who are flexible and working both decentralised and cross-functional. The innovative SME with a dominant (self) leadership, high commitment HRM and prospector strategy cannot function (as an innovator) without a bright and active network. These network relations are the source of a lot of the new knowledge, new capabilities and innovations. I believe that many of the needed competencies and organisational antecedents are present in innovative SMEs as they develop through the process of becoming an innovative SME and through the use of leadership, high commitment HRM and a prospector strategy.

Relating and generalising the innovative SME in terms of the mentioned four theoretical areas show an aligned and balanced pattern which matches the turbulent global market place and SMEs in this balanced position has the potential to gain the advantages which we normally associate with being innovative.

Figure 3.12 The innovative SME



Source: Own work

From the generalisation of both the non-innovative as well as the innovative SME, I will now turn to a generalisation of the transformation process lying between the two positions.

3.7.3 The transformation process – a constitution of the theory

Now the focus is on constituting a theory in relation to the transformation process between the non-innovative and the innovative SME which is a very central part of the theoretical construction within this PhD project.⁶⁷ As argued earlier, it seems that approximately 50% of the SMEs in many western countries are non-innovative and as also argued, non-innovative is an untenable position which should put some pressure on the question of how to transform from non-innovative to innovative. As so many SMEs have not changed their non-innovative position and as the two generalisations of non-innovative and innovative SMEs respectively clearly show a great difference, it is fair to view the transformation process as both difficult and fundamental. In other words, it requires some essential transformation processes to change management, HRM, strategy and network orientation from a non-innovative to an innovative perspective.

Nevertheless, I will now try to compare, relate and generalise the theoretical aspects which can have an impact on or relation to the transformation process. In the end of this section, I will return to the question of how to fulfil such a fundamental change process.

3.7.3.1 The transformation process – related to management, HRM, strategy and network

In relation to management, the transformation process has to address the movement between a dominating authoritarian management and a dominant (self) leadership approach supported by some management elements. As it is non-innovative SMEs with a production focus that should be transformed into being more innovative, the biggest challenge is undoubtedly to relate to the leadership elements. The transformation process should therefore emphasise leadership activities such as motivation and empowerment inducing the employees to change their daily operations habits and behaviour to knowledge sharing, idea generation and innovation. It is leadership and self-leadership activities which support and inspire employees to try new methods, paths and ideas.

However, to handle the transformation process effectively, management activities must simultaneously be an object of attention so that objectives, deadlines, resources and agreements are controlled in a punctual manner. To handle these management activities is, in many ways, the premise for the (self) leadership activities for which reason I have argued that the transformation process is dependent on a combined leadership and management focus. Here, transformation is a

⁶⁷ As the research question is: How to manage SMEs through the transformation from non-innovative to innovative?

matter of handling the balance between on the one side freedom and openness (exploration) and on the other side control and costs (exploitation). The triple helix model was used as an example of how leadership and management can be combined in a more practical context. Thus, in order to successfully fulfil a transformation process, the managers need to acquire much more knowledge and experience about the management/leadership distinction and to learn more about management as such. Consequently, the transformation process deals with initiating and implementing a management development strategy that is able to address these issues.

In relation to HRM, the transformation process has to address the movement between the “hard” internal labour market and the “soft” high commitment HRM. This transformation process is rather challenging as there are reasons to believe that the non-innovative SMEs have a bias towards the “hard” functionally divided, bureaucratic and rule-based HRM approach. Transforming this attitude and behaviour is about purposefully to focus and work with strategic HRM and high commitment HRM. The incentive to do that may be found in the need for a change in strategy, e.g. from an analyser to a prospector strategy (due to intensive competition).

If the strategy gradually changes towards the prospector mode, it will be followed by change in structures and the HRM contracting system because a prospector strategy focusing on new market opportunities simply requires a change in how to approach employees. This change will most likely be supported by a leadership dominated management style. Then, a decentralised structure develops followed by more cross-disciplinary activities which entail learning, new capabilities, new knowledge and innovation. Therefore, pressure from industry competition has the potential to change strategy orientation and hence, to spur a transformation process from an internal labour market HRM to a high commitment HRM.

The transformation process relating to strategy ranges from a defender style typically used by the non-innovative production intensive SME to a prospector style which naturally relates to the innovative SME. As the non-innovative SME is very weak in its strategy focus, the transformation process should be dedicated to formulating a long-term strategy with explicit considerations about innovation. An important part of the transformation process lies in a strong communication to all relevant stakeholders. From this point, the transformation process is about a successive movement of the strategic orientation from a defender to a prospector perspective.

Fulfilling this transformation or adaptation (as Miles and Snow term it) process is a question of aligning the SME to the external environment and internal activities. The SME must take the partly predetermined organisational structure as a point of departure for making decisions which can create a new equilibrium between the three internal domains (entrepreneurial, engineering and administrative) and the environment. The administrative domain (establishing roles, relationships and organisational processes) will turn out quite important in the transformation process as it is from here that the impact on implementing the existing strategy is coming and it is also from the administrative domain that new processes for implementing a new strategic direction should come. However, the transformation process will probably start in the entrepreneurial domain (selecting and adjusting the product market domain) by scanning the environment for opportunities to start up innovation development processes. Further developments in the engineering domain may very likely produce new (multiple) production technologies including new products and the organisation will therefore be forced to work increasingly cross-functional and decentralised. Then, the transformation process is to be continued by adapting activities in the engineering domain (producing and delivering the products) and the process will further develop as managers and employees increasingly focus and reflect on the new domain, in this case the prospector domain. The adaptive cycle or transformation process will increasingly form the three domains until a prospector strategy is aligned.

If we relate the transformation process to network activities, the aim is to move between two rather different approaches to network activities. One is the non-innovative SME who has weak external relations, few relevant network competencies and perceives external partners as dishonest and sees the network as unfruitful and uninteresting to them. On the other hand, the innovative SME can be characterised as a company with strong external relations and excellent network competencies both regarding organisational antecedents, qualifications and execution ability. The transformation process between these two positions should focus attention basically on three elements.

The first one is creating links to important and relevant stakeholders e.g. suppliers, customers, competitors and universities. To transform from a non-innovative to an innovative SME, the company has to initiate some kinds exchange processes with external players in the industry. No company is an isolated island and as every product and process is becoming constantly more and

more complicated, the need for combining different competencies in network activities in the future will just increase. Due to this development, more and more organisations are open to different kinds of network activities.

The second element is about network competencies and their development as they are important elements in contributing to the transformation process. The transformation process is about opening up the organisation by creating incentives for each member of the organisation to engage in single relationships based on initiating, exchanging and coordinating activities with a relevant external partner. Network activities stem from individual relationships and therefore, the transformation process has to start there (with the single member of the organisation). Furthermore, the network activities develop from incentives, focus and working with these individual relations increasing the product and process innovation ability (Ritter and Gemünden 2003). In this more social context, it is crucial for the transformation process that the management is able to develop personal competencies in areas such as communication, empathy, extraversion, self-evaluation and cooperativeness. The management can further support the transformation process by motivating employees to participate in exhibition shows, presenting ideas and concepts to existing partners, monitoring relevant literature and being active in industry related networks. The content of the activities should be related to things like knowledge, know-how, information, products and services. Then, the transformation process deals with approximating the two organisations to each other in terms of rules, structures and a flexible reciprocal coordination, which, besides the social element, carries technical, economic and contractual issues. As the relations develop more, the challenge is to balance and allocate the interactions between actors in the network.

Finally, the third cardinal element of the transformation and network process relates to considerations concerning four organisational antecedents. These are finance/management resources, HRM, communication structures and an open corporate culture. The better economy/management, HRM, communication and culture have formerly been dedicated to network activities, the better the organisation will be capable of profiting from future network relations. That means that the transformation process from a network perspective can be supported by working with developing these aspects in relation to external partners. Two out of these four antecedents are explicitly addressed in this PhD project, namely management and HRM activities; the other two, I will argue, are indirectly addressed, namely communication and an open culture.

The relevant management and HRM antecedents are about precise goal orientation, competency development and assessment in relation to employee competencies in social and technical areas. These two antecedents (management/HRM) are in many ways in balance with the leadership dominant and high commitment HRM approaches and they are by no means in conflict with each other. The way to transform these to areas from a non-innovative to an innovative position thus follows the arguments from the leadership and high commitment HRM sections. This implies focusing on management development and putting more emphasis on leadership and explorative activities supported by some management and exploitative elements. And for the HRM contracting system, it will gradually change to a more decentralised and cross-functional approach.

The third organisational antecedent addresses how communication structures can be used as a way to strengthen cross-functional activities between different departments in the organisation. This is quite similar to some of the ideas within high commitment HRM as Baron and Krebs (1999) talk about an open informal communication system as one way of supporting and increasing cross-functional activities. Therefore, the reflections in relation to the transformation follow the HRM area. The fourth organisational antecedent deals with an open culture and Ritter (1999) claims that this culture derives from the basic assumptions created from solving challenges related to external adaptation and internal integration. The openness within the culture comes from highlighting elements like flexibility, spontaneity and individuality and letting the employees take responsibility and make decisions. This way of addressing an open culture is quite well-aligned with both the leadership dominant management philosophy, high commitment HRM as well as the prospector strategy approach. These three areas (leadership, HRM and strategy) also emphasise the employees' ability to take responsibility, to act and decide individually, freely and openly and to behave flexibly and alertly. Therefore, I will argue that the transformation process for these four organisational antecedents follows the arguments used in relation to management, HRM and strategy.

3.7.3.2 The transformation process – a generalisation

The generalisation of how to transform in relation to the four theoretical areas (management, HRM, strategy and network) is the focal point of this section and it involves two main elements. One is to generalise the main transformation elements of the four theoretical areas as to form the

transformation model. The second part will be a generalisation of how the four theoretical areas mutually relate to each other and I will argue that a change in one of the theoretical areas will inevitably trigger a change in the other three theoretical areas.⁶⁸

Generalising the transformation model

If a non-innovative SME, due to pressure on price and market shares, wants to transform into a more innovative position, it will be obvious to start out on a strategic level. A natural strategic choice, supporting the idea of being more innovative, is a prospector strategy. The transformation from a defender⁶⁹ towards a prospector strategy will presumably start with a change in the product-market (entrepreneurial) domain by scanning the environment for opportunities to start up a product or process development process.⁷⁰

There are reasons to expect that this strategy based movement will force through a change in the way management, HRM and network activities is approached as well. That is to support and motivate the employees to be more externally oriented (scanning the environment) and to think and work increasingly in relation to exploring opportunities for innovation, more emphasis on leadership is needed. The change in strategic observation will be untenable and without any support if it is not followed by a change in the management approach⁷¹ toward a much more leadership dominant approach. It is leadership and self-leadership that support explorative and opportunity searching activities and are capable of empowering and changing the minds and the behaviour of the employees. The transformation should further develop towards a more self-leadership based philosophy that concentrates on motivating the employees to try out new methods and ideas in their daily work. As these leadership transformation activities expand there should be a simultaneous focus on management as to reach deadlines, objectives and agreements. The optimum balance is reached when the autonomy of the employees is limited but not destroyed.

By motivating and empowering the employees in connection with this change toward leadership, a movement in the HRM approach occurs as well seeing that turning more in the direction of leadership will inevitably also move the HRM approach in the direction of a more soft and strategic

⁶⁸ In this section, I will address what Cummings and Worley (2005) call the strategic orientation.

⁶⁹ Which quite likely could be the strategy of a non-innovative production based SME.

⁷⁰ Later on, the administrative and engineering domain will gradually change as well.

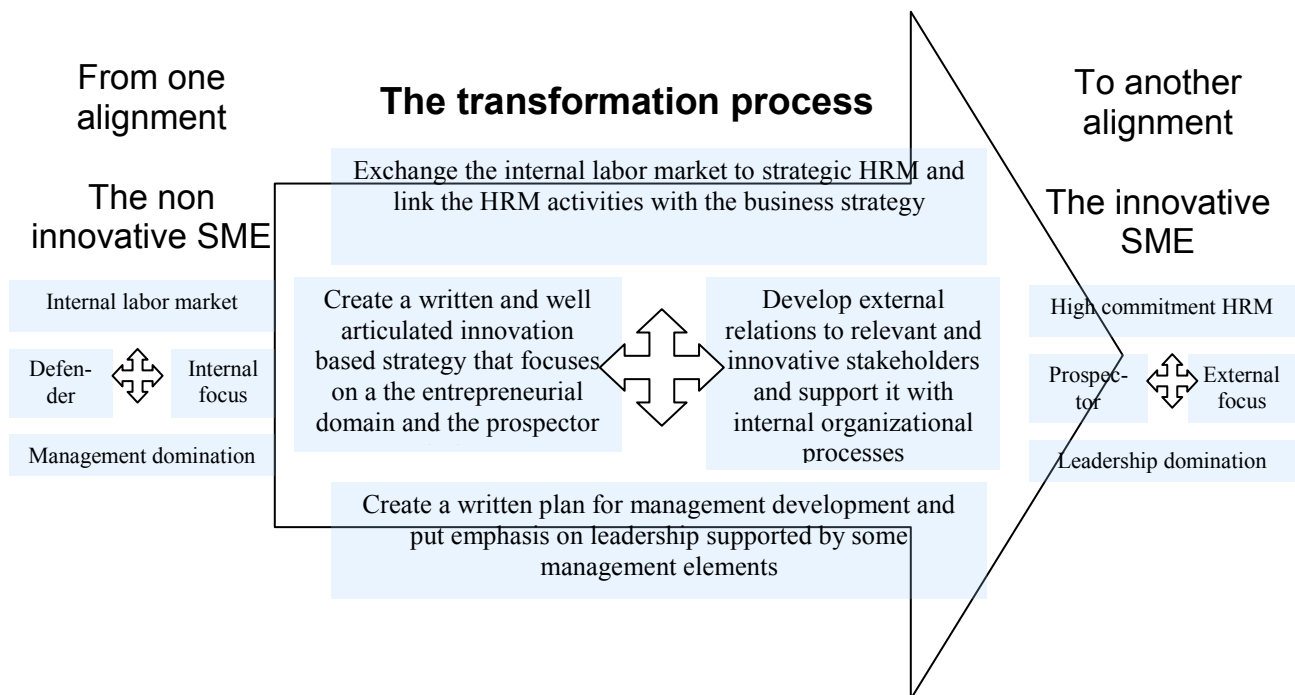
⁷¹ Which is likely in the non-innovative SME.

HRM philosophy. When the aim is to develop the SME towards a prospector strategy, it also has some implications for the way to approach employees. The HRM approach is required to focus more on elements like learning, knowledge, cross-disciplinary activities and new capabilities in order to increase innovation abilities among the staff. Increased attention given to external partners and network activities is an obviously and natural consequence of the changes in strategy (to prospector), management (to (self) leadership) and HRM (high commitment HRM).

To fulfil the idea of transforming into a more innovative position takes an external orientation with close relations to relevant stakeholders and a development in network competencies and organisational antecedents. On the other hand, this more network orientated approach is determined by the leadership and high commitment HRM as these approaches are open to cross-organisational learning and development.

That is, these four theoretical areas are mutually related to each other (see the figure below) and this reciprocity is the centre of the next section.

Figure 3.13 The theoretical transformation model



Source: Own work

Reciprocity between management, strategy, HRM and network

Through the process of analysing, relating and generalising the four theoretical areas, it has become clear that there is a great deal of reciprocity between them. That is, these four theoretical areas constitute a strong pattern around the non-innovative SMEs, the innovative SMEs and the transformation process. The generalisation in section xx shows that there is a rather strong relation between management, internal labour market, defender strategy and an intra-organisational perspective when it comes to describing the non-innovative SMEs. The constitution is at least as strong as regards the innovative SMEs in terms of (self) leadership, high commitment HRM, prospector strategy and an inter-organisational perspective. Likewise, we see a strong reciprocity when an SME starts to change, e.g., a change in strategy direction will prompt changes in areas like management, HRM and network approaches.

Thus, in case of the non-innovative SMEs and the innovative SMEs, a certain balance or alignment is created in each position. In the situation of the transformation process, an unaligned situation is created; I will, however, argue that there will be a natural movement towards a new alignment and balance point. The four theoretical areas are mutually related in a way that creates these strong positions; when an SME employs a management approach, it will naturally have a huge impact on the way HRM (internal labour market will be a natural way to think HRM for a person with a management preference), strategy (will most likely be defender as to support the production flow) and network relations (will naturally be internal to maintain production focus) are handled. If an SME adopts a defender strategy, then the focus will naturally be internal (not focusing on network relations) and in order to optimise the production processes, management will be the preferred approach and the HRM approach will most likely be related to internal labour market as to support the internal optimising of the production. Likewise, if an SME has an internal labour market approach, then it will have an effect on management, strategy and network or if the initial focus is internal (in opposition to network focus), then it will have an impact on management, HRM and strategy.

In my opinion, it is possible to argue for the same reciprocity and mutual relations between the four theoretical areas in relation to the innovative SME. This balance is created among the leadership dominated focus, the high commitment HRM, the prospector strategy and the external network focus. No matter whether the initial position is leadership, high commitment HRM, prospector

strategy or external network relation, an innovative position in one area will create a situation where it would be obvious for the other three to be innovative positions as well. I will argue that this high level of mutual relation between the four theoretical areas will also have a huge impact on the transformation process. That is, the transformation process exists in the way that a movement (or a transformation) in one of the four theoretical areas will most likely be followed by related mutual transformations in the other three theoretical areas. The transforming of one theoretical area (management, HRM, strategy or network) from a non-innovative to an innovative position will inevitably create a related transformation process or a pressure for such a process to occur in the other three theoretical areas as to re-establish an aligned and balanced state. That is, the transformation process can be initiated in any of the four theoretical areas (although strategy will be a natural place to start) and a movement in one area will be followed by (at least) a pressure and more likely a movement in the other three areas.

The reciprocity between management, HRM, strategy and network relations is, in other words, self-perpetuating and that constructs strong positions both in terms of the non-innovative SMEs as well as the innovative SMEs. In relation to the transformation process, I will argue that an SME can by force and heavy focus deliberately change or transform one of the four areas and thereby create an unbalanced and unaligned situation. This unaligned situation then calls for and creates a pressure for a transformation in the other three areas as to re-establish alignment. That is due to the theoretical considerations stating that a non-innovative SME can change into an innovative SME by following the recommendations for how to change the areas of management, HRM, strategy or network. The transformation process will most likely start in one specific area and then pull the other three areas through the transformation process later on. This process will continue until the SME is aligned as an innovative company.

These generalisations of the transformation process create the background for formulating (the last) two propositions. The first proposition relates to how and where the transformation starts and is formulated in the following way:

P 9: The transformation process will be released by strategic considerations.

The second proposition relating to the transformation process is formulated in the following way:

P 10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium.

3.7.4 Summing up the theoretically based propositions

This section is dedicated to creating an overview of the theoretical considerations as to sum up the theoretical construction which is going to be related to the empirical data. In sum, chapter 3 has outlined 10 propositions of which the first two relate to management theory. Improving managerial skills and focusing on leadership with a secondary focus on some management elements were main aspects in this section. With the purpose of evaluating if and how management has been part of the transformation process within the five cases (innovative SMEs) of this study, the following two propositions have been formulated.

P1: The transformation process will be supported by a written management development plan which has the focus of improving managerial skills in an action learning context.

P2: The transformation process will be supported by the management being simultaneously able to create an atmosphere of freedom and autonomy based on an explorative leadership approach with a limited and goal-orientated exploitative management approach.

In relation to the theoretical part of HRM, the emphasis was on changing the approach from an internal labour market to a high commitment and strategic based HRM system. That would support the transformation process and develop the SME in a more innovative direction. Therefore, HRM also represents an area for evaluating the transformation process in relation to the five cases in this study and I will do it through the following two propositions.

P3: The transformation process will be supported by changing the HRM philosophy from an internal labour market (hard) approach to a strategic HRM (soft) approach.

P4: Linking the strategic HRM contracting system with the business strategy will support and develop the transformation process.

The third theoretical area was strategy and the focus was related to how a written, explicit and long-term strategy and the movement from defender to prospector can initiate and support the transformation between non-innovative SMEs and innovative SMEs. Thereby, strategy constitutes another important area for propositions on how SMEs can transform from non-innovative to innovative. The two propositions which I will use in relation to evaluating the case companies are reproduced below.

P5: The transformation will be supported by the development of a written and explicit long-term well-articulated strategy with attention on innovation.

P6: The transformation process will be supported by initiating an adaptation process changing the entrepreneurial, engineering and administrative domains towards a prospector strategy.

The fourth and last theoretical area was dedicated to business network and focus was on the ability to create external relations to important and innovative stakeholders and to align internal processes as to support and develop network relations. Like the other three areas, network activities form the basis of two propositions of how non-innovative SMEs can transform into being more innovative.

P7: If the SME is initiating and developing external relations with relevant and innovative stakeholders, the transformation process will be supported.

P8: The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported.

After having described, analysed and interpreted the four areas of management, HRM, strategy and network in a rather unified column, section 3.7 was dedicated to a transverse activity. This transverse activity implied relating, theorising and generalising all four theoretical areas in relation

to non-innovative SMEs, innovative SMEs and the transformation process. The purpose was to constitute a theory first of all on the transformation process and secondly on the non-innovative and innovative SMEs as to determine the two positions linked by the transformation process. These theoretical generalisations also formed two propositions (shown below) which I believe are relevant in terms of evaluating the empirical data of the five cases.

P 9: The transformation process will be released by strategic considerations.

P 10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium.

These ten propositions are the end product of the theoretical construction and they will in the next chapter (4) be evaluated in relation to the empirical data material.

4. The empirical results

4.1 The case study companies

The foundation for collecting empirical data in this PhD project is five companies (or cases) which constitute the multiple and embedded case study design.⁷² In this section, I will briefly describe these five companies, focusing on their innovation activities and their business situation in general. I guaranteed all the companies and people interviewed full anonymity for the purpose of creating a situation for the respondents to be open and willing to tell as much as possible. Therefore, no names (company or person) will be used in relation to the five case companies.

As mentioned in section 1.1.1, the five case companies are chosen on the basis a range of different criteria, e.g., it must be a supplier dominated or production based company as it is among these types of companies that the largest share of non-innovative companies are expected to be found and a transformation process is most needed. The five case companies are also chosen due to the following two reasons (1) the companies are currently innovation based and (2) the size of the company. These two criteria are closely linked to the research question⁷³ as the focus is on the transformation process (between non-innovative and innovative). The companies have to be innovation based as to be able to add knowledge to how to transform from non-innovative to innovative. The size of the company is another governing element as it is used throughout the data analysis to investigate if there are any differences between how micro, small and medium-sized companies fulfil the transformation process. The figure below provides an overview of the five companies.

⁷² It is what Yin calls a type 4 case study; see appendix C for further details.

⁷³ How to manage SMEs through the transformation from non-innovative to innovative?

Figure 4.1 Overview of the five case companies

| | | |
|--|---|--|
| Micro companies (no more than 10 employees) | Company A 10 employees and five people were interviewed | |
| Small companies (no more than 50 employees) | Company B 1 49 employees and four people were interviewed | Company B 2 40 employees and two people were interviewed |
| Medium-sized companies (no more than 250 employees) | Company C 1 90 employees and four people were interviewed | Company C 2 Approx. 100 employees and five people were interviewed |

Source: Own work

In each of the five cases, the CEO of the company and the person responsible for product development have been interviewed. These are the two persons mentioned in relation to company B 2; in the remaining four cases, the other two (in case B 1, C 1) and the other three (in case A and C 2) persons are different kinds of relevant white-collar workers.

Company description A

This company is somehow special because it has only 9 employees (a micro company) and still it is part of this research addressing sub-supplier and production based companies. It is quite rare that sub-suppliers or productions based companies have less than 10 employees and it may also be discussed whether or not this company actually meets these criteria. This company is a high-end product development company in the interior business whose products are made by Chinese sub-suppliers. The product development is created together with some of the finest designers in the world and the products are sold to the retail industry on a business to business level. The reason why I chose this company, even though it strictly speaking is not a sub-supplier or a production based company, is the fact that recently, this company has undergone a radical transformation process. This process consisted in transforming from a medium-sized classic production based plant with an extensive product portfolio almost completely covering the industry into this small product development company based on few innovative and exclusively designed products.

Founded in 1952 in Copenhagen, the company moves to the northern part of Jutland in the seventies and establishes a plant with its own production. The company's development through the eighties

and nineties is based on low price and high production volume; actually, IKEA becomes the largest customer. The company is making good profits in this period until it starts buying up two large and central competitors. In one of the interviews (1), it is formulated like this: “The decisions behind these acquisitions are not rational, more likely they are emotional and a question of winning an old fight against these competitors”. In the late nineties, the company loses IKEA and in one year, one third of the turnover is gone. In the period from 2000 to 2003, the company suffers more and more and gradually, the 18,000 square metre plant (which is worn down) is closed down and several hundred people are fired. In reference to the interview, the employees were not able to think by themselves, the product assortment was outdated and the customers were not interesting. Despite this chaotic situation and the large downsizing, a radical transformation starts still remaining the same company.

Late 2003 and early 2004, a new strategy is developed and the radical transformation process takes place during 2004 and is about cutting off the old assortment and creating a new design-based line with just a few but innovative and design-based products. Between 2003 and 2004, staff is reduced from 24 to 5 and has up until today grown to 9 employees. This company is chosen to be part of the case studies due to this heavy transformation process from the non-innovative to the innovative position. The CEO himself expresses it by saying that innovation is a mantra that characterises the entire organisation and they work dedicatedly to transform ideas into products.

Company description B 1

This company was founded in 1972 by the father of today’s CEO and he and his brother are the majority shareholders today. The company is a sub-supplier in the iron industry and from the start more than 35 years ago, the focus has been on quality, accuracy and efficiency at every stage of the order-based production system. In the first 25 years, the company developed slowly but surely from no to 15 employees on the basis of a conservative and internal focus on quality in the production. The current CEO was employed in 1998 and in course of the first 3 or 4 years, he develops the company very much in cooperation with his father and in the father’s spirit. The CEO himself calls that period a CEO trainee process. By mid-2001, some important developments take place; one is a new and centrally located plant and one is heavy investment and development in production equipment and the production flow as to prevent superfluous transport between different machinery.

This was the platform that the CEO needed to be able to develop and increase the external customer focus. A large and momentous customer relationship is initiated in 2002 and several follow. Together with a heavy investment in automation and the ability to handle large production series (and large customers), the most important innovation activities are closely linked to that which in one interview (interviewed as number 2 in company B 1) is called: “The innovation has been concentrated on the production process; the adjustment and ongoing improvement of the production process is where we are innovative”. The CEO himself (interviewed as number 1 in company B 1) talks about constant favourable developments in collaboration with industry players, especially the customers.

Company description B 2

This company was founded in 1998 by two persons and it is a sub-supplier in the iron industry. In the beginning, the company generates its turnover solely on the basis of one lathe and one milling machine; then, the two founders invest in a few machines based on the Computer Numeric Control (CNC) technology and create relatively stable turnovers until 2003. From 2004, the growth starts to accelerate exclusively on the basis of CNC techniques and the innovation aspect is related to the programme and process development of these CNC structures. The ability and knowledge related to developing CNC machinery are the foundation for the company’s success. The turnover and earnings increase more than 100% from 2004 to 2006 and they continue to rise in 2007 based on the ability to programme CNC processes which meet customers’ needs at a price very profitable for the company. One of the employees interviewed from this company said that the reason for this company’s success is the ability to think new. This employee went on to say that the two CEOs of the company are able to think in new aspects in almost any case, despite the fact that they, in many situations, are doing the same as other players in the industry. The CEOs are able to rethink how to exploit the CNC technology, the production processes as well as the logistic processes.

The number of customers and the number of different industries to whom this company deliver are also increasing which is one of the reasons for the development in knowledge and the ability to develop more and more complicated CNC processes.

Company description C 1

This company was founded in 1989 by an entrepreneur whose idea was to produce machinery and equipment in a business to business context.

This is the classic story of an entrepreneur driven by his inclination to make things happen and function; a person who really finds motivation in creating things and doing things which other people have said were impossible. An entrepreneur with bad experiences with and bad memories of school and education but who found plenty of recognition from the machinery he created. In one interview, the entrepreneur says: “We do not pride ourselves on producing, selling and earning some money. What triggers us is when someone says: Hi man, there is someone who has been thinking about creating that product which is damn full of ideas. Other companies say oh no we have to start up product development again; we say yes! Let us continue product development; it is our motive power, we cannot stop it”.

From 1989 to 1996, the company focuses on profiting from two different machinery products without much success. However, a new machinery platform is invented in 1996 and in the following 4 years, 20 attachments are developed; each of them representing an innovation. From 2002 until now, the company has been successfully growing both in terms of turnover and earnings. It has received several awards for their ability to create innovations, a company culture with commitment and motivation among the employees and a global market position.

1996 also sees the first board of directors and the formulation of the first written and deliberately created strategy.

Company description C 2

This company is founded in 1983 and during its first 15 years of existence, it lives a rather quiet and predictable life as a production plant, thinking and acting in industrial terms with focus on quality and cost price optimisation. The approximately 100 employees and the production are and have always been located in Jutland, Denmark. The company has a 90% export rate and an estimated 20% growth rate per year. The high quality products addressing the high-end consumer market are produced by a well-known and low-level technology.⁷⁴ The company has an ambition of being

⁷⁴ The company has won several awards for its product quality.

among the five leading brands in the world within the industry. In 1999, a radical change of business strategy is initiated as the company wants to become an international player and thus, resources are allocated to building a contemporary international marketing and sales function.

From 1983 and until the late 1990s, the production is mainly based on other equipment manufacturing in terms of different private labels, making the product development hardly visible. From 1998/1999 and until today, however, there has been an intensified and growing focus on product development. The company has approximately 10 employees with a bachelor or master background who works with innovation or product development. They roughly develop a new product series per year and a product series life cycle is normally 5 to 6 years.

General comments on the case study

Together, these five companies constitute the multiple case study of this PhD project and the 20 interviews all follow the study protocol (see appendix E) with the main objective of investigating how these companies transformed from their former non-innovative position into their current innovative position. As mentioned in the research question and in appendix C as well, the focus is on *how* these companies transform and this *how* will also guide the analysis of the empirical data and investigation of the ten propositions.

The ten propositions⁷⁵ define the theoretical content of this PhD project and they are therefore an important part of the research process as they now serve the purpose of structuring the empirical discussion. This is done by following the same template as in chapter 3; first, the four theoretical areas (management, HRM, strategy and network) will be handled one by one and in a vertical line. After that, the last two propositions regarding the transformation process will be addressed as I will work across the four theoretical areas by focusing especially on the transformation process between non-innovative and innovative SMEs. Within each theoretical area, there will be a comparison between micro, small and medium-sized companies. Relating the empirical data to the theoretical propositions as well as a comparison of the different sizes of the companies will form part of the data analysis in chapter five.

⁷⁵ Two for management, two for HRM, two for strategy, two for network and two for the transformation process as such.

4.1.1 The case study data in general

Throughout chapter 4, I will outline the main theoretical concepts and the propositions as a way of forming the point of departure for the case study data. However, it is important that the case study data “speak for themselves” and I seek to understand these data on their own terms. Letting the data speak for themselves, I will try to focus on why and how. That is, why and how relate to these case companies’ transformation from non-innovative to innovative. I will allow myself to answer the why (are these companies transforming) in general with a reference to chapter 1. The reason why these companies transform is because they need to transform to find their way out of the production trap and to be able to handle the growing pressure on price and market share. The how (are these case companies transforming) is what all the data here in chapter 4 is supposed to say something about. Therefore, section 4.2 will be dedicated to outlining the data regarding how management impacts the transformation process. In the same manner, section 4.3 will be dedicated to HRM and its impact on the transformation process, section 4.4 to strategy and its impact on the transformation process and section 4.5 to network and its impact on the transformation process. Then, chapter 5 will address the work of relating the empirical data to the theoretical construction. That is, I will be conscious about when to let the data speak on its own and understand it on its own terms (chapter 4) and when to analyse the data in relation to the theoretical construction of the thesis as well as analysing if company size plays any role (chapter 5).

4.2. The case study data related to the management propositions regarding the transformation process

Before outlining the two propositions relating to management to see to what extent these two propositions can be supported by the case study data, I will shortly sum up the main concepts from the analysed management literature in section 3.3. In section 3.3, I argued that non-innovative SMEs are most likely dominated by a management approach and that transforming to an innovative SME requires that the SME exchanges the management approach for an approach focusing heavily on leadership and self-leadership in combination with a minor focus on management.

Therefore, it is important to define management, leadership and self-leadership. Management is based on an authority relationship to the employees enabling the manager to control the production of goods and services. Management’s forte lies in organising and systematising day-to-day production activities, particularly on a replicated and continual basis. Leadership is about

influencing, motivating and involving the employees so that they themselves develop together with the company in quest of the well-communicated vision. Self-leadership is about leaders creating circumstances for the employees enabling them to act independent, self-responsible and self-initiating and make local decisions. Self-leading people develop positive and motivating thoughts, set up personal goals, are self-evaluating and self-reinforcing. Research tells us that the innovative SMEs often use the transformational leadership style whereas non-innovative SMEs often use a dominant, authoritarian management style.

Some important differences between non-innovative SMEs and innovative SMEs should also be re-established here; that is, innovative companies are better at managing change, cross-disciplinary activities and employee resistance. Non-innovative SMEs lack a clear focus on management development activities as these activities support an innovative approach. Non-innovative SMEs especially lack to broaden managers' understanding of managerial skills when it comes to: Self-motivation, social awareness, integration, network relationships, motivation, delegation and teambuilding. Companies who want to develop and transform through a management development plan should, according to the literature, do so in an action learning context. It is when theory and concepts meet experience and reflection that new knowledge is applied in the organisation.

The last major theoretical element in section 3.3 is the idea of combining leadership/self-leadership and management as to best possible support the non-innovative to innovative transformation process. The management part is about securing sufficient amounts of resources, meeting objectives and deadlines and agreeing on communication structures. These elements, however, should facilitate a leadership approach regarding influencing, motivating and changing the employees' behaviour as well as support a search and idea-generating process.

These theoretical concepts are the arguments behind the two propositions which are formulated like this:

P1: The transformation process will be supported by a written management development plan which has the focus of improving managerial skills in an action learning context.

P2: The transformation process will be supported by the management being simultaneously able to create an atmosphere of freedom and autonomy based on an explorative leadership approach with a limited and goal-orientated exploitative management approach.

Management is an extremely important part of this PhD project and the research question as well as it is about managing the transformation process. In general, when talking about innovation and developing business activities, management is central but especially when trying to address a transformation process, the focus is on changing people's mindset and behaviour making management a cardinal point. How to handle this cardinal point is what the theoretical propositions address by focusing on the importance of being deliberately aware of management development through a written plan for how to improve managerial skills. Management competency and skill development is a core element when it comes to changing the way employees act and the best results are accomplished when this competency development takes place in an action learning context. Another important element of the transformation process is the balancing act between an explorative leadership approach and an exploitative management approach. In the following section, I will investigate why and how the case companies worked with management in their transformation processes. Having re-created the main theoretical elements regarding the management area, I will now turn to the case study data and let them "speak for themselves".

4.2.1 Management related data from the micro company

The micro company (A) has been through a heavy transformation process from a large classic production plant to a micro company based on a few innovative products. The following quotes focus on how the five respondents perceive that transformation process from a management point of view.

Company A (1)⁷⁶

"The word of old Horns (the founder and original owner of the company) was law and I do not think that you discussed anything. Horn had the ideas inside his head and those were the ones carried out. It went wrong when he stepped out of the picture but maybe

⁷⁶ This notation means company A and the person who speaks is the first (1) person interviewed in that company.

also due to other things. The company loses IKEA and the acquisition of two other companies turned out to be a strategic mistake.

I have changed a lot. I have a big production gene and things need to be happening. I also have a big administrative gene, things needs to be in order and under control. It is necessary to be able to do a bit of everything. But ask the others how I perform as a leader. But people are given much more space now than before because I can see that Rasmus can do something that I cannot. He is very skilled. And it is important that I do not interfere in his tasks because then it goes wrong. To a great extent I let people make their own decisions and ask: how do you think we should solve this? I do not want to give you the answers; you have to figure it out yourself. And they have all risen to the occasion. Earlier I was a traditional leader where we would make some plans and I would do the follow-up. Now I ask: how would you solve this? But it is difficult when you are as I am because deep down inside I feel most comfortable when I am involved in everything. But this is not possible; you have to let it go. There are many companies which become so big that at some point the leader has to let something go and if the leader is not capable of doing that it destroys the company.

People say to me that I am not as well-informed about things as I used to be. They are right; it is a consequence of more people joining the company. My challenge is to learn to let go. When we hire a new employee the employee must, of course, learn about the customers and the assortment but as I begin to feel that the employee is gaining more control I pull out.”

It is quite obvious that this company has transformed on a management level and that the leader has developed his approach alongside the transformation of the company and in fact, he is doing so against his nature. Therefore, he has to be conscious of his approach because normally, he would prefer more steering. He has moved from having a preferred behaviour of being in control and being kept updated on everything in detail to asking people what they believe to be a good solution and letting the employees decide on their own. The CEO gives the employees much more space by not interfering in their tasks and by letting them decide on their own. Thus, the CEO creates

involvement and room for the employees to independently and individually create personal and professional development.

One of the employees views the current way of conducting management in the following way.

Company A (3)

“I remember that he said to me when I first got the job that if you want a job like this and things are progressing as they should then you get to develop it yourself, whereas if it is not taking the direction that I want then I will have to check up on you so – freedom with responsibility.

He rarely comes in and asks: what are you doing? He comes in once in a while and says: now we do this and this – Yes, yes it is okay and then he asks me how far along I am with this and that he needs it soon and so I actually have the impression that at most levels it works. You can say that this you find interesting and that this you would really like to do. Of course we have an annual meeting where we make an overall plan but how and what I have to do this week I need to figure out myself.

I think that X is a strong leader who is able to give people the space they need so that each can contribute with what they have to offer while receiving guidance. Whatever it takes for you to do the rest. And if you need tight supervision, because there are people who need supervision in order to perform, you will receive that also. His ability to figure out who wants to do it on their own and who needs to be pushed is very delicate and I believe that by doing this he gets the best from his employees. Of course sometimes I think that if you bring it yourself, especially problems, then he will push them back to you and it is not because he does not wish to help you but he wants to know what you are going to do instead of giving you the answer. Then you have to work on it yourself and say that you wish to do this and that and then you can discuss if it is the right way to do solve the problem.

X’s great leadership strength is his great empathy. He has a good feel for where each of us are and what each of us needs – e.g. sparring, suggestions, a good kick in the behind if you are not fast enough at something. X is always positive, i.e. a positive view of human nature, the belief in that we can be driven to whatever we have come here to do and also that it can be raised no matter which member of the organisation you pick.”

As this employee explains, everyone in the company is expected to commit themselves and take some responsibility and initiative as they actively participate in solving tasks and developing the company. In addition, the employees suggest relevant and interesting things with which to work and develop the company. On the other hand, the employees may also be confronted with a more controlling and governing leader in situations where that is appropriate. That is, employees who want or need to be more controlled in terms of guidance from the leader will be subject to just that. If I extend the data analysis yet a short step further, I will claim that here, we are witnesses to a leader who is able to balance management and leadership. The CEO encourages all employees to be more self-leadership orientated but simultaneously, he meets the employees with tight management control and resource allocation whenever necessary.

Another employee adds to the picture of a leadership approach with high levels of employee influence and self-initiative in combination with the ability to perform in a more direct management way when necessary.

Company A (5)

“I think that X is very visionary but he also has some demands. He is very professional; things need to be in order. He can be pretty hefty but he does not mean to be. The qualities that are essential for a leader and which often can be a problem these are the qualities that the CEO possesses. He is there for us on many levels and he is good at giving a pat on the shoulder. He lives up to the theories which I have about leadership and this I think is fascinating. There are many theories about leadership, what a leader must be able to do, attention to details and the view of a leader and X moves well within both when there is a need for it. That is a strength and X has been able to incorporate this way of leading so that it comes from within. X is good at motivating people, use people’s competencies. He is good at seeing where the competencies lie and takes an active part in supporting and developing them. Believing that competencies exist which can be developed. X is an innovative leader who likes to play his way through things but in reality he knows exactly how he wants it to be. So there needs to be some kind of quality and it needs to be professional because you cannot play your way through. It is not like he is monitoring you, that is not his intention. To play and learn is not something that we pretend to do. It may be a strength that he has that nothing goes too

far, especially when it comes to sparring with our customers and designers he keeps his finger on the pulse.”

Respondent 5 supports the picture of this leader as a person who actually manages to uphold a fine balance between leadership and management as to motivate people. This motivation is used to develop their competencies in terms of playing and learning which again support these employees' ability to develop innovations in the different products of the company.

In company A, respondent 2 argues that he sees a link between this changed approach to management and the company's ability to create product development and innovations. The company and the leader accomplish this by bestowing more freedom to the employees as well as financial support to test new ideas. Likewise, all employees and their ideas and suggestions are met with a high degree of trust and support as the following quote expresses.

Company A (2)

“Yes, there is a close connection between our product development and our approach to leadership and the way that we view HRM. I think to a great extent that there is a connection in the way that we have free reins to explore new materials, if we get any new ideas we get the economy to try things out. We do not as such have limitations on stuff. I have not yet presented an idea or a material where I have said: “this could be really interesting, I think it would be fun to try out” and then received a no. This is one part of it and regarding development it offers freedom, freedom with responsibility of course, but you get motivated and that motivation rubs off on the designers that we work with. Luckily they have all indicated that they think it is great working with us because something happens. To me it is about trust and credibility both internal and external.”

The quote points at an awareness of the differences between various management approaches and that this micro company actually has transformed towards a higher innovation level by means of, among other things, this change in management behaviour. The data suggests that the leader in Company A attaches great importance to motivation and involving the employees while

simultaneously being able to direct his efforts towards certain objectives and targets to promote the product development process.

The data is also quite clear in telling us that the company/leader has actually changed its/his conviction concerning management in course of the transformation from being non-innovative to being innovative.

In this micro company (A), no written or practical plan for how to develop the management competencies exists; neither does it have any intention or vision of preparing one. The management development activities are restricted to participation in some external formal BCom courses.

4.2.2 Management related data from the two small companies (B 1 and B 2)

In this section, I will investigate the relation between management and the transformation process regarding the two small companies in this research. The aim is to analyse what role management has played in the transformation processes which the two companies have taken part in and relate that role to the two propositions concerning this area. Regarding company B 1, the following quotes address a heavy pressure on and a rather radical change in the way management is understood and put into practice.

Company B 1 (2)

”Lots of innovation has taken place in our organisation as well as an enormous growth within the last four years. The turnover has tripled in the last four years. Previously it was a barrier that the company had professional competencies but the leaders did not know how to make use of them. It was a significant barrier which was overcome when I was hired because I have a human approach to changes and development and to implement new leadership and quality systems. I went out there with my arms open and asked them (the employees) to help me.”

Company B 1 (1)

”A big challenge has been to realise the development of the organisation in time. It has very much to do with leadership because hiring people is solvable but to get these people educated and trained is a challenge. We are constantly educating and training people but it also pulls out a lot of leadership resources from our organisation. We have

doubled the number of employees within the last two years and it is hard always to be at the forefront of what is going to happen and that is the challenge.”

The transformation is a product of meeting the employees with openness and a focus on the social and psychological aspects of leadership, including employee delegation, motivation and involvement. The company has also used training and education as a way to develop the employees to (if I extend the data) handles the change/transformation process, avoid their (employee) resistance and support them in cross-disciplinary activities.

The company (B 1) has in its struggle to match the management approach with the heavy transformation of the company in general developed a management term which they call “co-leadership”. This co-leadership is created in the company with support from external consultancy. The idea of co-leadership is made up of elements such as self-leading groups among the employees, efforts seeking to avoid that any leader is able to hide behind formal power and meeting the individual employee with esteem and delegated responsibility. The following quotes expound on the concept.

Company B 1 (1)

”We are moving towards what we call ‘co-leadership’ but earlier we have been very traditional concerning leadership with supervisors controlling things. But for a period of time we have been working with self controlling groups so that more work can be delegated. We use an external consultant to assist the project regarding the self controlling groups and that is what we call ‘co-leadership’.”

Company B 1 (2)

”Our biggest challenge when starting to think leadership is too many leaders who have too much power that they need to let go of – one tend to use the power as a safeguard. Team-based and with leadership – I think it is relatively easier to focus on processes in a small company – no matter if we are sitting around the lunch table or are standing around the turning lathe we can all be together and we all know things about each other and we have the possibility to coordinate things. The most important are the hands and the minds that we have – everyone can buy the buildings and the machines and use

them. A new generation will come that is NOT satisfied with a piece of paper stating the work that they must do and in which order. If it is completely nuts to do it that way when another way is better. The employees demand better leadership and in order for us to keep people we have to treat them differently and we have to show more respect for the individual and we have to pass on more responsibility and authorities to the individual employee.”

”I do not understand that one cannot see that happy and satisfied employees work harder and that the employees that are allowed to be responsible for what they do and here I mean truly responsible, do it better because they do not want to do it all over again. We have to dare to lead our employees and especially our leaders in another way. We have to provide our employees with a lot of competencies, authorities and responsibility, they have already received that but must receive even more but we definitely also have to start placing demands on our leaders otherwise it will start to go downhill. It is not the most stupid people who take the first step when the leadership is poor and good leadership is our survival.”

By working with implementing this co-leadership concept, the company gains employees who are self-reinforcing, positive, motivated and willing to take on responsibility. The company does so through self-leading groups and by giving the employees an increasing amount of competencies and authority.

Parallel with these considerations regarding a new match between the transformation and the management approach, company B 1 also has ideas of limiting the self-responsibility and local decision-making. The company does that by controlling the output results in the quality department. As the following quotes show, this company also sees management as something which is about organising, systemising and measuring the ongoing activities.

Company B 1 (2)

”We have measured our results and I started to measure myself because then the employee would not be afraid to be measured also. We have halved our costs regarding complaints and deviations and our production processes has been made over 30 percent

more efficient in the last three years. It is a process optimisation where we, based on cost accounting, is able to see how we should invest in new technologies and machines. We have also made a maintenance and optimisation department containing eight men who focus on building machines and optimising every imaginable process.”

Company B 1 (1)

”The production planning is experiencing more and more pressure because there are more and more big orders which are becoming more and more complex. A big challenge has been to see the development of the organisation in time and to avoid too many things passing through bottlenecks and too many things being placed on the same desk. Therefore, we have been very systematic and have, among other things, introduced a quality control system (ISO).”

The company also controls and thereby limits the employees’ freedom and self-responsibility as part of their systemised approach to resource allocation and development of the organisation.

When it comes to management training and development, company B 1 has actually been quite active and it has increasingly been focusing on that issue in the last 3 years. However, these different activities have been completed on a rather random basis and they have not formed part of a well-arranged plan as the following quote demonstrates.

Company B 1 (1)

“We also have an external group of consultants who assist in the leader development and work with the actual leader group about leadership understanding, cooperation within the leader group, differences in our personal profiles and then it is related to the development of the company in general and the areas in which we want to perfect. There are some skilled employees who have been educated to become leaders and we offer them leadership training courses. My brother and I are among other things participating in a leadership training course called the “track switchers” and the rest of the leader group is also participating in similar leadership training courses. But it is not completely planned; actually it is more marked by ad hoc.”

The company uses external consultancy and formal external leadership development programmes to support the training and development of the employees and these training activities are related to the general development of the company. These external consultants provide the management with a much deeper understanding of management processes and the education is related to how the management wants to further develop the company. These primarily leadership based activities were supported by management and steering activities. However, company B 1 has not prepared and followed a written plan for how to develop the leadership and management competencies; it has merely conducted management development activities on a more haphazard level.

The two following quotes indicate that company B 2 has based its growth and transformation on a close interaction between leaders and employees and, as it seems, a flat structure and a high level of confidence in employees.

Company B 2 (1)

”If people put forward their proposals then they get a pat on the shoulder – it is good, try and do that – it sounds sensible. The structure is very flat, just like a pancake. Well, you see Tommy out there. He is almost the dirtiest person out there and he owns half of the company.”

Company B 2 (2)

”The attitude towards leadership is about the employees being able to put forward their ideas without restraints. The hierarchy is very flat; no one is put on a pedestal.”

Company B 2 (3)

“There is a fundamental belief that the employees can solve the tasks given to them without having someone to supervise them. We have not hired anyone to oversee the employees – no one at all. We have trust in our employees.”

The organic structure, trust relation and close interaction between leaders and employees are facilitated by open communication, letting everyone contribute with suggestions for solutions to actual problems and by no one being limited in that respect. In addition, the leaders meet the

employees with a fundamental trust in their ability to solve these problems and the leaders do not see control as an option.

Company B 2 (1)

”Responsibility is extremely important. And it is easier to provide that when you have the possibility of sharing it. There is nothing else you can do. You have to have faith in the man you assign the task to. And then you should unburden yourself to him. And then it is all or nothing. Well, usually people can do much more than they think they can but if they are not given the opportunity they will never realise that. But you have to be lazy. It is the most important quality; I tell myself that – to get people to evolve. How do I get another person to do this? The tasks usually end up somewhere with you. So you need to start thinking how you can avoid that. It is about passing on some of the responsibility to the employees. That is the hardest part. No doubt about it. And then it is about sending out clear signals when you want something. And they always know my opinion about different things.”

Company B 2 (4)

“But if someone comes up with some good ideas then you go to them (the leaders). None of them will bite the head of anyone. So there is not really a true pecking order.”

As is evident from these data, the employees are met with confidence, feedback and empowerment. Therefore, the hierarchy is presented as flat. Both things are referred to as management attitudes which have the purpose of ensuring that no one is limited in their thinking or idea generation. These leaders create conditions based on trust and confidence in the employees’ ability to be well-performing under the actual circumstances. These circumstances also create open and rich opportunities to work cross-functionally throughout the company. I added another question to establish whether or not there was a conscious focus on development behind this attitude or not. The answer was:

Company B 2 (3)

”No not really, that is just who we are. We will not act as a watchdog towards the employees. If we had to do that they should not be here. We are not able to handle it if

they cannot control it themselves. We expect that they can manage on their own and find a way, and it turns out that they actually can.”

Company B 2 (2)

”When you can master the tasks given to you and fend for yourself then it is an obvious motivator. Those who cannot do that will soon be sorted out. Actually, this is done by their colleagues because they become a hindrance to them. We assume that the employee knows what it takes, what is important and what is going to happen, and that they are responsible for the things they are expected to do. Many believe, myself included, that this way of working is more motivating than having the feeling that somebody is watching over your shoulder.”

Company B 2 (3)

”We tell new employees how everything works so that they do not get surprised by, partly having great freedom and partly having responsibility. If they are not told, this is where it goes wrong. This way of leading did not govern five years ago.”

These quotes further add to the picture of a company whose relationship between management and employees rests on trust, self-responsibility, self-initiative and self-reinforcement and whose management supports cross-functional activities. The data suggest that management has been successful in creating an atmosphere of freedom and autonomy by not emphasising control but instead motivating the employees by letting them take the initiative and make local decisions.

The next interesting point is therefore if there are any limits to this approach. That is what the next quotes focus on:

Company B 2 (1)

”Well, the difference is that if you are leading a company where you are sitting in your office and you have to make up your mind about what to do and not to do. Then you would have to have a huge number of bar charts and pie charts. You have to measure so many different things. But that we do not do. One could say that if we do not think that we produce enough we could initiate a lot of investigations measuring the productivity

here and there. We do not do that because we believe that the closer you are to the production and the employees the better a feel you will have about the atmosphere and what is going on. I believe in that. And it has not become less important after our growth.”

Company B 2 (3)

”I think that the point when we have to talk in ‘capital letters’ is when they have betrayed our trust. If they do not live up to that trust then we get disappointed by their behavior and most often there is also a financial aspect, i.e. somehow we lose money. Then things are tightened and in some way we point out that this we cannot accept.”

Company B 2 (2)

”If the trust is betrayed there is a reaction and it arrives quicker now than it did a year ago. The line has become shorter.”

The management in this company (2 B) does actually, whenever it finds it necessary, limit the freedom to act independently and self-responsibly. It does so if trust is misused or if too many economic resources are in danger of being wasted. It manifests itself as close steering and controlling of how to act among the employees when solving problems and as communication and addressing the improper situation. The management uses these limiting and constraining tools to keep focus on the goals whenever employees act somehow inappropriately.

Company B 2 has no programmes or plans for any management development activities and neither does it have any experience on the subject. Instead, it follows the production very closely and it is present at the production site. Its management development activities are restricted to ad hoc on-the-job-training from situation to situation. If I extend the data, I will claim that the transformation is based not on planned management development activities but rather on a feeling among the management that employee autonomy is the right way to support the transformation process. The lack of focus on formal training and management development is expressed in the following quotes.

Company B (2)

”We have not done anything regarding education neither when it comes to the technical side nor leadership and I cannot see that it is related to business development or

innovation. We have never used education, what we have created rests on experience and the desire to make it work. It is the experience with the machines and the technology and knowing what needs to be done, when and how. We have used that experience to develop the company.”

Company B 2 (1)

“There have been absolutely no leadership training and education, not even for us who owns the company.”

It is interesting to note that the managers in company B 2 do not see any link between education and business development or innovation. It is interesting because both theory and common sense explicitly support this link saying that education creates new knowledge and new knowledge is first-order innovation activities.

The data from the two small case companies support each other in the way that both companies have successfully succeeded in changing their management focus to a primary focus on leadership and a secondary focus on management activities and thereby support the transformation process between a non-innovative and innovative position. The similarities between the two small companies are also evident in the fact that neither company has a written plan or has fulfilled consciously planned management development activities. Still, it seems as if there is a difference between how the two small companies emphasise having a plan for management development. Company B 1 does not have a plan or develop management but it is working in that direction and has started the first initiatives. Conversely, company B 2 does not see a link between planned management activities and the development of the company vis-à-vis the ability to become more innovative.

4.2.3 Management related data from the two medium-sized companies (C 1 & C 2)

The two medium-sized companies (C 1 & C 2) have also been faced with management challenges and considerations through the transformation process from a non-innovative to an innovative approach. The following quotes point at ways to control the development of company C 1.

Company C 1 (1)

”We attach importance to reporting to the board so that they know what is going on and what our goals are. We report the pure financial, i.e. sales, budgeting and revenue as well as how many units we keep selling. So it is the “hard” facts. This also applies within the production. What is our security of supply, quality level, internally and externally and what do we spend on complaints and service. There are certain milestones, e.g. we need to hire a salesperson and we need to buy this and that. We need to follow up on these things.”

These quotes illustrate that in company C 1, several areas are organised and systemised in management terms as it closely controls objectives to reach, namely economic figures (e.g. budget, turnover, earnings and sales) and production related fix-points on supply, quality and service. If I extend these data, I would say that this is an excellent example of the recommended management aspect which is about securing sufficient amounts of resources and about meeting the objectives and deadlines using agreed communication structures. However, the theoretical contributions and the propositions in this area heavily address leadership as well and the following quotes further investigate company C 1 in relation to that issue.

Even though many different predicates are used in several ways, there is still a heavy focus in company C 1 on involvement, local decisions, independency and self-initiating approaches as the following quote suggests.

Company C 1 (2)

”Suppose we have twisted and turned it and tried out a lot of things and then in the end we realise that it is time to make a decision, it is time to react – it is not always our (top-management) opinion that prevails.”

Company C 1 (4)

”Many employees and I are very happy to be here because there is a will to share, a will to pass on responsibility and see people rise to the occasion. I have felt it myself and I have benefitted from it. You trust in people but it does not mean that you do not have to follow up on them. Occasionally, this is what we have lacked. We give them the

authority thinking that they have the competencies to solve a task and if they cannot it needs to be dealt with. You cannot just say that it will be alright, there is no use in keeping silent about it because you think that they will be upset. It is not the right way to do it.”

Both the quote above and the following quote illustrate that leaders and employees are searching for a balance between a trust based freedom to be self-responsible and elements to ensure efficient use of available resources. Interviewee 3 points at a need for developing higher levels of steering and organising activities in the company.

Company C 1 (3)

”Again with reference to when I first started here, I arrived from an environment that was managed a bit more authoritarian but when I arrived here you would walk around drinking coffee, chatting with each other and having a good time and talking in private mobile phones. There was not any “this is how we do”. There were no fixed boundaries or rules; it was up to the individual to create them. To me it did not seem right, more stringent rules and more control were needed. Of course it should not be an authoritarian place to be but those who cannot handle that freedom, and many cannot, they will have to be told how things should be. Otherwise we will not achieve the environment that we would like. Sometimes he (the CEO) intentionally lets people do everything themselves and lets them to go too far and then he just stands there looking – then he walks away and lets them work with something that he actually thinks is wrong because they are moving along a track that is leading nowhere. Even though he has really made an effort to manage and lead in a sensible way, once in a while control is lacking.”

“It might work in an advertising agency or in an IT-company, in a more creative environment, but the montage is not a creative place and it does not need to be, neither in the accounts department or the purchasing department. It might happen in the development department but there are limits as to how creative it can be in the other departments. Those who really want to make an effort see that others are allowed to slack off and that is not acceptable. We need to move more towards the middle and

manage by means of some values. I do not think that we should have a book explaining how to raise the flag or answer the phone but given that we are growing we need a little more control. When the company was founded there were only three men. Back then you could sit around these tables and know everything about everyone but that is no longer possible and therefore we need to be more in control.”

The approach to employees, the product and other stakeholders is very much based on the notion of pride which covers elements like employee involvement and motivation and equal and respectful interaction between leaders and employees. The quote below enlightens that.

”We have an overall attitude which regardless of having hired an employee, fired an employee, bought a product, sold a product or pressed for a product means that when we have done these things we should be proud of the fact that we have done it. We have manufactured the machine and shipped it onto the truck but we should be proud of the overall value. Quality, managing people or sale – you should be proud of what you have accomplished. It is clearly an important leadership task to make everything work together.”

Pride becomes a central and almost basic assumption for how to engage in leadership activities and it is a way to run the business. By extending the data, I will claim that when this respondent talks about pride as an important management element in making things work together, it may be interpreted as a way to find the right balance between management and leadership. By balancing these two phenomena, the leaders will increase their ability to manage the transformation process by supporting employee motivation and commitment in cross-disciplinary contexts. As a natural consequence, employee resistance will continuously decrease as it is inversely propositional to motivation.

When it comes to the impact which a written and well-planned management development process may have on enhancing the transformation process, company C 1 also has some experiences and ideas to contribute with as indicated by the data below.

Company C 1 (1)

”We (the company’s two proprietors) have been involved in a course called ‘Jonathan’, companies in growth. Here we have both had a session which has lasted about one and a half year. It is about leadership training and strategic work. We both benefitted from that a lot. We thought that everything would be taken care of once we hired some leaders but whenever they are in doubt they come and ask you. So it is important that you know what you want and are able to give a sound answer.”

Company C 1 (2)

”It is a leader development seminar where the basic philosophy is that there are no teachers to tell us what is right and wrong. There are no one looking down at you and saying that it is wrong. You discuss things with eleven others. And we function as cases for each other and this is what we benefit the most from. Damn it was great! It is very different on which level the participants are but we can all learn from each other. So it was really good. There I began to realise that those who had a plan and all that – I could feel that when we talked with their leaders, supervisors and employees they were proud of the fact that their company actually had a plan.”

Company C 1 (2)

”Even the ordinary wage earners are proud of knowing where we are going with the company. He feels safe knowing how things are connected and that makes things a lot easier. These sort of things – these sort of thoughts make the employee more vivacious and attentive when he is in the know than when he knows nothing at all. This I realised through the leader development seminar and there I started to take an interest in leadership.”

First of all, the management and leadership development takes place in action learning contexts as respondents 1 and 2 talks about how the participation is based on using one’s own and other companies as cases for learning and creating new insights. The planned management development process is run by external consultancy and it focuses on strategy and management/leadership development. The two founders of the company (respondent 1 and 2) had a clear feeling that participating in this external planned development programme would indeed create new knowledge

supporting the transformation of the company. By extending the data, I will claim that the two founders had several moments of insights with reference to how having a detailed and well-articulated strategy for transforming and developing the company has a major impact on the ability to reach the goals. Respondent 1 and 2 realised how leading the company is linked to strategy and that it is imperative that the employees know and understand this link and the consequences derived from it. If this link and its consequences are explicit and clear to the employees, they will be motivated and engaged and live in the moment and be interested in transforming the company further.

The positive approach to the management programme has also had an impact on how the CEO of company C 1 trains and develops the next management level in the company as is evident from the next quote.

Company C 1 (1)

”When you turn them into leaders and they have an employee who is in doubt about something then the leader will come to me. In the beginning I would provide him with an answer but then he will have passed on the responsibility to me. At ‘Jonathan’ we learned that you should ask this question instead: “what do you think should be done?” When you have done that five times, they will stop asking you. They know that when they approach us they need to have a plan or an idea of their own. After all, they also need to get their employees to do the same. They need to come up with their own contributions to the strategy and say: “in order for us to do this, this needs to be done in order to solve it”.”

It is very clear how the CEO through his management training has been inspired and learned how to work with leadership aspects such as trust, self-responsibility, self-initiation and local decision-making. The new knowledge and learning are created through an awareness of the phenomenon of responsibility and different communication techniques.

The opposite seems to be the challenge in company C 2 which has a long tradition for focusing extensively on a professional engineering culture and a zero-mistake-philosophy (interviewee 2). The challenge seems to be to infuse the company with more freedom and independence in order to

release some of the employees' competencies in new and stimulating ways as it is expressed in these quotes.

Company C 2 (2)

"As a company I believe that we are moving away from this very one-sided belief in procedures and descriptions and are recognising the need for fundamentally having a greater belief in the individual human. We have realised that a human that the right thing to do is to lead people based on a freer and more open approach and that it can make a difference on the bottom line."

What induced you to obtain this insight?

Company C 2 (2)

"That maybe the other thing is not working. We have written a thick quality manual. We have vowed that it would not fill more than 100 pages but it does. We have also become more aware of the fact that a human can act rightly without help from a lot of procedures. Many of these procedures have never been complied with anyway. We are moving away from being controlling towards a greater belief in the individual human."

As these quotes illustrate, this company assigns too great a weight to controlling and systemising day-to-day activities in a way as to avoid making any mistakes. That is difficult to combine with creating new knowledge, product development and innovations. It is important to underline that the company wants to move toward a more free and open approach to the employees; however, it is still deeply rooted in the management approach of procedures, control, optimising and allocating resources.

Another example of too much control and monitoring and less awareness of the prospects offered by self-responsible, self-initiating and self-reinforcing employees taken from company C 2 is a quote which addresses a management group divided and fragmented and thus likely to cause sub-optimisation.

Company C 2 (1)

”What really concerns me the most is that decisions should not be dragged into the leader group but should be decided outside unless they are of a particular strategic nature. So that the leader group will not become a meeting forum but a spiritual community. We have not reached that point yet and that is my challenge. I am the one sitting at the end of the table and I have tried to let it run its course and hoped that people were able to figure it out themselves. But I do not think that it has been a success and I feel hindered by it. And I feel that the company is inhibited by this leadership attitude because it is more about individual interests and too little about solidarity. To me it is more important to become one with the company; to me it is important that you react differently in the different situations you are put in, according to what is needed.”

Here, respondent 1 expresses his dissatisfaction with the lack of trust, independency, self-responsibility and a self-initiating approach among the employees; the employees are required to ask the leaders in situations where they should be able to act on their own. In my point of view (extending the data), this respondent is screaming for less management and more leadership.

The following quote addresses a change from an earlier approach focusing on freedom and self-responsibility to the current approach which focuses on top management steering, higher hierarchy and a more functional structure.

Company C 2 (5)

“Through the 90’s and towards year 2000 things are definitely related to how he (the then CEO) was. The structure was flat regardless of you having a position as leader. Everyone would sit together, you could call the CEO and he would come. If you did not know that he was the owner you would never guess it. Therefore one could tell far and wide how far one can go with a flat leadership structure. How can you be successful when you do not have a normal leadership structure? Everyone could talk with everyone and that suited me. There was an incredible freedom to do stuff. I have never heard the then CEO say: “No, I do not want to be a part of this or this you cannot do.” But this arrived later on because the CEO who owned the company resigned. I had confidence in his decision and that what he did was the right thing to

do but I made no secret of the fact that I thought it was wrong of him to leave the company at that particular time. In my first years here the likelihood of knowing about some of the strategies was bigger than it is today. The leadership has become more formal and there is top-down control. More leadership is present and some things are decided that we know nothing about. It used to be much more flat.”

The quote illustrates how the former CEO of the company was focusing on involvement and empowering of the employees as he was physically located among the employees and everyone could reach him when needed. At that time, employees were ambassadors for the company telling far and wide about the advantages of having a flexible and free self-motivating approach to work. However, the management approach has turned out to be predominant with more control and less involvement as results.

Company C 2 has earlier had different fragmented elements of external and internal planned management development activities but as the following quotes outline, they are now working on a more systematic approach to a management development programme.

Company C 2 (1)

”We have started a leader development program or rather we have started to establish it for the leader group. To me it is difficult to see what we are dealing with, but one of the criteria for success is that once it is completed there will be more focus on the new leadership style. A new leadership style that we can agree on, we need to agree on what type of leadership style we have in our company. It is about establishing some common criteria for what it means to be a good leader which people then can carry out in different ways but without fundamental disagreement.”

Company C 2 (2)

”Yes, we are far in our thoughts about creating a sort of leader education which will last maybe a year or two. We want to help shape it along the way. We want a person who we believe can ask us the right questions. The actual content is going to be a mix between a strategy course, both the development and formulation of the strategy, and a leader development course especially prepared for us.”

The management training program will be focusing on a new management approach which can create an agreement on how to manage or lead the company. The above-mentioned data really support the idea of creating an agreement regarding how to combine management and leadership as it seems that the company has alternated between these two phenomena. If I extend a bit on the data, it gives the impression that C 2 needs to focus more on leadership and self-leadership as to support the transformation towards a more innovative position.

Again, there are some differences between the two companies; that is, C 1 has already had some experiences with well-articulated and systematised management development processes, whereas the quotes regarding C 2 point more at some future expectation to what seems to be well-planned management activities.

The empirical data from the two medium-sized companies do support the idea of relating change in management approach to a more general transformation of the company. However, the two companies (C 1 and C 2) are faced with different challenges; C 1 needs to address more control in order to steer the activities and C 2 needs to address more freedom, self-motivation and self-reinforcement as to further support the transformation.

4.2.4 Summing up on the management related data

As expected, the data concerning management reflect both some similarities and some differences among the five companies. It is these similarities and differences which I will turn to now. The micro company (A) has supported the transformation process by changing towards a heavier focus on leadership by enhancing the leaders' ability to decrease interference while simultaneously providing the employees with freedom and room to be self-initiating and high performing. This enables the employees to learn new competencies and thus to see new opportunities of innovation facilitating the ability to suggest ways to develop the company. At the same time, there is a secondary focus on some management elements such as leaders guiding and controlling in order to make a suitable resource allocation. This means that company A is an example of how a suitable combination between leadership and management actually supports the product development or innovation capacity. On the other hand, company A is not orientated toward any kind of written plan for how to develop leadership and management competencies.

The data from the two small companies quite clearly and unambiguously support a development in the leadership focus sustained by some management elements as a way to accomplish the transformation process. Consequently, it is fair to claim that the two small companies have changed toward a more profound focus on leadership which is secondarily supported by relevant management activities. The two companies thus balance leadership and management in a way which I expect will support the transformation from non-innovative to innovative. None of the companies have written plans for how to develop management competencies; still, B 1 is struggling to get one. B 2, however, does surprisingly not believe in any link between such plans and the development of the company.

Regarding the two medium-sized companies, the data support the idea that a change in management approach will support the transformation process although the two companies face different challenges in changing this approach. Company C 1 is working on creating more management control as to steer the self-initiating and self-responsible behaviour among the employees. C 2, on the other hand, needs to address more freedom, self-initiating and self-motivation activities as to challenge its zero-fault and engineer culture. Still, both companies are trying to reach a balance between a primary focus on leadership and a secondary focus on management as to support the transformation process. Concerning the written and planned management development activities, there are some differences between the two companies. C 1 already has good experiences with and recognise several important contributions from working with these plans in relation to the transformation process. C 2 is merely in the planning and preparation stage but has high expectations to the outcome of the work.

4.2.5 The management data related to size

In this section, I will relate the data from this management column to the size of the companies as to see what kinds of patterns or knowledge will emerge regarding how the micro, small or medium-sized companies meet the two propositions⁷⁷ related to this column.

⁷⁷ Proposition 1: The transformation process will be supported by a written management development plan which has the focus of improving managerial skills in an action learning context. Proposition 2: The transformation process will be supported by the management being simultaneously able to create an atmosphere of freedom and autonomy based on an explorative leadership approach with a limited and goal-orientated exploitative approach.

I will start by reflecting on proposition 2 about a heavy focus on leadership and a secondary focus on management. All five case companies meet this proposition or to be more precise, they are continuously working on creating and keeping a balance between leadership and management. It is important to note that all five case companies place most emphasis on leadership and have a secondary focus on management. Four (A, B 1, B 2 and C 1) out of five case companies struggle with creating more focus on addressing management in the processes as guidelines for the freedom and autonomy that leadership provides. However, C 2 struggles the other way around as it works for more emphasis on leadership, freedom and autonomy to challenge its management point of departure.

That is, no matter whether it is a micro, small or medium-sized company, the transformation process has been supported by working with the recommendation inherent in proposition 2.

Regarding proposition 1 addressing the idea that a written management plan will support the transformation process, an interesting picture emerges. That is, the micro and the two small companies have no written plan for management development nor do they have any intentions of making one; I think it is fair to say that they have never given it any thought. On the other hand, one of the medium-sized companies (C 1) has a written plan for developing management and it has also recognised important contributions from these plans. The other medium-sized company (C 2) has decided to invest in a plan for how to develop the management group and made several kinds of preparations in order to implement the plan.

By extrapolating the data, I will argue that micro and small companies are not developed to a point where a written plan for how to develop the management system is in focus. These companies use their resources, in terms of time and money, on developing the company in general, including product and market development. They have not reached a level of evolutionary development where it is necessary or it makes any sense for them to have a plan for developing the management activities. Having a written plan for management activities requires several managers to make sense and in many cases, these micro and small companies do not have several managers.

The case study data can be extrapolated to address a dichotomy regarding proposition 1; that is, the bigger the company, the more attention on and the greater the likelihood of a written plan for

management development. For micro and small companies, we should not expect to find a written plan for management development nor find these companies focusing on how to develop management skills in a formal manner.

In sum, following proposition 2 will in any case be important to support the transformation process whereas it should be expected that benefiting from proposition 1 is reserved for medium-sized or larger companies.

4.3 The case study data related to the HRM propositions regarding the transformation process

Before letting the case study data “speak”, I will in this first section sum up the main theoretical and especially the main concepts of the theoretical HRM area. The reason for doing this is to shortly recall the line of reasoning leading up to the two propositions and to form the point from which I seek to understand the data.

With a research question focusing on the transformation process from non-innovative SMEs to innovative SMEs, HRM is a natural, central and important theoretical area. That is, this transformation process is triggered by a dawning conviction that another competitive position is the right thing to strive for. However, to actually accomplish the transformation implies changing and adjusting behaviour among the leaders and employees for which reason HRM is important. Both in the transformation process as such as well as when maintaining the innovative position, a different approach to HRM is called for in comparison to the non-innovative position.

In section 3.4, I used the literature to argue that non-innovative SMEs most likely will rely on an internal labour market approach to HRM (hard) and that the innovative SMEs in all likelihood will employ a strategic high commitment HRM (soft) approach. HRM was defined as an area dealing with employment relationships in terms of acquisitions, development and utilisation of the employees as well as the employer’s relationship to the organisation and its performance.

The main differences between how HRM is conducted in non-innovative SMEs versus innovative SMEs are: Innovative SMEs recruit higher skilled labour, have more planned incentive programmes/compensations, are more focused on training, informal learning and development,

value skills and knowledge higher, recognise employees as an important source of innovative ideas, believe in retaining the employees. In comparison, the non-innovative SMEs' conduct of HRM is characterised by: Recruitment of less skilled employees, less planned incentive and compensation programmes, less focus on training and development in general, lack of project groups and product champions, employees are not considered a source of idea or innovation and the non-innovative SMEs are often stuck in a certain technology. I used this research knowledge from the literature to formulate two positions representing the non-innovative and the innovative SMEs respectively as to be able to address the transformation process between them. These are internal labour market and strategic HRM.

Here, I will shortly reproduce the main concepts of these two positions. The internal labour market is represented by an administrative system for allocating labour by concepts like; a classic economic thinking, seeing employees as a cost which should be minimised as to maximise profits, long-term contract and attachments between the organisation and the workforce, promotion from within, skills are learned in the job, formal rules and procedures govern the employment relationship, focus on seniority and open towards complaints to secure fair treatment. The internal labour market appears typically in bureaucracies and manufacturing companies with scant possibilities for working decentralised and cross-disciplinary as well as scant possibilities for creating ideas or new knowledge. Strategic HRM is about linking business strategy and HRM to create sustainable competitive advantages. SHRM relates to cross-functional activities and innovative performance and is based on an organic, flat and flexible structure. SHRM relies on concepts like; developing employee competencies as a source of competitive advantages, effectively applying knowledge and learning in products/services, economic, social and psychological processes, employees are seen as flexible people who are willing to undertake tasks different from the normal job and work (with brain and hands) in the best interest of the company with a profound understanding of the team/organisation, employees contribute with ideas and knowledge in job enlarged and job enriched activities.

From these theoretical concepts, two propositions were formulated (mentioned below) regarding the impact human resource management may have on the transformation process.

P3: The transformation process will be supported by changing the HRM philosophy from an internal labour market (hard) approach to a strategic HRM (soft) approach.

P4: Linking the strategic HRM contracting system with the business strategy will support and develop the transformation process.

By referring to the theory and the propositions, the transformation process takes a radical and fundamental change in the way HRM is approached. This determining change is about parting with the hard HRM practice which is characterised by its bureaucratic structure with predetermined rules and procedures, centralised HRM activities, lateral disciplinary activities and no focus on creating new knowledge or capabilities among the employees. Instead, the transformation and change in HRM approach should address a soft approach characterised by elements such as informality, decentralisation, cross-disciplinary and learning-based activities capable of generating new knowledge and innovation. In other words, supporting the transformation process from a HRM point of view is about substituting an internal labour market approach with a high commitment HRM approach.

To successfully make the change between these two HRM approaches also requires a change in the way strategy is approached within the company (see section 3.4). If a company has developed a strategic (soft) HRM contracting form and then links it to the business strategy, this will, by all appearances, support the transformation process as both the strategic HRM and the strategy focus are expected to support the development of innovations. That is why the fourth proposition recommends linking the HRM contracting system to the business strategy and if the company does so, it is expected to support the transformation process. Below, I will turn to the five case companies presenting data related to if and to what extent HRM considerations have been used to support the transformation process within the case companies.

4.3.1 HRM related data from the micro company

The micro company (A) has a history of being a classic production plant with a bureaucratic and high hierarchy (references from interviewee 1) which in many ways has had an impact on how employees are seen and treated as this quote illustrates:

Company A (1)

”The word of the old CEO was law; I do not think that you discussed anything. He had the ideas inside his head and those were the ones carried out.”

This quote indicates that company A historically speaking has had a rather strict hierarchy and that earlier, it did not consider the employees a source of new ideas or innovation. The quote also indicates that the old CEO based his approach on a bureaucratic structure with predetermined rules and procedures.

However, since 2004 when the radical turnaround (see case presentation in section 4.1) took place, a fundamental change in the employment relationship has occurred. The evidence follows from the quotes below.

Company A (2)

“I think to a great extent that there is a connection in the way that we have free reins to explore new materials. If we get any new ideas we get the economy to try things out. We do not as such have limitations on stuff. I have yet not presented an idea or a material where I have said: “this could be really interesting. I think it would be fun to try out.” And then received a no. This is one part of it and regarding developments it offers freedom, freedom with responsibility of course but you get motivated and that motivation rubs off on the designers that we work with. Luckily they have all indicated that they think it is great working with us because something happens.”

Company A (1)

”Education is dealt with on a case-by-case basis. To a great extent it depends on what people think they need and the once in a while people get sent off. If I feel that someone has a need.”

The employment relationship turnaround has focused on elements such as seeing the employees as a source of innovative ideas as well as trying to develop employee competencies. Both elements support the aim of applying learning and new knowledge to the products through social and psychological processes. The quote below further develops this new approach to HRM by indicating that the employees are flexible and willing to handle unfamiliar and cross-functional related job activities.

Company A (3)

”There is much flexibility and will to take on assignments which lie within ones area of capabilities. To perfect yourself. This is really a form of development which makes us capable of doing other tasks. It is a modern way of thinking; to have challenges to solve. This might not be my specific problem but perhaps I have the best foundation to enter this area for resources or timewise reasons at the present time. You are not being pressured and are not being told what you need to do. It is more the case that you choose to develop yourself because you feel you lack knowledge or have an interest in the subject and say “I want to develop this aspect of myself”. The attitude is that the people who are here should be raised to a higher level the more people joining. This needs to be done in order to ensure that the spirit penetrates but also to keep motivating the people who have been there from the beginning and who have a different knowledge than a newcomer.”

The quote also indicates that the employees work with their brains as well as their hands in trying to support and develop the company.

Company A (2)

“The message I would like to get across is that you are a part of a team and if there are important issues you have a responsibility to educate yourself to cope with them. You need to explore new areas and see new opportunities and say “ that looks interesting, could we perhaps...” . This is the case in the development of our products, cooperation with our stakeholders, attendance at trade fairs or own post- and further studies. The decisive factor is that you show initiative instead of being constantly passive and wait for orders on what to do. If we are not able to develop our skills in our field, it will not be possible for us to stay innovative. I am very privileged in the sense that I have never been restricted in carrying out my job. Although there of course are assignments that need to be solved, we have been granted with free rains on how to solve them. We value people who can develop themselves and take initiative to solve the assignments on their own. The freedom can have the reverse affect though, when employees venture into

areas where they have not got the sufficient competences. In these cases the flexibility and mobility can become a challenge.”

As illustrated by the data, company A emphasises aspects like team and cross-functional activities in a flat structure with high levels of flexibility in assigning different tasks and an ability to combine and relate known elements in new ways as to create innovation. The teamwork is organised from an individual point of view implying that each employee has to take the initiative to start teamwork activities. When taking these initiatives and starting teamwork activities, the employees are supported by open access to competency development. The employee perceives these team activities to be based on trust and freedom and pointing directly toward a higher product development and innovation level. This kind of HRM approach creates incentive and compensations as the employees consider themselves highly motivated. Elaborating on the data here, I claim that the HRM approach behind these quotes can be related to a flat and flexible structure which is open to cross-functional activities. Likewise, competency development and learning are emphasised as means to support the transformation process toward becoming innovative. The learning and competency development is actively supported through on-the-job-training in terms of product development activities, cooperation with stakeholders, participation in exhibitions and through participation in external education programmes. A few more examples of on-the-job-training and competency development follow below.

Company A (4)

”Training and education mainly occurs through the job and it is being maintained through my work. There are of course plenty of situations where you feel that you could do with some more training. At times when it feels completely impossible to find all the material and remember your basic knowledge, a training course might be useful to get you started again. To avoid starting from scratch on every new assignment a training course can help you to stay on and remember the theory of the level of expertise you have.”

“If I found a training course which would be useful to me I have no problems with it. It would have to be a relevant course to the work I am doing. The tone of the company is very relaxed and not filled with hubbub.”

Company A (2)

”I have taken the education to become an innovation leader but as we usually are very busy, we rarely talk about educations or ask those questions. I have taken training courses and took the innovation leader education as I thought it was interesting and I believed I could benefit from it. Internally we primarily work with the learning by doing strategy by talking to many different people about many different things. By doing this, we learn a lot and that is part of the product development process.”

Company A (3)

”We have yearly employee development interviews where we evaluate if the employees have the preconditions for handling the tasks of the company. We then determine which competences they need to develop and how they can do that. Methods to develop their skills include everything from training courses to external experiences in other businesses to get an idea on how others are handling the same issues.”

This company quite clearly understands the potential benefits which can be gained from seeing a connection between HRM activities and the business strategy. The following quotes exemplify how this company links the two phenomena.

Company A (2)

“We are in charge of our own areas and are thereby responsible for our own development of competences. That you yourself are in charge is a fundamental thought which is repeated throughout all matters in our company. I think that this relates well to the philosophy that employees are the most important strategic tool to reach our goals. Our managing director is keen to preserve our flat business structure to be able to discuss matters and cooperate across the company and I think this structure works very well.”

Company A (3)

“I think there is an interesting interaction between bringing product development, marketing and sales together. We need this to understand how the market is developing, what our competitors are doing and how we should react to it. To be involved in matters where you only have your skills in marketing and as a private person makes it very interesting to deal with. It is interesting to be part of these processes and it makes you develop and become better at competent sparring. This strategy is effective to follow but also necessary in many contexts. I think we have followed it because we are a very tightly knitted team. We have had the same visions from the beginning and have fought for them together. We have a common understanding and we know where we want to go which also is something that we have addressed recently. We need to look at the strategy to revise the original strategy. We have fulfilled many of the original goals which make it time to set some new.”

As these data show, there is a close link between HRM activities and the idea of strategy and reaching a competitive position in the market. The company links these elements by seeing the employees as the most important strategic tool and believing that it is through the employees that the company will be able to reach its strategic goals. Likewise, the company has a focus on involving the employees in cross-functional activities and strategy development as well as strategy implementation. The company really expects and experiences that its employees work with a deep understanding of what is believed to be the best interest of the company as they fulfil the business strategy.

The data show how developing competencies and learning abilities is related to applying new knowledge to the product development processes. This transformation is based on developing the company's economic, social and psychological processes. That is, company A changed from a relatively hard HRM contracting form to the current soft HRM contracting form. The contracting form in company A is, in relation to many of the underlying concepts, in good balance with the theoretical concept of the high commitment HRM approach. According to the data, company A also links its HRM activities to the business strategy.

4.3.2 HRM related data from the two small companies (B 1 and B 2)

In this section, I will present the data related to how the two small companies have addressed the HRM approach as a potential way to transform their businesses. The company sees a link between strategy and HRM activities as this quote illustrate.

Company B 1 (2)

”HRM is very strategically planned. New employees receive an introduction course which gives them acquaintance of the tasks we do and which lines of business we cooperate with. They learn our system of quality control and I introduce them to what kind of business we are and what our corporate culture consists of. I am able to prepare them in many ways and this is all done within their first month with us. Everyone attends a measuring course and we present them with many professional competences and theoretical and practical aspects of our activities. Our products are very complex and include a lot of math. We have a very systematic approach to our training and competence development but it is also very resource demanding. All of our training and education is done internally as it is difficult to incorporate external help. It has not been custom to take management competences as serious as professional competences in the past. However, we have now started to take a different approach in order to make management competences just as vital as all other competences required for our company.”

As the data explicitly tell, the company is focused on linking HRM to the business strategy. In practice, this is accomplished by training the employees in the internal production systems and the organisational culture as well as the employment of a systematic approach to competency development in relation to professional skills and management.

Company B 1 heavily emphasises developing employee competencies (training, informal learning and development) and expects the employees to work with their brains as well as their hands as this quote illustrates.

Company B 1 (1)

”There are many areas where we wish to perfect ourselves and we are very open to employees who wish to educate themselves. We will agree to any training, as long as we can see a purpose by doing it. This is the case with both full-time permanent and hourly paid employees. We are happy to admit employees to both short-term and long-term training courses but at the moment this is being done on a case-by-case basis.”

Company B 1 actually recognises the employees as important sources for developing the company and wants to retain the employees in the company through social and psychological processes as the following quotes explain.

Company B 1 (1)

”We are highly developed in our views on human responsibility and involvement and this has been under continual development in the past three to four years. We have received an award from the Ministry of Social Affairs for the work environment we offer our employees. We are continually trying to treat our employees in a way which makes them enjoy coming to work and which makes them feel there is a good working environment. We do this by offering them what we can and by treating them well and give them self-determination in the daily work. Obviously, we need them to do their work but we also need them to take control of the planning of the work and order home the tools needed. We are trying to address this more.”

Company B 1 (2)

”There are many different leading tools which are important. It is the employees we depend on, we need to motivate them to perform even better. The ideal situation is if we can get the employees to come to work happy and not wanting to leave again.

We have given our employees many competences, authority and responsibilities and they will get even more in the future. We also need to make demands of our management or it will start going the other way. Our way to survive is by having a good and competent management.”

The data show how the company focus attention on developing the employees through social and psychological processes like self-responsibility and involvement. Having employees who are

motivated, empowered and interested in understanding how to support the strategic and general development of the company is more important than the level of their professional skills. Extending on the data allows me to argue that the company focuses on the employees' well-being and how management can support that as a way to become more innovative, to reach the strategic goals and to develop the company in general.

In sum, the data illustrate how company B 1 has addressed HRM theoretical concepts in its struggle to transform itself towards an innovative approach. These concepts can be seen as logical related to the two propositions addressing how to transform toward an innovative position from the perspective of HRM.

Company B 2 has also addressed the employees in terms of social and psychological incentive and compensation programmes and it has a flat and organic structure as these quotes demonstrate.

Company B 2 (3)

"We are working on a basis of self-governing groups. Guidelines on what they must consider and make decisions on and how far their authority reaches have been drawn up, but they should be able to take charge themselves. They need to inform us if there are any major deviations so that we are able to make contact with the customer. However, as a ground rule they should take care of as many problems as possible themselves."

Company B 2 (2)

"The structure of our organisation is the flattest I have ever experienced. We do not wish to have supervisors in the production – there is no room for that. We do not want the distance between the employees and the management to be too large either. The employees should feel that it is easy to come to the management and should not feel there is a barrier between the management and them."

The incentive and compensation activities revolves around high levels of self-responsibility, cross-functional team relations, the ability to act self-initiating and the processes are fulfilled in a respectful, equal and organic atmosphere.

The employees are satisfied with working in company B 2 and they contribute with ideas and new knowledge which not only enlarge and enrich their job activities but also develop the company as demonstrated by this quote.

Company B 2 (4)

”I do not know, there are several ideas and everyone are great at getting lots of ideas. It has been said several times that the company should not be getting any bigger. It will not be as fun if we get too big. But something always seems to come up and change that. It is all interesting work though, it is a great work place and there are many good colleagues and this is worth more than the salary. You have to be able to get up in the morning and not be annoyed that you have to go to work. I would not trade. I think most people feel the same way. Of course everyone works here because they have to make a living but the atmosphere is good here. There are times where it is necessary to be strict but it is mainly fun and relaxed. There is a healthy banter which makes the atmosphere more relaxed.”

This quote relates to how people in this company often come up with good ideas which will positively affect the innovation level. Interpreting these data, I will argue that there is a link between the incentive and motivation activities (mentioned above) and the employees’ ability to generate new ideas and new knowledge in relation to produce process innovation and general development of company B 2. That means that the employees work with their brains as well as their hands in the best intention of transforming the company towards being more innovative and thereby competitive.

However, when asking interviewees in company B about the role of formal training and education, the answers are more reticent.

Company B (2)

”We have never been bothered with training, not on the technical side of it or in relation to the management. I cannot really see how it is related to business development or innovation. We have never used training, what we have has been created by experience and the will to make it succeed. The experience with the machinery and the technology

and knowing what to do and when, is what matters. We have used this experience to develop the company. Our employees are also a part of the company and the development. What we have done and the will to take on that risk is not something you can learn from a book. If what we have accomplished had demanded that we studied to learn how to do it, we would never have had the courage to go ahead.”

The only kind of training and education conducted in this company (B 2) is on-the-job-training as this quote illustrates. There is no formal or external competency development; however, the internal on-the-job-training is expressed by risk taking and through dividing and sharing the experience and knowledge already present in the company. Still, this kind of competency development requires good and respectful relationships between people in the company which again can be related to the general atmosphere within the company as the following quote also shows.

Company B 2 (1)

“We handle the training and competence development of our employees ourselves with our own machinery. The machinery and equipment at the technical colleges are dated so we need to do the training on up to date machines. We do a lot of on the job training and whenever we get new machines we get training in how to operate them from the supplier. But we mainly learn by doing the jobs and handling the machines. And the employees help each other by training each other, which is part of our ISO quality control manual.”

These data show that external and formal training or competency development is de-emphasised and that internal on-the-job-training is emphasised but based on an ad hoc approach.

Company B 2 does not link HRM activities and strategy for the simple reason that it has no strategy as the following quote demonstrates.

Company B 2 (1)

”I have never made any strategies. I did not initially think that we would be needing people from the beginning. But we had to realize that with the mass production we were doing you need big clients and you need to be a fairly big company. We have not got any marketing strategy either. We have nothing written down of these things – nothing.”

It is quite obvious that the company does not focus on strategy or believe that having one makes any difference. As it has not prepared a business strategy or a market or sales strategy, it can, for obvious reasons, not be linked to the HRM activities. Based on my theory in general, it is surprising that management does not believe that strategy makes a difference. Other companies in this case study and in the pilot study as well have had to face the reality of not having a written strategy even though all of them wanted to have one. Here, company B 2 differs in terms of neither focusing any attention on creating a strategy nor wishing to do so.

The data from company B 1 indicate that HRM activities have been and still are in focus and that these activities are linked to the strategy of the company. Likewise, the HRM work addresses several of the HRM related concepts for a strategic HRM approach, implying that company B 1 in fact has developed towards a more strategic based HRM approach as part of its transformation process. As for company B 2, a different picture emerges although this company does have a clear and unambiguous focus on HRM activities such as social and psychological incentive programmes and a flat and organic hierarchy. This approach has supported the transformation process within company B 2, yet the company has no formal training and development activities and there is no link between the HRM activities and the strategy due to the straightforward reason that company B 2 has no strategy at all.

4.3.3 HRM related data from the two medium-sized companies (C 1 - C 2)

Now I will turn to the two medium-sized companies as to present data related to how they understand, relate and work with HRM in terms of the transformation process. Starting with company C 1, the following quotes indicate that the company attaches great importance to elements like valuing the skills, ideas and knowledge of its employees in a decentralised and organic structure as well as to developing employees' skills as a part of an incentive and compensation programme.

Company C 1 (2)

"We have chosen to give our employees full responsibility and competences and trust them to do a good job. It has to be the right people. In return, our company structure is flat. They should not hear from us if they make any mistakes. They are good at asking

us our opinions and views which feels good. And it also feels good to keep working with what we like. The attitude to the employees is really important. We do not wish to make a manual of how the processes, quality and attitudes should be either. We would rather meet the employees on their level and create a business culture which focuses on changes, flexibility and the ability to take initiative and thereby support further developments.”

Company C 1 (4)

”People say this is an attractive place to work and I think it is the best place I have ever worked. Whatever it is that makes it so must be maintained when we develop further. I think that it is the will to delegate the assignments and the responsibility and to see people rise to the occasion which makes a difference. I have done that myself and I have enjoyed that you are showed confidence. At the moment we are trying to become more accurate on what the difference is and to determine our business culture and spirit.”

Company C 1 shows confidence in its employees by allowing them to decide how to solve all kinds of organisational problems. It tries to avoid impact from rules and procedures and it is legitimate to make mistakes, recognised by management as inevitable to support product development and innovation. Also supporting the product development is the company’s aim of creating a culture which is based on flexibility among the individuals and its emphasis on self-initiating change processes which can support the general development of the company. The employees recognise the company as a great place to work due to the general contracting form which can be explained by high levels of trust, empowerment and influence on how to solve the day-to-day tasks. These elements signal informality, decentralisation and cross-disciplinary learning and knowledge creation through social and psychological processes. Extending on these data, I would claim that this company is based on a strategic HRM approach.

Company C 1 is biased toward change and innovation and it is conscious of the role played by employee treatment and HRM activities in that respect, e.g. in terms of developing the employees and their skills and competencies by activating both their hands and brains. This is illustrated by the following quote.

Company C 1 (1)

”We are known for choosing untraditional solutions as we cannot just do what everybody else is doing. We have always had a reputation as being able to change and improve ourselves and do things differently. This is of course connected to the fact that we have employees who have brought their expertise from other companies and have done the jobs before. We have never done it differently and we have not made any changes here. We believe that if we do not take on the jobs and try them out we do not get any better, whether it might be by assembling, in sales relations or in developments. Things have to change all the time and some might think that it is constant changes and it kind of is too.”

As this quote shows, Company C 1 focuses on how to develop the relationship with the employees in an attempt to continuously develop the company. It does so by focusing on well-skilled employees and by continuously investigating how to change and develop the current product or process. It is as if the overall aim is to become more knowledgeable and thus develop to a higher learning or understanding level, no matter whether it is concerning the individual, the product or the process. Interpreting these data enables me to claim that such an approach interacts heavily with the high commitment and strategic HRM philosophy.

Even though external and formal training and competency development do not seem to be part of the HRM contracting form in company C 1, the company nevertheless has given some consideration to linking strategy to HRM and it wants to increase its focus on formal training in the future as the following quote shows.

Company C 1 (4)

”We have not worked well enough with training and competence development and we have therefore included a HR employee to identify what we need and what courses we can benefit from. We have become aware of this very recently as we had difficulties recruiting new people. As a consequence, we need to educate the people we already have when we cannot get new employees to do the jobs. We have recently changed our strategy which the management evaluates once a year. We agreed that we need to have HRM included in the strategy both to ensure the right competences but also to get HRM

to support our strategy. Right now our HRM activities work really well and there is a low staff turnover. We believe this is due to the freedom the employees have and that this is a company with a strategy and a plan. We inform our employees on the current situation and how we expect the future to look like for us every three months. People appreciate this and we get many uninvited job applications.”

The company becomes increasingly explicit in its approach to external training and developing activities and the management is organising a HR department to ensure that the intentions are realised. One of the main intentions is to support the business strategy with an explicit HRM strategy focusing on competency development. Company C 1 has basically been addressing many strategy based HRM activities in connection with the last years’ ongoing transformation process towards being more and more innovative, including creating a free and trustful atmosphere relying on the strategic and high commitment HRM philosophy mentioned above.

When it comes to company C 2, the approach to HRM is different as company C 2 over the last years has changed its HRM conviction and contracting form due to things like a higher hierarchy, a more divided functional structure and more management in general as the following quote illustrates.

Company C 2 (5)

”During the 1990s and towards year 2000 the situation is definitely related to how the CEO of the time was. There was a flat business structure no matter if you were a manager or what your job function was. Everybody shared offices and you could easily phone the CEO and he would be right down. If you were not already aware that he owned the company there was no way to tell. This was a big argument on how far a flat business structure in management could take your company.”

The original flat structure was based on the conviction of the then CEO as he had organised the company in a much more mutual form based on flexible and organic structures. At that time, the employees were proud ambassadors of the structure and the HRM contracting form. It is during the last five years that things have changed toward a more centralised and lateral HRM thinking. One example of this more structural and systematic move toward HRM can be seen from the well-

planned approach to formal rules and procedures governing employment relationship as expressed in these quotes.

Company C 2 (3)

”We have started using Lean and I believe we are going to do this in the next couple of years as there are many things to deal with. It is important constantly to know what your employees need. It is necessary to secure the right business methods and procedures. Our warehouse manager has a master in administration which is a peculiar education compared to the job he is doing. He is extremely good with the administrative, the systems and structures etc. and now he is warehouse manager although he might not be the best to get people started. In my opinion Lean is going to be the key the next year. The intension is not to make it into a religion but to understand what lies

Company C 2 (2)

”What the CEO has started has had a logical coherence between the development of the company and the construction of a formal management in the last years. We are trying to professionalise the organisation by structuring things. We need to determine what our key processes are and describe them so the employees know what to follow. We develop procedures and describe them and learn how well we are following them or not. We also have plans to hire a quality manager to build a quality control system which describes the procedures and is used to learn how to follow these procedures.”

I believe that these quotes signal a classic economic way of thinking in which the employees are seen as a cost which needs to be minimised as a way to maximise profits. For instance, the focus on right and logic business processes, structures and systems suggests that employees are considered a resource which can be planned and optimised like other more classic economic figures. In company C 2, one of the respondents talks about a professionalisation which also supports the idea that the company at present is searching for structure and systems. Based on these data, it seems as if the company is chasing an aim of well-described rules and procedures which the employees then are supposed to follow. It is the internal labour market approach which addresses formal rules and procedures as an effective way to govern employment relationship when the aim is to maximise the

production output. However, that means limiting the employee's ability to contribute with new ideas and new knowledge and further on limit the innovation ability as this quote also illustrates.

Company C 2 (2)

“There is a professionalisation when we take a part of the organisation and measure its performance. Some of the companies are measured on team performance etc. and this is what we call a professionalisation. I believe this is our recipe to grow in to a larger company. It has its good and bad sides. The good part is that we are more secure in what we do as there are not so many cases which are dependent on one employees remembers to do a specific job. We also get increased security in how to do employee management, structures of employee conducts such as job descriptions, employee development interviews, hiring of new competences and other structures. We are very intentional in doing these things, much more than we previously have been.”

“The negative side of it is that there are many passionately employees in this company who do not approve of sticking to formalities. Many enjoys doing new things and do not think that it is very challenging to follow formalities. This is a challenge for us to understand how it can be a help to follow the procedures and formalities. It is a help because it gives you a scheme of things and it tells you how to do the job which needs doing after all. However, some employees are questioning if it does not just makes them fill out paperwork instead of doing the job.”

The professionalisation addressed by C 2 is about measuring on an increasing number of formal organisational elements which may create a high level of product quality and supply security. On the other hand, it de-emphasises the social and psychological processes of cross-functional knowledge and learning activities which are so crucial in relation to innovation. These data suggest that the HRM contracting form indicates an internal labour market which will limit the possibility of a non-innovative to innovative transformation process occurring.

Company C 2 has changed from having a centrally placed HRM department focusing on formality and procedures to having a decentralised HRM approach which each leader is responsible for as the following quote addresses.

Company C 2 (1)

“We had a HRM department with its own management. We used personality testing and journalisation with employee development interviews in order to have a certain central classifications. The department was closed down after a few years though. It taught us a lot. We did different tests and agreed that it was okay to analyse each other. This was in itself a changing of our culture and today we agree on that you are a HR manager when you are a leader and you need to have a central function which deals with that. In reality it is the most important part of your job. We do not have any HR function in order not to move focus and responsibility from any of the managers. This is a challenge as it gives some insecurity of the journalisation and coordination as it now is up to the different employees how they put it into practice. The management gets a HR role in the adaption of these things in this way. I would not recommend this way of doing it to other companies. I would prefer to have a HR department in order to secure that the basic was systematic and in order.”

It is important to recognise that even though company C 2 has departed from the idea of having a central HR department to ensure formality and procedure, the CEO here argues for the advantages of having this central and systematic approach to HRM. Consequently, in my opinion, the CEO believes the systematic and structural approach to be most efficient and therefore prefers an internal labour market approach to HRM.

However, in opposition, one respondent from the product development department argues that this company is becoming increasingly innovative and able to imbed more and more innovation in each product. This is accomplished by making use of employee skills and knowledge and thus, we see elements of linking HRM activities to the business strategy as the following quote speaks about.

Company C 2 (2)

“It has been a strategic area for us to gather knowledge and competences on how to build units in our products. Previously, we would have gathered the knowledge from Europe but today we make an addition to our key model once a year and our products are much more innovative. The depth of the innovation is much better as well. We have

developed much more features in our products today than we used to. It has happened much more incremental – I have always made a big deal out of developing employee competences to make them more innovative. Competence development is a pipeline for innovation in my opinion or it is at least in the development department which I am in charge of.”

Herein lies an interesting dilemma, namely the dilemma between the general organisation’s focus on structure and systems and the product development department’s focus on developing competencies in creating a more innovation based way of working. As the quote above shows, the product development leader has focused on competency development in terms of knowledge creation and sharing as a way to make the product more innovative; an element supporting the innovation ability through employee competency development. The company in general, however, has a more classic way of thinking and has no specific focus on training or competency development.

In general, the data indicate that C 1 has transformed their HRM contracting toward an increasingly soft approach and it is conscious about relating that to innovation and product development. Furthermore, C 1 has a focus on linking HRM to the business strategy and wants to strengthen this link and a formal development of the HRM activities in the future. The data shows that company C 2 has recently changed their HRM contracting system from a softer to a harder approach and in general, there is no sign of linking HRM to the business strategy. However, the product development department is the exception to the rule. As indicated, this department is in the process of changing its HRM contracting form to a softer approach and it works on linking HRM activities to the business strategy. Consequently, the data indicate that the product development department’s approach has supported the transformation process and that it is much closer to the recommendation of the HRM propositions than the general approach adopted by the organisation is.

4.3.4. Summing up on HRM related data

In general, the data from the micro company support the view that HRM has been an important element of the transformation process. It is possible to relate a majority of the data to a majority of the theoretical concepts within the area of HRM. The micro company (A) has experienced both a

change in the HRM contracting form (from hard to soft) and it sees and seeks to address a link between HRM and the business strategy.

The two small companies are similar in their emphasis on and transformation towards an increasingly soft HRM contracting form. The employees are recognised as an important source of innovation and both companies also perceive the development of employee competencies as important. However, they differ when it comes to more planned training and development activities and when it comes to linking HRM and the business strategy as company B 1 does it and company B 2 does not.

The two medium-sized companies differ in their approach to HRM as C 1 has deliberately used HRM as to develop its innovation ability and thereby to support the transformation process. Company C 1 is working on establishing a closer link between planned development of the HRM activity and the business strategy in the future. The situation of Company C 2 is different; that is, the organisation in general is changing their HRM contracting system toward a harder approach and it does not link this process to the business strategy. However, the product development department work in another direction; that is, it is focusing on developing a softer approach and it considers it important to link it to the business strategy. As company C 2 has transformed into a more innovative based company over the last years, the transformation process must have been supported more by the work in the product development department than by the general activities in the organisation.

4.3.5. The HRM data related to company size

In this column regarding how and to what extent HRM (through proposition 3 and 4⁷⁸) has been used in the five case companies as to support the transformation process, the data indicate a relatively homogenous picture. The exception from the rule, however, is company C 2 seeing that the company in general does not meet proposition 3 nor proposition 4.

That is, four (A, B 1, B 2 and C 1) out of five companies meet proposition 3 as they in their transformation to innovative companies have changed their HRM contracting system from a hard

⁷⁸ Proposition 3: The transformation process will be supported by changing the HRM philosophy from an internal labour market (hard) approach to a strategic HRM (soft) approach and proposition 4: Linking the strategic HRM contracting system with the business strategy will support and develop the transformation process.

internal labour market approach to a soft strategic HRM approach. Regarding proposition 4, company B 2 join company C 2 by not meeting this proposition because company B 2 does not have a business strategy and therefore for good reasons cannot meet proposition 4. However, the three remaining companies (A, B1 and C1) all meet proposition number 4 as well.

Company C 2 take up a rather special position as I interpret the data regarding C 2 as if the company earlier had a soft HRM contracting form and that it changed it throughout the recent years to a much more hard contracting form. The company has done so because it tried to raise the product and process quality and to increase supply security. However, the product development department has, in opposition to the company in general, undergone the opposite transformation process. The product development department has actually in the recent years changed its HRM contracting form from a hard internal labour market (engineering based) HRM approach to a soft strategic HRM approach. That is, the product development department does meet both proposition 3 and 4 as it is working on linking the HRM approach to the business strategy as well. In my opinion, that is a distinct and strong support to the theoretical propositions because the product development department is the main department for product development and innovation and when it changes its HRM approach in line with both propositions and contrary to the general transformation within the company, it must be a strong indication that changing in agreement with the propositions really is the right way to transform from non-innovative to innovative. I interpret the fact that the product development department in a way bypasses the transformation within the rest of the organisation and makes its own as a clear indication of how a transformation toward more innovation is in line with following proposition 3 and 4. Therefore, I will argue that C 2 (product development department) meets the two propositions to a certain degree.

Having the special case of C 2 in mind and arguing that B 2 cannot meet proposition 4 without a strategy (but recognising that B 2 meets proposition 3), I will repeat the introduction to this section by saying that all five case companies, despite size, have changed their HRM approach as to support the transformation between non-innovative and innovative. I believe that there are two main reasons allowing me to perform this extrapolation of the data.

The first and most obvious reason is that the two theoretically based propositions actually explain valid ways to support the transformation of an SME from non-innovative to innovative. The second

reason is, in my opinion, part of a more general trend addressing some kind of a movement from a more hard approach to a more soft approach. This movement can be explained by the general movement in the western business society from an industrial paradigm toward a knowledge and innovation based paradigm.

4.4 The case study data related to the strategy propositions regarding the transformation process

Two propositions were formulated regarding what kind of impact strategy has on the transformation process from non-innovative to innovative SMEs. Before reviving these and further examining the data, I will shortly state the main theoretical concepts as to establish what the data is going to be related to. Reviewing the strategy literature, section 3.5 defines strategy as a long-term plan for how to create a scope and direction for an organisation to create competitive advantages.

In the literature, the dichotomy between non-innovative and innovative SMEs is mainly addressed by claiming that innovators approach strategy more explicitly, directly and on a longer term. Innovative companies often have a written and well-articulated strategy which focuses on how to develop more innovations. Innovators also follow a self-fulfilling prophesy track implying that believing themselves to be innovative actually makes them more innovative. Non-innovators often lack the ability to address a longer term and strategies are seldom neither written nor focusing on innovations; more likely, they are unstructured thoughts in the mind of the CEO. These circumstances could be the reason for non-innovators being so bad at seeing, approaching and adopting value opportunities in the market.

By using the Miles and Snow strategy concept, especially two strategy types are interesting in relation to this thesis; the defender (representing the non-innovative company) and the prospector (representing the innovative company) respectively. The defender strategy is characterised by its focus on a limited market segment and on defending status quo in relation to its product, market and customers. Therefore, the company seeks to optimise the well-established production flow through complex structures and control systems. However, this enables the defender to deliver a top-tier full scale service at a competitive price. In many ways, the prospector is characterised by acting in opposition to the defender as it focuses on innovation, searching for opportunities in product, service or business development. This happens in a cross-functional, flexible and decentralised

structure as to be able to scan and challenge all market opportunities continuously. The prospector is capable of changing the production setup quickly; conversely, the production is not aligned on a maximum efficiency level. Likewise, the prospector faces a challenge in terms of dividing the available resources between exploring new opportunities and exploiting the production activities.

When a company transforms from a defender to a prospector strategy, it will usually initially change the entrepreneurial domain (change the product or service) to accommodate new market needs. This new direction in the entrepreneurial domain triggers adjustment changes in both the engineering and administrative domains. These decisions will increasingly raise the impact on the three domains until the company achieves a new alignment as a prospector.

From these headlines and concepts within the strategy theory, I will now list the two propositions (reproduced below) regarding the transformation process in this area.

P5: The transformation will be supported by development of a written and explicit long-term well-articulated strategy with attention on innovation.

P6: The transformation process will be supported by initiating an adaptation process changing the entrepreneurial, engineering and administrative domains towards a prospector strategy.

It goes almost without saying that strategy has a vital impact on and relation to the research question. As the research question addresses the transformation process from non-innovative SMEs to innovative SMEs, strategy becomes a central and natural theoretical area to relate to. That is, strategy is per definition about creating a longer term scope and direction for how to develop the company. Regardless of what the more detailed content of this strategy is (whether the focus is growth or the opposite in terms of a more narrow focus), the idea of developing the company has to be related to some kind of transformation. This is precisely the reason for strategy being an important part of the theoretical construction in relation to this thesis and due to the research question, the focus is concentrated on the kind of impact strategic activities can have on transforming non-innovative SMEs into innovative SMEs. The literature (Gellatly 1999, McAdam et al. 2004 A, Panne et al. 2003, Mosey et al. 2002) is rather strong in its support to the advantages

of having a written and well-articulated strategy. There are significant differences in profits and ability to create innovation depending on whether or not the strategy is explicitly written and well-articulated. That is the main underlying argument for formulating proposition number 5 as I propose that the insights within the strategy literature can be used to expect that transforming a non-innovative SME into an innovative SME can benefit from deliberately writing down an explicit plan for how to fulfil the aim.

Proposition number 6 is based on Miles and Snow's (2003) strategic typology and addresses four different strategic convictions. Two of these strategic convictions are rather non-innovative in their approach (reactor and defender), one is (analyser) a hybrid between non-innovative and innovative and one is (prospector) based on the idea of creating innovations on a continually basis. The idea behind proposition 6 is that the transformation process between a non-innovative and an innovative position can be addressed by companies who deliberately change from one of the three none or less innovative based strategies into the innovative based strategy conviction or approach. Miles and Snow talk about an adaptation process going from one strategic conviction to another. It is this adoption process that this proposition relates to when talking about a change in the entrepreneurial, engineering and administrative domains as a way to support the transformation towards an innovative SME. In the following sections, I will present data from the five case companies which somehow can be related to the transformation process from a strategy point of view.

4.4.1 Strategy related data from the micro company

Below, I will present the relevant strategy based data from the company A respondents. The first quotes focus on developing a written strategy and using it in the development of the company. Company A does that by looking at the internal resources and external opportunities and from these analyses, they prepare a written strategy. The quotes also indicate that the strategy became the starting signal for a transformation between a non-innovative and an innovative position.

Company A (1)

X presented some ideas which he knows that the designers have in the drawers. Some of the ideas were rather far along in the process of development, but had then been stopped. We made a course of strategy with our sales manager X and me. We were on a hotel in Vejle to figure out what we were going to do in the future. What do we have

ourselves? Y is a competent salesman, X is a competent designer/product developer and I could do something within the areas of purchase and marketing. We have some contacts in China and then the idea comes. What needs are in the market. We believe that design is the future, we can produce design cheaper than anyone else because all design companies produce in Denmark or Italy. Not all of them do this, some also buy. Their products are a lot more expensive so what we hooked on was to create a thing like Ikea, but cooler. I could not be too cheap, because then it would be uninteresting. Here is where the idea is born. If X wanted this all along I do not know, but he was very satisfied with our decision. We start developing at full blast; we are working on a lot of projects. We go ahead with the proposal we made in Vejle.

Company A (2)

The strategy is crystal clear and we are at all times aware of where we are going and by what means.

Company A (4)

We have been following the strategy for a good way – of course we have made some changes – but for the greater part yes. A part of our strategy is that we have said that the quality of the product itself is higher than what can be expected considering the price. And that is also part of our objective. This is what we have promised the customers and therefore we need to make sure to provide it.

The written and well-articulated strategy plays a role in guiding the employees and the company toward future goals. Simultaneously, the interpretation of strategy is open for emergent impact from the environment. If I extend the data, I will claim that strategy equals innovation as it speaks about supplying products of a higher quality than suggested by the price. The strategy also helps the employees reach a common understanding of the vision and actually act in relation to the strategy as the following quotes demonstrate.

Company A (3)

The strategy is good to steer by and necessary in many cases. I think that we have been fighting for the same visions from the beginning, because of the fact that we are such a

closely connected team. We have a common understanding and we know where we want to go, which is something we also took up recently; we need to open up the area of strategy again in order to revise the original strategy. We have actually met many of the goals within the strategy so we need to set some new goals.

Company A (2)

We have some key points to go by. The strategy is really that we have some milestones concerning the development, which we can always steer by. It is quite plain that when we look at the list one can reach a point where we say: "Right here it is perhaps just on the border. What the blazes do we do?" But basically our strategy hit the gap in the market that we wanted it to hit. We clearly hit the gap we wanted to. Very precisely and with 300 kilometres per hour.

The link between the written strategy and the practical application is created through an ongoing relation to the specific formulations of aims and projects within the strategy. If I extend the data, the employees also discover a self-fulfilling prophecy as they believe in their ability to reach a certain position in the market and to develop the company in accordance with the strategy.

The following quote shows how a characteristic change and transformation have occurred in this company.

Company A (1)

Then we finally decide to close down the factory and sell the outdoor business to company Z. We sell everything, close down completely and move to Aarhus. We move the workshop and machines and close in Aalestrup in April 2005. Some people were fired along the way, also when we came to Aarhus. But everybody who got employed during my time in Aalestrup was at all times supposed to come along to Aarhus. That is X, P and Z. All three of them were told that this is what it looks like right now, but it was not what they were going to do in the future, because changes would be made. Then we employ additional people, go ahead with the product development, build up our production in China, keep an eye on the quality and we have come a long, long way. We get two new production partners. It is crucial that we have the workshop so we can

test the ideas. We can make everything. Some designers bring something that is completely done and some must be managed by X.

The last part of the quote above where the respondent says “we can make anything” is another example of the self-fulfilling prophesy as this company really believes in its own ability to develop into a more innovative position. The company follows the strategy of becoming more innovative by working with testing new ideas coming from new knowledge and learning processes. Necessarily, this behaviour must also address some changes in the three domains (entrepreneurial, engineering and administrative). The company has first of all changed the entrepreneurial domain by literally closing down the old plant and building up the company in accordance with the strategy which is about creating new products as mentioned. Creating new products by internal trial and error processes and together with external partners is basically what a change towards the entrepreneurial domain is all about. The next quote follows this line and addresses the transformation process.

Company A (1)

We have in actual fact overcome the barriers we have met. There are barriers to being innovative, but we have been in a completely unique situation, we have in a way received carte blanche from our owner. He did not exactly say: “Make the business as you think it should be”, but that is what happened. It was a huge barrier to close the old one down. When I am out to tell the story people think that it is a lie; you cannot just close down a company. To relentlessly clear out in something established is a barrier and to fire all those people because they would not be of any use in the new scenario is a barrier. It is not fun, but it is necessary.

The next quote underlines the fact that an explicit, written and well-articulated strategy can create energy and motivation but also that it from time to time is a challenge to work under such conditions.

Company A (5)

It was a radical change for me to work here. Sometimes I think it is completely out of proportion to keep putting money into something and keep believing in something. To me, another world is the mainstay. At the same time it is extremely educational. I have a

deep respect for the visions, the enthusiasm and the professionalism that lie behind. So for me it has been both frustrating, but also educational. Much enthusiasm, many fiery souls. Sometimes one can bear the most unbelievable if only the spirit becomes the mainstay. I like taking part in creating a design. You are taking part in creating something different.

Realisation of the strategy involves steep learning curves which create a fundamental empowerment and enthusiasm among the employees. If I extend the data, I would claim that this level of motivation among the employees must be in a reciprocal relation to the self-fulfilling prophecy as both phenomena support the transformation process towards gaining competitive advantages and becoming more innovative.

The strategy plan has been followed closely, however with a simultaneous bias toward bringing in more emergent aspects as well as this quote demonstrates.

Company A (3)

I will say that in some respects I think we run a little faster than we had planned and that is because some opportunities present themselves – and we have been talking a lot about it, if we should chase the opportunities that present themselves or if we should stick to the plan. There are pros and cons to both ways because some will think you are attractive and some that you are an idiot. We feel that we are a success because we did what we said we wanted to and we are on our way to something that is even bigger.

These data related to company A show how strategy has been an important part of the transformation process and how the strategy has directed the transformation and development of the company in several ways. Company A has a written and explicit long-term strategy and in many ways, it relates to innovation. The strategy is also well-articulated as far as everyone I interviewed was well aware of it and its aims and consequences. Likewise, there has been an explicit change in focus of domains as there has been a movement from the engineering domain to the entrepreneurial domain.

4.4.2 Strategy related data from the two small companies (B1 and B 2)

In this section, I will present the data from the two small companies, starting with Company B 1 and the first quote explaining why this company has formulated a strategy.

Company B 1 (1)

We have been working a lot with the strategy to make sure that the organisation also in hard times can work together and understand each others problems. From working with the strategy we also want to know where to put in an effort to strengthen the organisation in order to give a common understanding of where we are going with everything – and to determine what the company’s overall objective, mission and vision really are. To unify objectives of what the idea of it is.

The reason for this company to emphasise strategy is to create common insights, understanding and visions among the employees in relation to the overall purpose of running the company. The strategy is written and subject to an ongoing development as the quote below demonstrates.

Company B 1 (1)

We have a written strategy that originated from work that is a couple of years old so we are about to take it up again but it is a part of what is lying and waiting exactly now. That is something which the leadership group has taken ownership in, something the leadership group has taken part in formulating and something we have spent a lot of time on. The strategy work has given the leadership group a substantially better general understanding of why we do as we do. And we reach the objectives fixed in the strategy even though we do not follow up on it every month. It is hard to follow up on the entire time, but we actually reach the objectives anyway! However, in the leadership group we once in a while take a look at the strategy to make sure that we are doing what we are supposed to be doing.

The management group is responsible for formulating the strategy as to create insights into the link between strategy and the overall development of the company. Experience shows that the company actually manages to follow the strategy and reach the key points set up for the progress. However,

how well-articulated the strategy is in the management group and in the organisation in general is a more open question as these quotes illustrate.

Company B 1 (2)

There is not any strategic written material. We do not have a formulated strategy – we have what we call maintenance meetings. We have to know what we should invest in forward-looking.

Company B 1 (1)

We have presented the strategy to the entire organisation, but it is 2 years ago and it is about time to do it again.

It does not seem as if the communication about the strategy is effective; it does not reach all the employees and the information is given at long intervals. The company actually has a written strategy but not all employees know about it. The strategy work has in this case shown important things about the management group's understanding of the company as this quote demonstrates.

Company B 1 (1)

The work with the strategy actually showed that 2 people in the leadership group did not have a clear image of where we should be going and that actually surprised me a lot. They were not properly integrated in our company. They did not feel like a part of the leadership group. Today these leaders take more ownership and I can sense a lot more satisfaction.

Nothing indicates that this company (B 1) in the recent years has changed radically in the entrepreneurial domain; however, some changes have occurred in the engineering domain as well as the administrative domain as these quotes indicate.

Company B 1 (1)

The strategy among other things includes what we want to get done within the next five years production wise and employee wise. There are key figures, budget numbers and some growth objectives for all essential areas and some about what we can do, what we do and who our customers are etc.

Company B 1 (2)

HRM is very strategically planned – new people get an introduction course where they get knowledge of what we do and in which trades, they get to know our quality control system and I tell them a bit about what kind of company it is and what the culture is like. I can prepare them a bit in many ways – this happens within the first month.

Company B 1 is not changing in the entrepreneurial strategic domain in any radical way; more likely, it tries to gain advantages from having a written strategy. The strategy encompasses different key points referring to production, manning, on-the-job-training and efficiency measurements and may therefore be interpreted as a way to optimise in the engineering domain. If I extend the data from this point, I will argue that company B 1 has an element of defender strategy as it tries to optimise the production flow; however, the company is not defending a status quo in relation to products, market and customers. There are no signs of change in the strategic domains and the strategy is not well-articulated in the organisation. Consequently, company B 1 only meets the two strategic propositions in a simple aspect and that is by having a long-term written strategy. On the other hand, the strategy has no or only weak indications of innovation and it mainly focuses on the engineering domain.

Regarding company B 2, the following quotes clearly indicate that this company has no strategy and neither thinks that it is necessary or important.

Company B 2 (1)

I never did that kind of thing (strategy) before. In the beginning I thought that we should not really have any people to begin with. But we had to realize that it was necessary because of the sort of production we are eager to do. It is mass production and then you need big customers. You need to have a certain size. We do not have a market strategy in that way either. Nothing has been formulated about these things anywhere – nothing. We do not have a board of directors either. It is like this; we decide for instance that during the next 9 months we do not invest anymore money. And then 14 days passes and then the customer calls and says: “Have a listen. We have received some orders so we need to double these and these quantities.” And then we have to push a button and

buy another additional machine. We are too turbulent to adapt ourselves to sit down and make plans to do such and such. In my world it is definitely like this: plans are one thing and reality another.

As the data convey, the company has no business or market strategy nor a board of directors and if I extend these impressions, it is quite clear that the management does not believe in making plans for the future.

Another answer to my question of the company's plans for the future is provided in the following.

Company B 2 (3)

There is not so much of that. We have sometimes been in good time, that is when buying machines, and it is always here that it has been going to rack and ruin. Then we have brought it down again and that is just because we have been in good time. It is actually a bit hard to plan. Sometimes, in order to gain some time, they often postpone for a year or two. But they expect one to be ready in two months, when they take the decision that now is the time. Many machines have a delivery time of 6 months.

Planning for the future is not part of this company's organisational processes; actually, future considerations are limited to unsuccessful purchase of production machinery. In general, the management has difficulties in relating to the future and carries a history of bad experiences in that area.

Below, another two statements underline the weak focus on strategy and a very practical interpretation of strategy.

Company B 2 (2)

Our growth strategy is organised by our customers. We do not have any influence on that.

Company B 2 (4)

Yes, because the strategy is that a man can manage several machines, actually three to four machines sometimes.

As the quotes show, this company (B 2) has no formulated strategy and does not believe that it can facilitate innovation or development of the company in general. As the approach to product, market and customers indirectly conveys, the company has made no substantial changes in the entrepreneurial domain but has made changes in the engineering domain in relation to heavy investments in production capacity which have prompted minor changes in the administrative domain in terms of more pressure on the planning and staff handling department.

Company B 1 has a written, explicit and long-term based strategy. It, however, is not well-articulated in the organisation and it has no or only a weak indication of innovation. Neither do the data indicate any substantial changes in the domains implying that the focus remains on the engineering domain.

4.4.3 Strategy related data from the two medium-sized companies (C 1 and C 2)

Now, I will turn to the two medium-sized companies and present data related to how they understand and work with strategy in order to support the transformation process. Starting with company C 1, the following quotes indicate a great emphasis on having a written strategy and an intensive continuous work with the strategy.

Company C 1 (3)

We have held strategy meetings each year on Egholm. It has been a series of meetings. It can either be something specific like “now we have to make a strategy based on some objectives” or “now we are going to pour out a thing that we are going to concentrate on and have had a strategy seminar with the board of directors”. There are sales objectives and product objectives, but what was needed in order for us to reach a turnover of that size? We had a discussion of product, of manufacturing and logistics; what systems are needed in order to handle it etc. We also went through what competences we are missing and we employed 7 new top people, an international service manager and a product manager, because we were not that good at getting market and product needs to

match. Based on the meetings and analyses made at that time, a strategy proposal was made.

Company C 1 (1)

The first strategic plan was made in 95-96 and we started in 92. At that time it was just called a “plan”; we had decided that we have never been good at economy, business and sales. We got a professional board of directors or actually we first got a chairman who said that before finding the people and putting the rest of the board together we should figure out exactly what we wanted to do. We just wanted to rip along and make machines, but we needed to know which machines, how many and where to sell them. So we started figuring that out. It was about creating a plan; if you start building a house you also have an idea of how it should end up and that is what a company and your employees deserve too. If there is a plan for where we are going it also becomes easier. I can tell you that there is a lot who does not have it, even big companies that you thought would have it. But that is just the way it is. In the years to come 2-3 years went by the first time before we did anything about the strategy and had a look at it. Otherwise we have looked at it each year and last year we did a lot to it; we went out and looked at markets to see what our potential of sales is, what opportunities there are, what, how and where we can sell. We spent a lot of time on the strategy and it is great.

The company approaches strategy in a both systematic and consequent way as it addresses clearly defined goals concerning production, sales, turnover and the like. The strategy activities include thorough analyses and long-term considerations regarding competency development and recruitment. The board of directors plays an active role in incorporating analyses, visions and goals into the written strategy which undergoes continuous revisions as to match the market dynamics.

The strategy is divided into goals and sub-goals and it is well-articulated and communicated throughout the organisation as these quotes demonstrate.

Company C 1 (3)

Traditionally it started with how to reach some objectives and intermediate aims and for some of them we also moved around in the area of planning. The sales objectives were substantiated. That is; if we have to sell this many products, where, when and how? That is described. Here we have made some choices and sacrifices which is what we run by today. [What are the results of that?]. They are extremely positive. I, as manager of the marketing organisation, today have a much better opportunity to control because I know my objectives, the company's objectives and know the strategies.

Company C 1 (1)

There are some overall objectives and when you have created those and approved them, they are the law. The entire company will be informed about them and everybody knows that this is what we run by. But things develop a bit. Influences, that we cannot do anything about, we need to tackle those and say: "Does this change anything in our plan?" and of course it does. Things develop, go better or worse than we had expected. Reality always comes into the picture and pushes it a little around.

In the strategy, there is a solid link between the overall vision for the long-term (three years) development of the company and the short-term goals and sub-goals of the day-to-day activities. After the board of directors and a representative group from the company have framed the overall strategy, each department takes the overall goals and makes its own sub-goals and sub-plans to fulfil the strategy. The fact that the strategy is very detailed and the fact that the employees are well-informed about the strategy in general make a difference in the daily life. Leaders and employees know what the goals are, they know what is expected from them and they feel a positive support and empowerment by having these things clearly settled. In the process of operationalising the strategy, leaders and employees need to bring in emergent aspects and merge them with the planned strategy as to realise the whole strategy.

Another interesting element is that company C 1 focuses on innovation within its strategy and that it places great emphasis on the entrepreneurial domain as the following quote illustrates.

Company C 1 (3)

I believe we are innovative, which is of course modern to state, but I mean that a part of our strength is that we are small and active, we are fun to work with, we are easy to work with and we are extremely flexible concerning everything but price – we are an attractive collaborator. So I believe in it. However, in the end it is all about making money. If we do not deliver something that is different from what our considerably larger and stronger competitors deliver, something that is smarter, more innovative and nicer – if we are not able to do some things that they cannot figure out how to do, then we have a serious problem. We cannot make it as cheap as they do; we are a development dependent company.

The work in the entrepreneurial domain finds expression in the company's ability to be flexible and the explicit focus on creating something better and different than the competitors do. Leaders and employees depend on product development and innovation, not only in terms of money and company growth, but rather in terms of their own self-fulfilment making a difference.

Earlier, company C 1 has had a substantial focus on the engineering domain but this has gradually changed; currently, the entrepreneurial domain has top priority as the following quotes tell us.

Company C 1 (4)

Production is when you are welding and hammering etc. and we do not do any of that. Everything is outsourced today, but it was not when we had a machine shop with a foreman. This production does not exist today. That is because we focused on what we are good at and that is probably one of the most important strategic choices that has happened during time concerning choices that have really affected the entire company. We have been good at acknowledging the fact that we cannot be good at everything. Because back then the attitude was that if the others can do it at a certain price, so can we. But that is not a way to say it.

Company C 1 (1)

So you use a lot of resources on finding out that this was not the way to go, with own production. That is just the way it is and that is also how you develop, when we create

new products. And since we are a little famous for developing unconventional solutions, it will do no good just to go and look at how the neighbour is doing it.

There is a stringent strategy choice behind the movement in focus from the engineering to the entrepreneurial domain as the production is outsourced as to be able to focus all attention on the most central core competency which is product development.

It is also possible to see some elements of a self-fulfilling prophesy in the way people in company C 1 believe in their ability to create new products on a high level as the following data illustrate.

Company C 1 (2)

On management level we have a lot of skilled and creative people that have worked with me in the development and we have had wild initiatives where a lot have said that it was impossible. But we developed it – we just do it. The bar is high concerning new future products. And it has been proven that not alone could we do it, but it is also the basis of our success.

The data demonstrate a strong belief in the capacity for being innovative and for being able to develop the company (C 1) on that background. Extending these data allows me to claim that the company has shifted its focus from the engineering domain (probably a defender strategy) to the entrepreneurial domain. Still by extending the data, I will state that the company follows a written and well-articulated prospector strategy. The strategy addresses innovation through empowered employees who believe in their ability to realise a self-fulfilling prophesy by implementing the strategy.

Company C 2 also focuses on strategy formulation, development and implementation. However, it has at a certain point changed its approach to strategy and is in the middle of a process trying to become more skilled at exploiting strategy activities. The following quotes illustrate that company C 2 really struggles with developing better strategic abilities.

Company C 2 (1)

From 1999 and forward the strategy has been fully adopted and described at board of directors' level, but we have not been using breaking it down. On middle manager level they have been informed, but they have not been part of the process to the same extent until recently. However, this is connected to the fact that, concerning the change we made in 99, the decision was based on something non-existing. It was actually a U-turn. Until 99 we had been sitting year after year looking at whether we had 20 or 21 % in contribution margin and see if we could keep the costs 5 or 6 million below budget. You cannot really get anybody to think that this is easy to integrate with the logic that needs to be developed in order to be zealous to the products and focus on the employee's contribution to the development. This is something that needs to be done from above, but we have not been really good at organisational processes. I hope we will become better without getting it out of control.

Company C 2 (3)

We are working on what we call a controlled plan of growth, so it is not completely by coincidence, what is happening. We want to be larger and we follow up on it reasonably. We set aside money in our budget. 5 years ago we hardly had a sales department and now it is one of the heavyweights. So we are really out doing something and not by coincidence. The circumstances can be unforeseen, but we also bind in some resources. So in that way one cannot call it accidental. Now we are saying that we have grown 20 % and how did we do that then? We make a plan where we then risk some money and resources and put them into the sales department or the department of development. Then it can be said that now we must go out and turn our area up by 20 %. It is not accidental in the negative sense of the word, but a result of a planned strategy. The strategy is written down in form of notes as a working sheet. We have slogged with this thing for 1 ½ year and every time we have come together we have experienced that we are doing something completely different than what we busy ourselves with on ordinary working days. We have experienced that it has raised something and thereby it has been a good investment.

The first experience with strategy work was a plan mainly made and known by the top-level management and board of directors. No middle management or employees took part in creating or implementing the strategy. Over the last years, however, another approach to strategy has gradually developed. It takes the form of seeking to involve every relevant stakeholder and especially the employees. Currently, there is an emphasis on employees' relation to product development and development of the company in general as a way to focus more on long-term strategic processes.

Company C 2 works continuously with the strategy and it emphasises that it is a written strategy as this quote illustrates.

Company C 2 (3)

Once a year we make the new budgets and here I always make a plan of action. This states how much money, material and people I am going to need during the next year. The plan comes before the CEO, the board of directors, the production and me. We actually sit down and balance if we have completed the actions that we planned.

The strategy is written and explicit in terms of detailed references to specific resources and the amount needed. Similarly, there is close follow-up in relation to the implementation of the strategy as to determine to what extent the planned strategy actually has been realised. The strategy has also changed the way in which company C 2 addresses recruitment and the link between employees and the development the company. In parallel with the change in strategy approach, the management attracts new employees from a strategic competency point of view. That means that the aim is to support the development of the company through people's competencies and skills. If I extend these data, I will claim that this can be interpreted as if company C 2 is undergoing a transformation process of focusing more on human resources as a way to develop the products and the company (see the quote below).

Company C 2 (1)

I think that when I made strategy plans in 97 none of the employees were educated in what they were employed to do. No one in the portfolio had any background experience in what they were doing. But had it not been like that we would not have come to where we are today. It was because people had an iron will; it just had to succeed. They were

not there because of their records or student's cap. This changed and since 99 we have for 75 % of all recruitments employed people with an education or with a background of rising to a higher level in the company they came from.

However, Company C 2 has not been successful when it comes to articulating or communicating the strategy throughout the organisation.

Company C 2 (2)

We have had strategy processes in the form of meetings where we have tried to formulate visions, but it came no further than the debates and a fair amount of written material. It has not been communicated and informed clearly within the organisation. It is formulated as working sheets among the persons who were involved in the meetings so it functions rather as dialogues, conversations and a process than as a definite and concrete livelihood.

It is quite obvious that the company lacks the particular and central part of strategy implementation which is about communicating, articulating and informing about the strategy to internal stakeholders. That means that the strategy remains a top management level plan which has no general significance for how the organisation works and impact on the execution of general production activities. The company misses out on the full potential of the business strategy by being imprecise and insufficient in relation to the articulation of the strategy.

Company C 2 has a rather heavy focus on the engineering domain as the following quote indicates.

Company C 2 (2)

We are marked by an engineering culture where a lot of focus is on the production and at times a philosophy of zero faults rules concerning the things we do.

However, the next quote indicates that the company has a growing interest in and movement toward the entrepreneurial domain.

Company C 2 (2)

We build up knowledge and competence of how to build technological units in our products, which has become a strategic area for us. We aim at developing a new head/main model series a year. This means that the developing speed is higher and there is considerably more innovation to our products today. The innovation depth is much larger which means that we have developed many more features in our products today than we did earlier on. It has been happening very incremental – I have always made a big deal about developing competences of the employees so they will be able to create more innovation. Development of competences is to me a pipeline for innovation. It definitely is in the department of development which I am responsible for.

The focus in company C 2 has initially been heavily placed on the production in terms of product quality and optimisation of the production flow. In the recent years, however, more and more focus is placed on how to develop new knowledge and new competencies as to support product development and innovation. That is, the strategic focus increasingly addresses the entrepreneurial domain at the expense of or in parallel with the engineering domain. In the product development department, this trend is especially apparent and this department construes the incremental increase in innovation speed and dimension as a result of knowledge and competency development. If I extend these data, I would claim that company C 2 has undergone a transformation from the engineering domain toward the entrepreneurial domain. However, this is mostly valid for the product development department and not for the rest of the organisation.

Company C 1 relies on a written strategy which also emphasises innovation and product development. It has changed its focus from engineering to entrepreneurial domain thinking and it actually believes that strategy planning and implementing have made a difference in developing the company. In addition, the product development activities show aspects of a self-fulfilling prophecy.

Company C 2 has a written strategy but it is not well-articulated in the organisation and it does not specifically address innovation in the whole organisation. Although the focus has been on the engineering domain, indicators suggest a change in the strategic domain towards the entrepreneurial domain. This change is initiated and especially clear in the product development department.

4.4.4. Summing up on the strategy related data

Except for one company (B 1), all case companies have a written strategy and the data indicate that this strategy has supported their transformation processes. Company A has in addition supported its transformation process by working with the strategy in terms of heavy articulation, links to innovation and on a long-term basis. Moreover, the company has also made a rather radical change in domain focus from an earlier engineering to a current entrepreneurial point of attention.

The two small companies have obviously different approaches to strategy as B 2 has no written or formulated strategy and the CEO basically does not believe that there is a link between strategy and innovation or development of the company. In continuation, no data indicate any change in point of attention regarding the three strategic domains; company B 2 has had an ongoing focus on the engineering domain. Company B 1 has a written, explicit and long-term based strategy not explicitly linked to innovation and it also lacks the ability to inform and articulate these plans to the organisation. As B 2, this company (B 1) has not showed any action related to a change in strategic domain either as the focus remains on the engineering domain.

Regarding the medium-sized companies, C 1 has approached the strategy work by meeting all the theoretical concepts (and propositions); a written and explicit long-term well-articulated strategy with attention on innovation and an obvious change from the engineering toward the entrepreneurial domain.

Company C 2 is more divided having a written strategy which, however, is not communicated throughout the organisation and which is not linked to innovation plans of any kind. It is the product development department which has changed from an engineering domain toward an entrepreneurial domain whereas no data indicates that the organisation in general has moved away from the engineering focus.

4.4.5 The strategy data related to size

In this section, I will investigate to what extent the different company sizes (micro, small and medium-sized) are able to add more and new knowledge to this strategy column. That is, I want to

analyse if there are any differences in how proposition 5 and 6⁷⁹ are met in relation to the size of the companies.

I will start by addressing the two small companies as they are different from the rest of the case companies. First of all, I want to underline that the two small companies differ in their business concepts because their focus is the process innovation whereas the other three case companies are focusing on product innovation. I will argue that it most likely is the reason why neither B 1 nor B 2 meet proposition 6, which relates to the adaptation process of the entrepreneurial, engineering and administrative domains, seeing that focusing on process innovation and transformation through process innovation does not allow much attention to be focused on the entrepreneurial domain, which is constituted by scanning the environment to exploit new product, service and market prospects.

An extrapolation here could be that if the company is process-based in its approach to innovation, proposition 6 is not an imperative. In addition, company B 2 does not have a written strategy whereas company B 1 has a written strategy but it is not well-articulated in the organisation. That is, B 2 does not meet proposition 5 either and B 1 only meets proposition 5 partly. Beside the fact that B 1 has a written strategy, the two small companies do not meet the two strategy related propositions. However, I do not think that these circumstances have so much to do with size; rather I think that it relates to the business concept. That is, if I extrapolate the data again, I will argue that process-based SMEs are not as dependent on following proposition 5 and 6 in the process of transforming into more innovative SMEs as the product-based SMEs are. I will further extend this argumentation by claiming that process-orientated SMEs are more internally focused as they try to innovate in relation the internal production processes. Therefore, a process-based SME is able to transform from non-innovative to innovative with less attention given to strategy, less strategy articulation and without a domain adaptation to the prospector strategy.

Regarding company A, C 1 and C 2, it can be established that they are all product-based in their innovation approach and that they have a written strategy. For company A and C 1, the strategy is

⁷⁹ Proposition 5: The transformation will be supported by the development of a written and explicit long-term well-articulated strategy with attention on innovation. Proposition 6: The transformation process will be supported by initiating an adaptation process changing the entrepreneurial, engineering and administrative domains towards a prospector strategy.

also well-articulated in the organisation and they have changed their domain focus by adapting first the entrepreneurial domain and subsequently the engineering and administrative domains toward a prospector strategy. That is, company A and C 1 meet both propositions (5 and 6) in their transformation processes toward innovative positions.

In relation to company C 2, it is important to note that the organisation in general has prepared a written strategy; it, however, is not well-articulated throughout the organisation and no data indicate that the organisation has made a change in the current dominating focus on the engineering domain. The interesting aspect in this context is that the product development department approaches strategy differently as it has changed from focusing heavily on engineering to focusing much more on entrepreneurial aspects. In that process, the product development department has necessarily also addressed and articulated the written strategy. That means that C 2 is in a special situation which induces me to argue that the company in general does not meet the strategy propositions but the product development department does.

As I already have argued, company C 2 has transformed from a non-innovative to an innovative SME. That fact gave rise to the viewpoint that a transformation process may exclusively be supported by a department within the organisation and does not necessarily need to be supported by the whole organisation. It is important to remember that it is not just any given department; on the contrary, it is the most central department when it comes to product development and innovation, namely the product development department.

In relation to size, this strategy column has not succeeded in providing any pattern because only the micro (A) and one of the medium-sized companies fully meet the two strategy propositions as ways to support their transformation processes. In between, there were two small companies which did not follow proposition 6 and only partly followed proposition 5. Thus, size in itself does not contribute with any unambiguous knowledge. This section, however, managed to add other interesting aspects to the research; (1) strategy is approached differently by product and process-based SMEs respectively and (2) the strategy proposition can be supported by just one department (product development).

4.5 The case study data related to the network propositions regarding the transformation process

Now, I will present the central theoretical concepts within the network theory from section 3.6 as to be able to establish a clear focus on the points from which I seek to understand the data in this section.

Organisational networks have been defined as repetitive exchanges among semi-autonomous firms where trust and social relationships are important as to protect transactions and reduce costs. Innovation is a non-linear and interactive process between a firm's departments and the firm and its environment, which makes SMEs' network abilities relevant in relation to a transformation between non-innovative and innovative.

Innovative SMEs have close network relations to customers, suppliers, research institutions and competitors and in general, they interact more with already innovative stakeholders about the innovation process. These network relations create social relationships, trust and reciprocity, creating links for knowledge transfer and access to knowledge which often is first-order innovations and creating opportunities for early adoption of innovations. Non-innovators are pretty much in the opposite situation being less externally orientated and not involved in joint projects. It is also less obvious for highly skilled non-innovators to create relationship with other actors as well as non-innovators have difficulties in finding a suitable and trustworthy partner.

When addressing the transformation process from a network perspective, two areas seem to be central; one is a relation between a focal organisation and its stakeholders and the other one is network competencies. In terms of underlying concepts, the first area is about links with suppliers as to extend the knowledge base and thereby enhance innovation ability, links with customers as to gain advantages from users' detailed knowledge about the product, links with competitors as to complement internal product development, transfer knowledge and cost and risk sharing, links with universities again with the argument of access to knowledge and lastly, links to government agencies in terms of specialist advice and information regarding initiating development projects. The other area concerning network competencies addresses how to actually create, explore and develop the network competencies as to raise the innovation probability. It relates to (1) executing network activities in terms of performing relationship and cross-relational activities, (2) network

qualifications in terms of both specialist and social qualifications, (3) organisational antecedents in terms of financial resources, management resources, HRM resources used to select, develop and assess employees in relation to network activities, integration and communication structures which can support the internal cross-functional knowledge flow which in turn will strengthen the employees' competencies in order to support network activities and (4) the antecedent of having an open corporate culture which can collect and develop knowledge about external adaptation and internal integration in the perspective of network.

From these theoretical concepts, two propositions have been formulated (mentioned below) regarding the impact network can have on the transformation process.

P7: If the SME is initiating and developing external relations with relevant and innovative stakeholders, the transformation process will be supported.

P8: The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported

In section 3.6, several important conditions were identified. First, network activities and innovation are closely linked and second, network theory is capable of subdividing the SME area into non-innovators and innovators. Thus, network theory is an important contribution to the research question focusing on the SMEs' transformation process from non-innovative to innovative.

To successfully accomplish the transformation process, it therefore potentially takes some network considerations in terms of initiating and developing external relations to companies who themselves have been and are innovative active. This fundamental view is represented in proposition 7 (see above).

To actually initiate and fulfil network activities, it is advisable to start out by developing internal processes in order to create a solid foundation for developing network relations. These internal processes are about planning (internal resources and external opportunities as to be able to create suitable expectations to the network activities), organising (create a proper resource allocation, meet

each other's needs and secure good communication systems) and finally about staffing and developing (add in, coordinate and develop employees in relation to network management activities). These theoretical concepts are combined in proposition 8 (see above).

Now, I will turn to the five case companies and present relevant data for investigating to what extent the network propositions are recognised as ways to transform from non-innovative to innovative.

4.5.1 Network related data from the micro company

In the micro company (A), network activities play an important role and all the employees attach great importance to this issue and parallel, they execute and develop network activities as this quote illustrates.

Company A (1)

We use networking a lot. Our head of sales in Denmark is dependent on her network. She makes a living because of it and knows everyone in the business which is why we wanted her on board. It is important for her job that she has a network.

Our developer has a huge network of designers and is very good at maintaining it. I can feel that this is something I have had to learn. I have a friend who works for Sydbank and his results are very much based on networking. He is fantastic at it and I have always been able to see that, but not wanted to owe anyone anything; I can take care of myself. Sometimes it is a case of "you scratch my back, I'll scratch yours." I do not like that, but I know I cannot do without it, so I have become better at networking. Knowing people within the business is important and as such, networking is important. On the other hand, I would have to say that you have to believe in your own abilities and your business, as well as seeking help through your network within a given business, so both aspects are crucial. Use networking for what it is useful for. I do not have a huge network but I put it to use regularly. X and Y's networks are pretty important to the success of our shop.

Employees in this company are intensive users of network relations with customers, competitors and other external stakeholders. Those employees who do not have a natural approach to network

activities are consciously trying to develop relevant competencies in terms of being more active in the network. The CEO (respondent 1) is also aware that some of the network relations are crucial for the business activities in general. Therefore, it is fair to claim that this company engages in ongoing network activity and tries to develop trustworthy social relations with relevant stakeholders. This can be interpreted from the following quotes.

Company A (5)

You can network in many different ways and I think we do it very well. Networking can suddenly get you a massive opportunity which can lead to great success. The danger is that if the mutual respect is not there it is easy to get caught up in another network constellation. It is hard to say where the line is, but I believe that one should strive to be skilled at networking.

Company A (3)

Both on a business and a private level steps are being taken to ensure that more of us branch out into networking of some sort. I actually believe our CEO is in a network which is directly related to him getting his current job with us.

The network relations are seen as an effective way of creating opportunities for and facilitating early adoptions of product development and innovations. However, as underlined here, no network relations are stronger than dictated by trust, social relationship and respect. It is a difficult balancing act to handle network relations in an effective way and trust is extremely important due to the fact that these relations are about core business activities.

Company A develops both specialist and social qualifications in relation to handling network activities. Network as a means of creating and gaining access to new knowledge is also part of company A's way of exploring network activities as these quotes illustrate.

Company A (4)

I think the company is at the level where we consider our networks exceptionally important. I use my own network a great deal. It is important to me when something is to be approved – if we want to add a certain kind of fire resistant plastic for instance – I

can use my network to find out if existing moulds can use the new material. I know people who I can contact who have experience doing similar things. If I know a certain company who has the expertise in a given area this is where I look for information. Our company is generally very oriented towards such network relations.

Company A (2)

I listen to everything and suddenly something clicks and I think "I could use that." Today we visited an electronics company and just by asking questions you are given all sorts of openings and opportunities. We have previously had troubles having to deliver to a wide variety of markets. Some markets use 110 volts; others use 260 and so on. Today we found out that it is possible to make a chip, using certain electronics that we are currently developing, which will adapt to the country and light up no matter what. If I wouldn't have asked all those questions we would have never found out about this possibility. We would have simply asked them to make one for the European market and returned in six months wanting one for the US market.

New knowledge is created by direct contact to relevant players in the network either prompted by a concrete challenge (see the first quote above) or simply by showing interest and asking exploring questions (see the second quote above). The second part of the quote above is interesting as it exemplifies that a relation with a supplier is developed on the basis of a good social relation and some exploring questions, occasioning an opportunity for innovation and an early adoption.

There are also examples of network relations to both suppliers and competitors which are based on trust, reciprocity and social relationships as to gain new and additional knowledge. Likewise, the company seeks to have an open corporate culture ready to participate in cross-relational activities as these quotes exemplify.

Company A (1)

An important player in Italy, Fabio, is head of sales for a major Italian company which you could call a competitor of sorts, though not really. I use Fabio for other things as well because he knows so much about Italian business. We had an issue with our Polish glass supplier so I asked Fabio who he uses and he told me exactly who to call and

before long we had an Italian glass supplier. Originally I was very worried about starting a partnership with someone who is owned by a competitor, but it has turned out to cause no problems whatsoever.

Company A (3)

We collaborate with a lot of furniture companies where we share the knowledge that we have, be it lists of press or doing a big get-together, inviting every architect we know as well as every architect they know. It is a great opportunity to interact with our customers. Some clients we might ask about prices in retail, some architects who are connected to our developing projects are asked for input on for instance the hotel business. Overall, I think we are far ahead of the game as far as being open and not hiding our business.

The network grows through the existing relation as long as the trust and social relationship are strong enough. Even though relations with competitors have a potential built-in challenge, it can be handled in reciprocity and to the benefit of both parties. Elaborating on these data, I would say that it is an example of how organisational antecedents in terms of management and HRM resources can support the development of network activities and benefit from them.

In company A, leaders and employees share knowledge about marketing, price setting, product development and new product projects. That is, company A also contributes with valuable knowledge to the network which addresses the organisational antecedent of having an open culture. This openness within the culture supports knowledge diffusion, sharing, collecting and development which support innovation directly and external adaptation and internal integration subsequently.

Company A also engages in some network relations with other innovative companies as this quote demonstrates.

Company A (3)

We collaborate with some of the big players within the business who you cannot exactly classify as innovative. However, we do feel like we can get a lot out of mutually beneficial relationships with some of the younger companies. When we have interacted

with them it is not very formal, but rather a case of continuous dialogue, visits, calls and participating in fairs together – there is a great deal of synergy.

The company deliberately tries to create network relations to young and innovative companies by incrementally building social relationships and trust to these players. The result is synergy, new knowledge and potentially a lot of new ideas for product development and thus for the transformation process of the company. If I extend on the data from all the above-mentioned quotes, I will claim that company A also has an organisational antecedent about internal communication and integration structures which support the flow of cross-functional knowledge within the company. It is not plausible for company A to have such an extensive focus on network activities and so much successful experience in this area and not use it as a way to coordinate internal activities. Behind these external network activities, there must be a reciprocal internal focus on integrating communication structures and cross-functional activities.

Due to these data, it is possible to argue that company A actually is quite network orientated. In many ways, it does what the propositions and theoretical concepts tell us is important and recommend for companies who want to become (transform toward being) more innovative. Company A has many external relations to stakeholders some of which are innovative and it forms internal processes as to develop network relations as well. These internal processes address organising, management and HRM and are used to develop new knowledge, innovations and subsequently to transform the whole company.

4.5.2 Network related data from the two small companies (B 1 and B 2)

Now, I will turn to the two small companies as to investigate how they have used network activities in their transformation process. I will start with company B 1 as it uses network relations deliberately as a way to transform and develop the company. The following quotes illustrate how company B 1 seeks to develop relations with customers, suppliers and competitors in order to achieve knowledge transfer and gain access to new knowledge.

Company B 1 (2)

There are two sides to external networking: The production side of things and the quality related aspect. Production wise we are part of a network which focuses on

suppliers in our business that has a good network. This has led to smaller networks coming into being where we participate in meetings and gain a lot of good input (Wind power Club).

Aside from that, I am a member of the board of the Danish Quality Committee where 900 Danish companies partake. We arrange four conferences per year and also host a number of experience development meetings where we hire a professional coordinator from The Danish Network. This has given me a very large network from the conferences that I have helped arranging, the meetings I have taken part in and especially the board that I am on. Naturally I represent our company in these instances.

In this company, network activities are directed at developing the production and the quality in general. Building well-functioning network relations with relevant suppliers in the industry is therefore about creating knowledge and ideas which can be spread and developed. This company creates relationship with external actors by coordinating and administrating network activities, creating professional conferences and by creating experience-based groups. Based on these kinds of social relationships and this knowledge diffusion, the aim is to raise production effectiveness and quality.

However, the CEO (1) of the company does not particularly emphasise network relations as this quote demonstrates.

Company B 1 (1)

We have been a part of some groups but we have never been a part of professional networks on a larger scale. I have some personal networks which also relate to business, but it is only something that has indirectly influenced our expansion as a business. I am on a number of boards and the local business council which does make a difference for us, but as I stated earlier, I believe it is only indirectly affecting us. You can take away something from debates with others but in the end you make your own decisions based on your own convictions.

With this quote, the CEO demonstrates that network relations are not considered important for transforming or developing the company. Here, there is a divergence between how respondent 1 and 2 interpret what network relations have meant for the transformation of the company. Respondent 2 sees network relations as an important way to create new knowledge about how to develop the production facility and quality. On the other hand, respondent 1 does not see network relations or activities as more than, at best, indirect elements of the transformation of company B 1. Still, regarding B 1, some external relations exist but the data do not indicate any focus on developing internal network competencies in terms of performing relationship or cross-relational activities. Neither do the data from company B 1 indicate that people in the company expect to derive any benefits from organisational relations or antecedents.

Company B 2 also has a rather fluctuating interpretation of the impact and importance of using network activities as a way to support the transformation process from non-innovative to innovative. However, the first couple of interpretations underline the importance of network activities as a link to new knowledge and new ways to solve problems as this quote illustrates.

Company B 2 (1)

It means everything, it really does. To me personally, while everyone does have their own personal experiences (I included), it is always beneficial to pick up the phone and call someone when you have a problem. You always know somebody who knows the answer which gives you a huge amount of experiences and insight to draw upon, aside from your own. I use all kinds of people – whoever you might meet on your way through life, whoever is interesting.

It is quite obvious that this respondent views network relations as very important and a source of any kind of knowledge which will be capable of solving any challenge. That is, if I extend on the data, it is the same as saying that network relations have a great potential to transform and develop the company in any given direction. Still extending on the data, this attitude also expresses an open mind toward external adaptation and knowledge sharing.

Company B 2 also creates and develops relations to customers, suppliers and competitors and it participates in a cluster of cooperating local companies as this quote illustrates.

Company B 2 (1)

We obviously have relationships with our costumers, but we also have networks with other businesses and collaborate on producing something for a common costumer. We also have a local network of companies which we call the “metal cluster”, due to it being a great group of companies within the metal industry.

By cooperating with other companies in delivering goods to a common customer, this company creates and performs relationships which support the development and transformation of the company. Again by elaborating on the data, this demonstrates some organisational antecedents in terms of management resources dedicated to increasing the benefits gained from network activities.

However, other respondents are much more reluctant when it comes to believing that network activities play an important role in the transformation of the company. The following quotes illustrate that.

Company B 2 (3)

The impression I get is that others use us for networking. I think a lot of people use us, namely the two owners, to gain knowledge. People working on a huge project for Vestas for instance draw upon X and his experience. The same thing is true for costumers where I do not get the impression that we use them, but that they do use us.

Company B 2 (4)

We have been doing this a lot, but not as often anymore. We do have a few companies doing network activities for us, but we do not do much for others; we simply do not have the time.

It is fair to say that there is some variation in the data and to claim that network activities form part of a plan for how to transform the company will be to overinterpret the data. The company does have some external relations but recalling the fact that company B 2 does not have a written business strategy renders it probable that the network activities are more or less random. The company does not have a particular aim or interpret network relations as a way to become more innovative or to transform the company in general. However, as I argue above, these more or less

random network activities, which actually take place, may still play an important part in transforming the company toward being more innovative. For instance, some of the network activities address new knowledge, new solutions and collaboration in delivering an order. Some indications can be found in support of the presence of organisational antecedents in terms of the CEO's attention on external relations. On the other hand, nothing suggests that these network considerations are part of a corporate culture which creates any internal integration. That means that there is no internal planning, organising or HRM development directed toward supporting network activities or a subsequent transformation processes.

4.5.3 Network related data from the two medium-sized companies (C 1 and C 2)

Now, I will turn to the medium-sized companies as to see how these data can be related to network activities and transformation of the company. Company C 1 has a deep-seated focus on elements such as initiating and developing external relations. This is accomplished by means of an open corporate culture which is directed towards learning and knowledge creation in interaction with relevant stakeholders as these quotes illustrate.

Company C 1 (3)

We consider ourselves an incredibly open company... we are open; a lot of information comes from here; we do not keep our results to ourselves; neither are we afraid to share our goal. We are very open and have a large information flow. Some of this information is received by someone who then finds us very interesting, and this leads to calls from different places, different people. Furthermore, we have been awarded for our initiative. For many years, "The Two Founders" have been in networks for two main reasons. They do not have the proper education and they have felt a need to learn from others. This has been very beneficial to them; including me. We do this networking to give – and receive information; to teach others, but also to learn something ourselves.

Company C 1 (3)

In relation to the strategy project, I started on another project called "writing a sales guide". I could easily do that. All I needed to do was to write, but then I would probably end up with an entire book. Instead, I searched for some inspiration.

I received help from different places. For instance, I talked to others, who has done something similar in Danish industry and this has helped me a lot in making the

product. When making appointments with new business partners, cooperating with those and with existing partners, the goal has been to do it in a similar way; treat them all in the same way.

The company makes a virtue of being active in all kinds of network activities based on a particularly open culture. We are dealing with a company which trustingly shares a lot of information and knowledge with all kinds of stakeholders. Many of these stakeholders repay this openness by creating relations which in turn support innovation and transformation. This is an effective way of creating relationships with many different network players; this also supports the idea that company C 1 is very focused on developing production and creating innovations. This is additionally illustrated in the following quote.

Company C 1 (4)

For us, the development of new products is all about the knowledge of opportunities. When launching this product, we were in close contact with several different suppliers.

Of course, we also attend fairs now and then. Especially X attends fairs in the United States, Italy and Herning among others. This is done to gain insight on how others do things, and to be able to choose how not to do things. He is able to see things in the larger perspective. He can try to explain it to you, but you cannot understand the meaning of it; he is so far ahead and has been thinking about it for several months. We are very dependent on his inputs; his information. Of course trade journals are also an important source of information.

The quote above also illustrates that this company develops network competencies in terms of performing network activities based on trust, reciprocity and social relationships. Extending on these data, I am able to claim that this approach also inherently entails learning and de-learning processes as a way to transform the company toward becoming more innovative. The company heavily emphasises network processes and seeks to have as many external contacts as possible and everything is related to being able to transform effectively toward a more innovative position.

Company C 1 is also aware of potential benefits derivable from close knowledge-based links to suppliers, customers and users as these quotes demonstrate.

Company C 1 (1)

What we have learned is our advantage, is that we can involve the user, put ourselves in the user's position and develop something the user does not even know he needs.

We go into partnerships concerning components, oil engines, oil pumps, glass or whatever it might be. However, on this brand new product we have a designer assigned. We have had collaboration with an industrial designer and this might be the closest we have been working with someone externally on the development of this kind of product.

Company C 1 (4)

I do a lot of work with suppliers and we have good relations. I aim at having close, but narrow relations to some fewer suppliers. When I started, the company had several suppliers of iron, but I primarily focused on only one. It is both risky and with some disadvantages, but in my opinion there are more advantages compared to a number of loose connections.

Company C 1 (2)

We have gained a lot from all the networks we have been a part of. But the need, the desire to make a new product ... and it often happens to me that the salesman or the negotiator have said – could you do it like this – or this. Then we end up with something completely different, but it gets the process going. That is why network connections are so important.

Company C 1 (1)

What has had the biggest influence on this store is that X and I have been honest. We have admitted that there are some things we are not good at and we need help with. X and I are very much down to earth and people like this. This is very important to us. We do not lose contact with reality and have good people assisting us.

These quotes show that the company creates these relations by making as much user-driven innovation activity as possible, asking the user but also by trying to understand the situation of the user. In relation to suppliers, the way to create more and stronger network relations is to bring down the number of partners and increase the power of the relationship to the remaining partners; that is, to secure strong links which can transport the information and knowledge between the network partners as to raise the probability of innovation. The data also support the fact that these network relations indeed have an impact on company C 1 and on how products are developed. The two founders also address network relations as a way to compensate for lack of specific competencies.

The data are therefore quite clear about how company C 1 develops network qualifications in terms of both specialist and social elements. The network activities in company C 1 are as mentioned above also related to compensating for the internal lack of competencies. Here is another quote exemplifying that.

Company C 1 (4)

We have never been scared of using advisors. I, myself, was hired through a consulting agency in 2000, when it was not as used as it is today. Before then, consultants were also used on the tasks concerning our personal incompetence – we have always been good at that. You know when something about yourself is not good enough – and then you go out to find the advisors. In a small company from West Jutland you might say that it is too expensive to hire them, but the truth is that it is too expensive not to. We also use the Technological Institute and a sound studio called Delta to make sure that we do it professionally.

However, company C 1 also focuses attention on developing its own staff's competencies in relation to network activities. If I extend on the data here, I will argue that the company is more focused on upgrading its competencies by recruiting external specialist competencies than on developing its internal competencies as indicated in the following quote.

Company C 1 (4)

Experts within the different fields of studies are assigned to the different tasks. If we do not have an expert within a certain field, we have to buy external assistance. We have to

adjust our competencies to our level of ambition and of course always be on top of the newest in technology and what is in demand. We have to be on top of what we exactly need to know, and get this knowledge either externally or get it upgraded internally.

The following quote demonstrates how network relations can initiate and develop innovation.

Company C 1 (4)

For many years, we have used laser cutters, but then our supplier discovered that it was possible to “click” the iron plates together and leave out the welding. He invested in a laser cutter for round pipes; something not used by many and we immediately adapted this technology. He gave us the necessary knowledge and education on the possibilities with this kind of technology and our constructors took it into use right away. We adapt to the possibilities very fast and have been skilled in making it work for the company and make our way into the market. What we do best is to look at an existing product and then use it in a different way.

The quote demonstrates how a relation to a supplier constitutes a basis for learning and acquiring new knowledge which in turn create opportunities for early adoptions of innovations. The company has some core competencies when it comes to not only adopting new ideas but also to transforming this knowledge into turnover and earnings.

As these data display, company C 1 attaches great importance to the network activities and manage to benefit from them. The company has several relations to all kinds of relevant stakeholders and these relations increase the interactions and knowledge creation which benefit the aim of innovation. Looking at internal processes and organisational antecedents like management, planning, staffing, organising and HRM, the data show no signs of any systematic or dedicated approach to that area. From the data, it is not possible to establish a relation between organisational antecedents and network activities and thus, there are no indications of transforming the company in terms of proposition 8.⁸⁰

⁸⁰ The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported.

Company C 2 has likewise close relations to the suppliers and uses these relations to develop and share knowledge and competencies as this quote illustrates.

Company C 2 (2)

We try to use our suppliers as our network and along with moving towards China gain a whole new network. The Chinese are able to deliver much more interesting products than others at the same prices. We have gained “value for money” and can choose to use it on marketing and development of the company. Some of our suppliers state that they want to do business with us, due to our ability to make demands and challenge them. I actually believe that it is true for some of them, because we are not that big a part of their turnover. Fortunately, some companies are so greedy that they will pursue everything, but some just do it for the learning benefits. They probably do not find the demands particularly funny, but they know that they are part of the deal. In order to have development; demands are necessary. We share knowledge and qualifications.

C 2 supports these relations by being in continuous, trustful and also demanding interaction with them. This demand is about reaching good quality and a high-end product but it also addresses a need for learning and new knowledge. It is, as the quote demonstrates, about sharing knowledge and developing competencies. The company discovers a quite clear relation between strong network relations and new abilities to develop the company.

However, company C 2 also has relations to customers and really uses this network to transform and develop the company as the following quote shows.

Company C 2 (2)

We have a network amongst our customers that we did not have before. It has been in constant development. We have pursued the policy to go from being a national brand to being a worldwide player. This way another network is created.

The company has followed a conscious plan of developing a specific network with customers as to change the brand of the company; this can also be seen as a way to innovate⁸¹ and transform the company.

Therefore, company C 2 in fact develops relevant external relations to stakeholders who support the transformation and development of the company. C 2 performs network activities through relationship and cross-relational activities by exploiting management and employee resources as this quote exemplifies.

Company C 2 (2)

I do not believe a network is something that you just order. A network arises from the development you are in. If you are interested in new technologies, you need to do some networking with someone interested in the right connections and the development of these. I believe that our employees are very active in the different networking situations.

The network processes are directed toward benefitting from activities with relevant stakeholders. The initiating point of new network relations can be an interest in developing currently used and new technologies. This shows how network activities relate to new knowledge and new technologies and subsequently to product development and innovation which have the potential to transform the company.

Company C 2 makes use of network relations in terms of specialist and social network qualifications as demonstrated by the following quote. People support these network relations because they like it (the social dimension) but also because of the professional and challenging (the specialist part) elements of participating in the networks. They create and perform these relations through face-to-face interaction, either at conferences, at the relevant company sites or at professional exhibitions.

Company C 2 (3)

I, myself enjoy networks. The networks are professional, concerns purchasing and management and are organized through different places. We have definitely gained

⁸¹ Developing a brand may prove to be an innovation, also in relation to the Oslo Manual although this thesis only addresses innovations as product or process related.

some goodwill. Our suppliers want to work with us because they can see the development. By the way, we would also like to have your name on our list of references; this way will have some goodwill we did not have earlier. I also sense this when I am out visiting new suppliers or attending fairs.

Finally, C 2 also has examples of being more innovative by interacting in network relations as this quote talks about.

Company C 2 (4)

Every now and then, we add a new supplier, but it is basically the same ones we use, because of the good cooperation. However, new suppliers are necessary all the time. We have demands concerning what measuring equipment is necessary in their production. As well as we have demands concerning their technology; also our Far-Eastern suppliers and by doing this we have a new technology. Some things they do very well. Danish companies are somewhat tied down; limited by what they have decided they do well. However, the Far-Eastern suppliers expect large orders at their low delivery prices.

This quote once again demonstrates that making demands on technologies, sub-deliveries or products is a way to support product development and innovations. Company C 2 recognises advantages in having Danish as well as international suppliers. If I extend on the data here, I am able to argue that having diversity in suppliers is also a way to support product development and innovation, as the diversity opens up different ways to handle a specific task. This openness towards different ways of solving the task creates new perspectives, new ideas and new knowledge.

These above-mentioned data indicate that C 2 just like C 1 employs several resources to initiate and develop network relations with relevant stakeholders and that C 2 benefits from it in terms of increased innovation ability and transformation of the company. However, the data indicate that company C 2 has the same lack of focus on specific internal processes and organisational antecedents. That is, the data fail to indicate any organisational antecedents playing any role in the network activities.

4.5.4. Summing up on the network related data

From the data related to the network area presented above, it is possible to argue that company A is fairly active in its network relations, both regarding proposition 7 and 8. This means that company A is (1) continuously active in network relations with relevant and to some extent innovative stakeholders and (2) has several internal processes which are developed and directed toward supporting network activities. Both conditions (1 and 2) develop network competencies that will have a positive and supportive effect on the transformation process.

The two small companies (B 1 and B 2) are quite similar in their approach to network activities; that is, both companies are active in network relations with external stakeholders. However, none of the two companies are particularly focused on adapting internal processes or adding organisational antecedents as to support the development of network activities and further on support the transformation process. No data from the two small companies indicate any explicit kind of experiences with learning or knowledge creation in relation to network activities.

Data from the two medium-sized companies indicate that both companies benefit from network relations in order to transform the organisation. That concerns both interactions with relevant innovative stakeholders and in relation to focusing on learning and knowledge creation in interaction with all kinds of stakeholders in general. However, the two medium-sized companies show no signs of addressing any organisational antecedents; that is, they are not deliberately planning, staffing or organising any HRM activities to support the network activities.

4.5.5 The network data related to company size

The data in this column, focusing on how and to what extent network activities can support the transformation process, show both similarities and differences in relation to the size of the company.

All five case companies meet proposition 7⁸² by initiating and developing all kinds of network relations with (innovative) relevant stakeholders. For all five case companies, these activities (with some variation among the companies) develop and support knowledge creation which subsequently supports product/process development and innovation. These five case companies have therefore

⁸² If the SME is initiating and developing external relations with relevant and innovative stakeholders, the transformation process will be supported.

through their network activities undergone a transformation process from non-innovative to innovative. The variation among the companies regarding proposition 7 consists in the two small companies (B 1 and B 2) being the least network active whereas company A, C 1 and C 2 seem to be more focused and deliberate in their network relations.

The differences between the five case companies become clear when addressing proposition 8.⁸³ Company A is, in relation to the way I interpret the data, the only company that manages and organises internal processes and tries to benefit from organisational antecedents in relation to the network approach. The other four case companies (B 1, B 2, C 1 and C 2) do not pay attention to any kind of formal organisation of internal processes or organisational antecedents. That is, the micro company meets proposition 8 whereas the two small and the two medium-sized companies do not.

I will argue that all five case companies have transformed through network activities which means that meeting proposition 7 in itself is enough to support the non-innovative to innovative transformation process. On the other hand, meeting both proposition 7 and 8 will more strikingly and strongly support the transformation process from a network perspective. That is, being both active in relation to external stakeholders and organising internal processes and antecedents will create the most support to innovation and subsequent transformation. That means that meeting both propositions will enable the company to increasingly benefit from the network in relation to innovation and subsequent transformation.

It is quite interesting that the micro company is the only company meeting proposition 8. A possible explanation could be that the smaller the company is, the more obvious are the reasons for networking and the more directly readable are the benefits. The small (micro) company is not able to internalise all transactions and is thus often dependent on network relations. Therefore, the attention on network as well as the willingness to work with it internally will be more natural the smaller the company is. As the company grows, other internal organisational and coordinating aspects are placed on the agenda which may force away the internal focus on network relations. The

⁸³ The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported.

bigger the company, the more difficult it will be for the management to draw attention to these internal processes.

4.6 The case study data related to the transformation process

In this section, I will work on an aggregated level in relation to the empirical data as I leave the four theoretical areas or columns (management, HRM, strategy and network) in favour of the more comprehensive approach of combining company size and company position (non-innovative SME, the innovative SME and the transformation process). This change in perspective allows me to address the last two propositions⁸⁴ on an empirical basis as well as it creates an opportunity to discuss general contributions from the empirical evidence.

The structure in this section follows the figure below. First of all, I will discuss the empirical evidence in nine sub-sections in which the three company sizes meet the three company positions (see the figure below). At the end of this section, I will discuss the general contributions of the empirical evidence in relation to the non-innovative SME, the innovative SME and the transformation process between them. The challenge is to clarify what the empirical data as a body can tell about the non-innovative SME, the innovative SME and the transformation process between the two. Especially the general empirical contribution regarding the transformation process is central to the research question issue and the PhD project in general.

Figure 4.2 Extrapolating the empirical evidence

| | The micro company | The two small companies | The two medium-sized companies | General contributions – the empirical evidence |
|-----------------------------------|--------------------------|--------------------------------|---------------------------------------|---|
| The non-innovative SME | Extrapolating the data | Extrapolating the data | Extrapolating the data | Non-innovative SMEs |
| The innovative SME | Extrapolating the data | Extrapolating the data | Extrapolating the data | Innovative SMEs |
| The transformation process | Extrapolating the data | Extrapolating the data | Extrapolating the data | The transformation process |

Source: Own work.

⁸⁴ Proposition 9: The transformation process will be released by strategic considerations. Proposition 10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium.

I will work in a combination of the vertical and the horizontal angel. Along the vertical angel, I will in section 4.6.1 discuss how the non-innovative micro, small and medium-sized companies are empirically constituted. Then on the horizontal angel, I will address the non-innovative SME in two ways; one is the relations between the three company sizes and the other is the non-innovative SME in general. The same recipe will be used in section 4.6.2 as to address the innovative SME and in section 4.6.3 to address the transformation process.

In the last section 4.6.4, I will recapitulate the general contributions from the empirical evidence from three perspectives. The first is to extrapolate the data from each of the five case companies in relation to the last two propositions (9 and 10⁸⁵). The second is to extrapolate the data as to relate to the three sizes of micro, small and medium as to see if any generalisation is possible in this perspective. The third perspective is about discussing the appearance of any generalisation for the SME sector in general (the sum of all five case studies).

4.6.1 Empirical evidence of the non-innovative micro, small and medium-sized company

The five case companies have been selected because they have transformed from a non-innovative position to an innovative position. Now, I will extrapolate the data as to investigate to what extent I can address the non-innovative SME in general from the case study companies.

The micro company

The data can be interpreted to claim that the micro company has in its non-innovative position a strong management conviction through the former CEO's emphasis on interfering, controlling and fulfilling his ideas through the employees. There were no written plans or strategic thoughts about a systematic management development. The interpretation is that this former CEO really considered the employees a tool with which to reach the goal of an effective production flow (and the current CEO forces himself to bring in much more leadership activities). This non-innovative management approach can further be interpreted as being supported by bureaucratic rules and predetermined procedures. That shows an internal labour market approach according to which the employees are regarded as a cost which ought to minimise like other resources in order to raise profits. By a reversed conclusion, I will argue that company A did not have a written and well-articulated

⁸⁵ Proposition 9: The transformation process will be released by strategic considerations. Proposition 10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium.

strategy in the non-innovative position, as making a strategy marked the starting point of the transformation. Obviously, the non-innovative position had a strong focus on the engineering domain as there was a profound focus on the production flow which can be interpreted as a defender strategy. My interpretation is that the network activities were limited in the non-innovative position due to the former CEO's focus on internal production processes, formal rules and procedures. There is no data indicating knowledge creation or development of internal organisational processes in relation to external partners in the non-innovative position.

The small companies

Extrapolating the data shows company B 1 in a non-innovative position addressed by a heavy management approach steering the employees by means of formal power and control which no manager wanted to relinquish. That represents a heavy emphasis on a management thinking which clearly relates to an authoritarian attitude and leaves very limited room for leadership aspects. There were no signs of any plan for how to develop the management approach. The HRM approach will, as a consequence of the management domination, tend to an internal labour market understanding. The non-innovative position also manifests itself in a restricted focus on psychological processes in terms of self-responsibility and involvement as these elements are initiated by the B 1 management to support the transformation process. These aspects extrapolated from the data substantiate the perception of B 1 as having a hard and internal labour market approach to HRM. As the first written strategy is only a few years old, the non-innovative position must have been known as not having any strategy and therefore it has not been well-articulated. As company B 1 has not changed its current dominating focus on the engineering domain, it has obviously also been part of the non-innovative position. Recalling that the transformation process and the innovation activities have addressed mainly the production processes, the non-innovative position has most likely followed a defender strategy. The network activities have been improved through the transformation process which means that the non-innovative position can be characterised as limited in terms of the amount of external relations and the relation to the internal focus.

In company B 2, the non-innovative position can be extrapolated as having a management preference with lack of trust, freedom and self-responsibility. The quotes addressed the fact that five years ago, B 2 was managed radically different compared to the current approach. Neither now nor in any former situation has one thought been given to planning a formal development of the

management approach. Likewise, no attention is focused on training and development of the employees and no link is created between the HRM contracting form and the business strategy. That is, the non-innovative position cannot have followed a strategic HRM approach whereas an internal labour market approach seems to be more likely. This interpretation is also supported by the former management approach of steering and telling the employees what to do. It is obvious that the non-innovative position was constituted by not having a strategy and of course, no articulation followed. Company B 2 was (and still is) convinced that the right strategy is to focus on the engineering domain and that the transformation has had a process focus regarding innovation. Therefore, I will argue that B 2 had a defender strategy in the non-innovative position. As a dawning network perspective has been part of the transformation process, the former (non-innovative) position must have been characterised by limited network relations and limited internal focus.

The medium-sized companies

By interpreting the data, I will argue that company C 1 was in a non-innovative position with more focus on planning and controlling as the main focus was on production processes and thus more emphasis was placed on management. No written plans were present for how to develop the general understanding of management as such. However, it is not clear how the former HRM approach was as the data indicate no explicit change or transformation toward the current position. Extrapolating the data, I interpret that this company may have had the same fundamental soft and strategic approach to HRM in the former non-innovative position. The two founders explicitly talk about the importance of having deep-rooted and ongoing values in relation to employee treatment. The HRM approach, however, has changed in course of the last years as C 1 is currently working on creating a closer link between carefully planned HRM activities and the business strategy. Company C 1 prepared its first strategy plan in 1995 and as the company was founded in 1992 with only the founder and later on his brother, this company has more or less always had a strategy. There are reasons to believe that the non-innovative strategy may have had an engineering domain focus on production, quality and process flow and that it presumably was based on a defender strategy. Interpretation of the data suggests that C 1 is a company which has always assigned great importance to network and network relations and the transformation process has explicitly addressed increased and knowledge based network interaction. Therefore, when in the non-innovative position, C 1 was network active but not on a strategically important or innovation orientated basis.

In relation to company C 2, the situation is different. The data can be extrapolated to a point saying that a former CEO had a more leadership based approach than the current implying that earlier positions may have been balanced with mostly leadership and supported with some management elements. However, the current CEO did, in the beginning of his period of influence, create a non-innovative position heavily emphasising management activities such as controlling through procedures, rules and production optimisation. Therefore, I will argue that C 2 may also be related to a non-innovative position characterised by mostly management. No written or strategic plan for management development was present in the former position.

Regarding HRM, the same story seems to appear from the empirical evidence; the former CEO represented a flat and organic structure with a soft approach to HRM, whereas the current CEO exchanges that with a hard internal labour market approach which focuses on optimising the human resources. As the new CEO began his appointment at a time when I interpret C 2 as still being part of the non-innovative position, I will claim that the point of departure of the non-innovative C 2 is equal to a relatively clear internal labour market approach; or to be more precise, the CEO is in the middle of creating an internal labour market approach even though the former CEO had created a much more strategic HRM environment.

It seems that company C 2 has had a written strategy also in the non-innovative position. The strategic plan, however, was exclusively for the top management and therefore not well-articulated in the organisation. As product development until now has not been part of the strategic considerations, there are reasons to believe that the non-innovative position was characterised by a strong focus on the engineering domain and in the context of a defender strategy.

As the network relations have been increased and enlarged through the transformation process, the non-innovative position must have been differentiated through less focus on relevant external relations and without any internal focus either (as it has not developed in relation to the missing internal issues on network relations).

4.6.2 Empirical evidence of the innovative micro, small and medium-sized companies

In this section, I will explore the empirical evidence regarding the constituting of the innovative micro, small and medium-sized case companies, respectively.

The micro company

I believe that the data can be extrapolated to say that company A is a first-rate example of how to combine leadership and management. In the company, there is an explicit and strong focus on leadership; the CEO restricts himself from time to time to secure enough room for the employees to be self-initiating and explorative in their approach to work. This freedom and organic context are limited and controlled through an opportune management way of allocating resources and time schedules. The innovative position has been supported by this combination of leadership and management without any support from a written plan or other long-term conscious intentions of how to develop the management approach. From the data, it seems that the HRM philosophy is based on a soft approach implying that the employees are deeply committed and recognised as the most important strategic tool for implementing the strategy and reaching the goals. The management is focused on how to increase the link between HRM activities and the business strategy. In relation to strategy, A supports the innovative position through a long-term written strategy that is explicitly related to innovation. The strategy is well-articulated throughout the organisation and its centre of attention is focused on the entrepreneurial domain. Company A employs many resources to the network activities both externally to relevant and innovative stakeholders and in terms of internal focus on communication and integration structures. This position is a crucial foundation for the cross-functional knowledge creation and innovation.

The small companies

As far as I interpret and extrapolate the data, company B 1 maintains an innovative position by adopting a strong leadership focus which is supported by a sufficient amount of management and steering. Using external consultancy and formal leadership development programmes, the management has supported the innovative position and created an empowering balance between mainly leadership and secondarily management. By extrapolating the data, the HRM contracting form may be recognised as socially and psychologically based focusing on how self-responsibility and involvement can address the link between HRM and business strategy. Both the leadership conviction and the strategic HRM contracting form recognise the employees as sources of

innovation and aim at continuously developing the innovation ability. Regarding strategy, the situation is much more divergent as B 1 has a long-term written strategy which, however, is not well-articulated and it is deeply rooted in the engineering domain. The strategy has no specific focus on innovation either which means that it is not the strategy approach that supports or maintains B 1's innovative position. In relation to network activities, another unclear point of support or foundation of the innovative position emerges. That is, respondent 1 in B 1 does not recognise network relations as important in the struggle to maintain the innovative position. However, respondent 2 has more or less the opposite opinion as this person argues that network relations is a way to create new knowledge and process innovation and thereby support the innovative position. In addition, no internal antecedents or processes address an inside-out approach to network relations.

Extrapolating data from company B 2 indicates that an increasing focus on leadership supplemented with management elements have been perceived as a way to maintain and support the innovative position. This has happened without any written plan for how to develop management in general as people in B 2 do not see a link between planned management activities and keeping an innovative position.

As the management in B 2 does not believe that a strategy can support the development of the company or maintain an innovative position, no written strategy is present and there are no intentions to make one. For obvious reasons, that has a major impact on the relation between HRM and strategy and on the area of strategy itself.

Company B 2 focuses on HRM in terms of on-the-job training and soft contracting forms addressing self-responsibility, cross-functional relations, self-initiating activities in a flat and organic structure. However, the company has no formal training and development activities and there is no link between HRM and the business strategy.

Company B 2 has no written strategy and has not moved away from an engineering domain focus and more interestingly, it does not believe that having one will make any difference for which reason nothing indicates that it will create a business strategy in the future. This lack of strategy

considerations and the missing link between HRM and strategy are how B 2 supports the innovative position from these areas.

The network approach actually follows the same line seeing that company B 2 has no plan or organisational processes dedicated to developing relations with relevant and innovative stakeholders. Still, B 2 engages in some random network activities with relevant stakeholders. The innovative position in B 2 is maintained through a heavy emphasis on leadership and a soft HRM contracting form, much more than it is based on a link between HRM and strategy, strategy itself and targeted network relations with relevant stakeholders.

The medium-sized companies

In company C 1, data address the fact that the innovative position has been supported by an almost one-sided leadership focus and the challenge is therefore to bring in a sufficient amount of management to control the freedom and self-responsibility carried by the intense leadership approaches. Furthermore, data can be related to the innovative position as supported by a written and systemised plan for management development processes.

Company C 1 keeps the innovative position intact by employing a soft HRM approach which includes a link between the HRM activities and the business strategy as to support product development and innovation.

Company C 1 has a written and well-articulated strategy which is founded and emphasised in the entrepreneurial domain; that is, data can be interpreted as to claim that the company supports the innovative position by a prospector strategy. This prospector strategy explicitly addresses the aim of innovation and the employees are likewise empowered to realise a self-fulfilling prophecy of being able to innovate and reach the strategy targets.

Company C 1 engages in fruitful interaction with a wide range of relevant and innovative stakeholders by which new knowledge is acquired and innovations are created. However, the innovative position is not supported by organisational antecedents or internal processes which address network activities.

Company C 2 sustains its innovative position with that which in many situations can be seen as a management focus and emphasis in relation to my interpretation of the data. The management consciously tries to address leadership more explicitly but the empirical evidence shows a predominant inclination towards management. This tendency is also evident in the field of HRM as the company has changed from a softer to a harder HRM contracting form through measuring in relation to formality and procedures. There is not any sign of linking the HRM activities to the business strategy either.

Seeing that the product development department in the company approaches HRM differently than the company in general, we here see a soft and strategic HRM contracting form and a focus on relating HRM with business strategy. Extrapolating the strategy related data enables me to conclude that company C 2 supports its innovative position by having a written strategy. However, it is not well-articulated in the organisation and it is in general based on the engineering domain. Interpreting the data, I will claim that the product development department once again goes its own way as it supports an innovative position by working with increasingly addressing the entrepreneurial strategic domain. In terms of network relations, C 2 has a rich inter-organisational activity level from which it benefits both regarding new knowledge and innovation and from which it subsequently supports the innovative position. On the other hand, there is no indication of organisational antecedents or plans for approaching the network by any internal integration mechanism.

4.6.3 Empirical evidence of the transformation process within the micro, small and medium-sized company

Now, I will explore the empirical evidence of the transformation process in relation to the micro, the small and the medium-sized companies. The aim is to extrapolate the data and thus investigate to what extent the data from the five case companies may be interpreted in relation to understanding the transformation process.

The micro company

The data point at a radical change in management philosophy and approach which has occurred in the micro company and which has made a huge impact on the transformation process. The transformation took place from the former CEO, who was rather management dominated, to the

current CEO, who actually also has some preferences for control, steering and management. But data show that the current CEO has deliberately kept his management inclination at a low level in order to make room for leadership and subsequently employee empowerment. Keeping management at a low level means that the CEO uses management when appropriate either in order to allocate resources or because some employees prefer a management approach.

The empirical evidence clearly shows how this leadership approach relates to freedom and self-responsibility and further on a personal and professional development of the employees. The link continues as the employees use this competency development to create new knowledge and new ideas and subsequently product development and innovation. In other words, this micro company has transformed to an innovative position through changing a predominant management approach to a predominant leadership approach supplemented with management elements.

Another extrapolation of the data arises when the transformation process is addressed through the HRM contracting form; company A exchanged a hard HRM approach with a soft by underlining elements like: Seeing the employees as an (the most) important source of innovation, influencing social and psychological processes that promote (especially brain activities) learning, flexibility, knowledge creation, cross-functional activities and competency development externally as well as on-the-job-training. The respondents recognise this change in HRM as an important element in how this company developed an ability to innovate. Therefore, the change in HRM approach plays a central role in the transformation between non-innovative and innovative. In its development of how to understand HRM, company A has reached a point of linking the HRM activities to the business strategy which in addition supports the idea of a soft HRM transaction form. This soft and strategic based HRM philosophy is central to the transformation between non-innovate and innovative.

Strategy is another cardinal point of the transformation process which company A has undergone. From extrapolating the data, I will argue that company A transformed by making an explicit written strategy which addresses innovation and which throughout the whole transformation process has been well-articulated among all stakeholders. During the implementation of the strategy, a self-fulfilling prophecy emerged as management and employees expressed in the strategy a confidence in their own ability to make new products and innovation. In addition, the empirical evidence points at a change from the engineering to the entrepreneurial domain as another aspect of supporting the

transformation process. The respondents are quite clear in stating these aspects as reasons for the company's ability to become innovative and therefore as ways to support the transformation process.

Company A also influenced the transformation process by a radical change in the way it understands and uses network relations. Based on the empirical evidence, there are reasons to believe that before 2004, this company was rather inactive in terms of network activities. Data show that today, network is an extremely important part of developing the company and the network has as such supported the transformation process. This process has prompted competency development capable of developing and supporting an active network with all kinds of relevant and innovative stakeholders. The transformation process is also founded on the development of social and specialist qualifications as the employees experience increased in trust, social relationships to and respect for stakeholders on the social side. On the specialist side, the employees emphasise creating, exploring and exploiting professional knowledge in interaction with these stakeholders. As these network relations with relevant stakeholders are a major source of new knowledge which in turn is a source of innovation, this network approach becomes an important aspect of transforming company A from non-innovative to innovative.

The small companies

Company B 1

By extrapolating the data, the transformation in company B 1 has been realised through its "co-leadership" project which has entailed a change from emphasising management to emphasising leadership. From this change in management approach, the transformation has been related to delegating responsibility, increasing the freedom to enhance employee involvement and creating a self-reinforcing atmosphere. Still, management has been used to systemise measuring and steering in a suitable manner. No written plan for how to develop the management in general has formed part of the transformation process.

As I interpret the data, company B 1 has transformed into recognising the employees as a source of innovation and development of the company in general. Behind this changed view of the employees, I interpret a change in the HRM contracting form from an internal labour market to a strategic HRM approach playing an important role in the transformation process. This movement is

further documented by the company's focus on relating informal learning, training and competency development to the business strategy. The data indicate that it is through an increasing focus on these social and psychological processes that the company has transformed from non-innovative to innovative.

As I extrapolate the data regarding how company B 1 has transformed to an innovative position in relation to strategy, the following pattern emerges. The company has used a written strategy to support the transformation process; the challenge, however, is that this strategy is not well-articulated in the organisation and that the strategy rests on the engineering domain. The strategy has no specific sign of innovation and there is no sign of any shift in domain focus for which reason we most likely face a defender strategy. The only thing which really supports the transformation (if I relate to theory) is the fact that the strategy is long-term and in writing.

By interpreting the data in relation to network, B 1 has supported the transformation by developing network relations that especially address production processes and quality aspects. These activities have clearly created new knowledge and ideas which subsequently have supported the production process innovation. However, the CEO of the company expresses a reduced emphasis on and expectation to network relations as a way to transform the company. In addition, no data indicate that internal processes are pointing at or supporting any development of network activities. Summing up, company B 1 has some network relations which have supported the transformation process but the CEO is not convinced that network activities help transforming the company and no internal organisational processes or antecedents are influencing the transformation process.

Company B 2

In company B 2, data indicate that the transformation has been fulfilled by replacing management with leadership in terms of addressing an open communication in an organic structure and with close interaction between leaders and employees. The data indicate that the transformation was further supported by an increasing focus on trust, feedback and autonomy. Company B 2 also displays an ability to limit the leadership activities by involving some management elements as the management directly communicates how to control and steer certain tasks. No written plan for management development is present and therefore, it has not had any impact on the transformation process.

In relation to HRM, company B 2 has transformed by focusing on some soft contracting forms like self-responsibility, self-initiation and cross-functional activities. This approach has supported the transformation as employees come up with good ideas and are positively involved in aspects related to the process innovation within the company. However, no support to the transformation process is founded on a strategic approach to competency development or to a link between HRM activities and the business strategy as the company has not addressed these issues in its movement.

When it comes to how company B 2 has used strategy to transform from non-innovative to innovative, the extrapolation of the data shows an unambiguous picture. That is, strategy cannot have played any role in supporting the transformation of B 2 seeing that no strategy has been or is present. Furthermore, the management does not believe in a positive impact of having a written strategy and as I interpret the data, company B 2 is focused on engineering domain activities. If I relate this to the theoretical propositions of strategy (in chapter 5, I will relate theory to the empirical data), company B 2 has not gained any support for the transformation process from their strategy or lack of strategy.

Based on an interpretation of the data, I will argue that the transformation process in company B 2 has gained some support from the company's network activities even though these network relations are not based on a planned process and not directly related to support the transformation process. Still, I will argue that company B 2 has supported the transformation process through interaction with relevant network relations. These relations have namely supported the creation of new knowledge, new ideas and new ways to collaborate in e.g. delivering orders. That means that although the network relations are based on a random foundation, they still support the transformation. On the other hand, no data indicate that internal organisational processes or antecedents provide support to the transformation process.

The medium-sized companies

Company C 1

The extrapolated data indicate that the transformation process in company C 1 has followed an increased focus on a leadership based approach coupled with clear management standpoints to secure control in terms of objectives and economic figures. Interpreting the data, it seems as if

company C 1 has found a balance between leadership and management in their transformation process from non-innovative to innovative, although some respondents call for more management. Moreover, company C 1 has also supported its transformation in relation to a plan for how to develop the management and in an action learning context as well. This deliberate management training has had a strong focus on leadership aspects and thus created room for the employees to create new knowledge, new products and innovations. Therefore, the increased focus on leadership with management elements as well as the intense work with a management development plan in an action learning context have strongly supported the transformation from a non-innovative to an innovative position in C 1.

By an extrapolating of the data, it appears that company C 1 has supported the transformation by means of the following main elements in the area of HRM: C 1 has deliberately changed to a soft and strategic based HRM contracting form that aims at learning, knowledge creation and innovation in a direction of conformity with the business strategy. These activities support the transformation toward being innovative and therefore, I will state that the changes made in the area of HRM have had a positive impact on the transformation process in general.

Having a written long-term strategy is used intensively to transform this company and extrapolation of the data shows that it is based on a shift in focus from the engineering domain to the entrepreneurial domain. Therefore, I will argue that the data can be interpreted to support that the transformation is based on a change from a defender strategy to a prospector strategy. The strategy is well-articulated in the organisation, it explicitly addresses innovation and the employees believe that they are able to fulfil the strategy. If I relate this to the theoretical propositions, the company should be well-supported in its transformation towards becoming innovative.

Interpreting the data suggests that company C 1 has actively used network relations as a way to support the transformation. That is, company C 1 has developed network relations based on social as well as specialist competencies with all kinds of relevant stakeholders. From these network relations, they learn, develop new knowledge and create innovations. The company's ability to link this new knowledge to turnover and earnings is effective and that has naturally supported the transformation process towards being innovative. However, no empirical data show a focus on organisational antecedents or processes which directly provide support to the network activities. By

relating to the network propositions, the transformation of company C 1 derives from the network relations with relevant stakeholders and not from organisational antecedents or processes.

Company C 2

The change process within company C 2 is opposite from the four other case companies as I extrapolate the data to clarify that this company has changed from a heavy leadership conviction to a strong management passion through the transformation process. The management approach addresses first and foremost elements like control, systemising and avoiding mistakes. By interpreting the data, it seems that this company has an intensive focus on implementing a well-planned management development process which also seems to be planned in an action learning context. If I relate to the theoretical propositions, the management area provides only a weak support to the transformation of C 2 as the emphasis is on management and as the plan for management development still is a plan and intention for future activities.

Interpreting the data from the HRM area tells the same story as above as it seems as if there has been an ongoing transformation from a soft approach towards a hard HRM approach in company C 2. Furthermore, there is no sign of linking the HRM activities to the business strategy. If I relate this to the theoretical propositions, there is a weak support to the transformation process from this area. However, the product development department has worked differently with HRM activities as extrapolating the data suggests that the transformation process here enjoys support from a hard to soft change in contracting form. This department has through the transformation process increasingly addressed learning, competency development and knowledge development/sharing as ways to increase product development and innovation. In addition, this department tries to link HRM activities to the business strategy. Therefore, due to supporting the transformation process, the situation is double as the organisation in general does not provide any support if I relate to the theoretical propositions. On the other hand, the product development department does support the transformation both by changing toward a soft HRM contracting form and by working on linking the HRM activities to the business strategy.

In company C 2, data indicate that strategy plays a role in the transformation because the strategy is long-term and in writing and most importantly, because working with the strategy has taught the management why involving relevant stakeholders is crucial to successfully develop or transform the

company. However, the empirical evidence indicates that the management finds it difficult to involve employees in the strategy and link it to product development as the strategy is not well-articulated in the organisation. Again, the product development department is more progressive in addressing the transformation process through the area of strategy. There are signs of a shift in focus toward the entrepreneurial domain and this department also tries to link the business strategy with product development. Therefore, if I relate to the theoretical propositions regarding strategy, C 2 provides only a weak support to the transformation as the company has a written strategy but it is not well-articulated. The product development department, however, supports the transformation more strongly as the strategy here is better articulated and because it has changed its focus from the engineering domain to the entrepreneurial domain.

The interpretation of the data suggests that C 2 has transformed by being active in its network relations. The company has been actively focusing on initiating and developing network relations with relevant stakeholders who are able to support the innovation ability and subsequently the transformation of the company. To support this transformation, both social and specialist competencies have been used to create new knowledge which in turn has supported the product development and innovation, subsequently resulting in a positive impact on the transformation. Still, no organisational antecedents or processes point directly at a support to the transformation process which, in relation to the propositions, means that the transformation enjoys no support from this area.

4.6.4 The general empirical contributions

Three elements will complete this chapter; first of all, I will relate the empirical data to the last two propositions as to investigate what initiated the transformation and how it has evolved. Secondly, I will generalise the data between the sizes micro, small and medium. Thirdly, I will generalise across the three sizes as to address all five case studies and the SME sector in general.

4.6.4.1 The five case companies and propositions 9 and 10

As transformation between non-innovative and innovative is the central aspect of this thesis, I will generalise specifically in relation to addressing what provokes or releases the transformation process and what happens after a company has initiated a transformation process. I will do that by bringing focus to the last two propositions (9 and 10) which explicitly address the theoretical

predictions of how to initiate a transformation and what kind of consequences that will bring as the process develops. I will explicitly focus on what the empirical evidence shows in relation to the last two propositions (and relate the empirical data to the theory in the next chapter) which are reproduced below.

P 9: The transformation process will be released by strategic considerations.

P 10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium.

Company A

Regarding the micro company, the empirical evidence clearly talk about considering different strategic options and choosing an explicit strategy plan which was the starting point of the transformation. From extrapolations of the data, it has been proven that this transformation has addressed a movement from a defender strategy towards a prospector strategy and that the process is based on innovations and has been well-articulated in the organisation (proposition 9). As the company started to implement the inherent ideas of the strategy, other elements changed as well. (1) The management approach changed to encompass a heavy emphasis on leadership and a secondary emphasis on management, (2) the HRM approach changed in several areas supporting the picture of leaving the internal labour market and increasingly adapting to the strategic HRM, (3) strategy as mentioned above and (4) the network activities were upgraded by interacting with relevant stakeholders and by developing organisational processes to support the network relations (proposition 10). Thus, the empirical evidence must be construed to mean that to actually create a prospector strategy and turn out more innovative, company A needed to change in the direction of more leadership, strategic HRM and an open network oriented organisation.

As this is a social science and quantitative study, an endless numbers of variables influence the research; consequently, it can be difficult or impossible to say what initiated the transformation and what had an effect on what. However, on the basis of the empirical evidence, I will argue that the micro company started the transformation by changing its strategic conviction from a defender to a

prospector strategy and that management,⁸⁶ HRM and network activities have changed successively toward supporting the new aligned equilibrium in terms of an innovative SME.

Company B 1

In company B 1, the strategy has not played the role of releasing the transformation. Even though it is a written and long-term strategy, it is based on the engineering domain, is not well-articulated and does not explicitly address innovation. By extrapolating the data, I will argue that the transformation process is triggered by a passionate aim of developing internal production processes to meet the expectations of the customers.⁸⁷ If the aim is to develop internal production processes, the question is what should be done to support that. Company B 1 did support their transformation process by changing (1) the management approach towards more emphasis on “co-leadership”, (2) the HRM approach as much more attention is concentrated on soft and strategic based HRM activities, (3) the strategy as the company now has a written strategy in an attempt to support the transformation and (4) the network relations with relevant stakeholders which have been developed as to support the innovative development of the production process. My interpretation is that to reach the point of being innovative in relation to the production process, company B 1 needed to change towards “co-leadership”, softer and more strategic based HRM forms, a written strategy and a focus on external relations.

The strategy of company B 1 has not been a triggering element of transformation (not meeting proposition 9); however, by using the aim of internal production process innovation as a releasing mechanism for transformation, a change has followed in management, HRM, strategy and network relations. The aim of process innovation as a releasing point (different from strategy) for the transformation has the same derived effect as strategy regarding the four areas (management, HRM, strategy and network). Therefore, I will argue that the work with the four areas in company B 1 develops toward a new aligned equilibrium in terms of the innovative position; with some exceptions, however. That is, company B 1 has no plan for management development, it has a strategy but it is poorly articulated, it addresses the engineering domain and it is not focused on innovation. Moreover, the company bears no signs of internal antecedents or processes supporting

⁸⁶ Yet the company has not made any plan for how to train and develop management.

⁸⁷ Respondent 2 said: “The innovation has been concentrated on the production process; the adjustment and ongoing improvement of the production process is where we are innovative”. Respondent 1 talks about constant favourable developments in collaboration with industry players, especially the customers.

network activities. Still, I will argue that the overall tendency points at a company transforming toward the innovative position but it is too early to talk about a new innovative equilibrium.

Company B 2

Regarding company B 2, it is even more obvious that the releasing point is not to be found in strategic considerations for the simple reason that B 2 has no written strategy and has no intention of preparing one. Instead, a situation like the one uncovered in B 1 emerges; that is, I will argue that the transformation releasing point is company B 2's aim of improving and developing the process innovation.⁸⁸ How has B 2 then supported the transformation toward a heavy emphasis on process innovation? The company has changed by (1) focusing increasingly on leadership supplemented with management elements, (2) changing the HRM approach to be based on a soft contracting form and (3) developing network relations with relevant stakeholders. To fulfil the aim of improving the process innovation, company B 2 has changed its approach to management, HRM and network relations.

Company B 2 did not use strategy as a releasing point for transformation but by having the aim of process innovation, the company still managed to change within the areas of management, HRM and network relation. However, according to the data, the company has made no changes in relation to the following five areas: (1) A plan for management development, (2) linking HRM with business strategy, (3) having a written long-term strategy, (4) shifting strategic focus from the engineering to the entrepreneurial domain and (5) developing internal processes in relation to network activities. The question remains whether B 2 is moving toward a new aligned equilibrium in terms of an innovative position. In the case of B 2, I believe that the answer to this question is much more uncertain. Some elements have changed toward an innovative position but many still have not and for some of them, there is no intention of change within company B 2. If there is (and I do not know!) a tipping point related to proposition 10 saying that if a company reach a certain point in its transformation toward becoming innovative then all four areas of management, HRM, strategy and network will adapt sooner or later, I will say that company B 2 has not reached that point yet because there is no indication of the five unchanged areas transforming in the near future.

⁸⁸ One of the respondents in this company said that the reason for this company's success is the ability to think new. The two CEOs of the company are able to think in new aspects in almost any case. The CEOs are able to rethink how to exploit the CNC technology, the production processes as well as the logistic processes.

No new alignment or equilibrium has been reached; still, the mentioned areas of management, HRM and network have supported the transformation of B 2 by becoming increasingly more process innovative.

Company C 1

By extrapolating the data, I will argue that company C 1 is an example of having the change in strategic orientation and a movement from a defender to prospector strategy as the releasing point of the transformation. This company did actually through different considerations related to strategy chose to change the focus from the engineering domain to the entrepreneurial domain including an explicit focus on product development and innovation. C 1 supported the transformation process by means of the following elements: (1) Development of a heavy emphasis on leadership supported by management elements and a plan for how to develop the management in general, (2) change in the HRM form to a soft contracting form which is linked to the business strategy as well, (3) preparation of a written, well-articulated strategy based on innovation and a prospector approach as mentioned above and (4) increasing network relations with innovative and relevant stakeholders.

I will argue that to support the prospector strategy and the transformation toward the innovative position, company C 1 was forced to make the above-mentioned changes (1-4) and as it did, a new aligned equilibrium as an innovative company was established.

Company C 2

In relation to company C 2, an extrapolation of the data shows a unique and somehow double pattern as one transformation process has occurred in the company in general and another has occurred in the product development department. In company C 2 in general, the change process may be interpreted as being in opposition to the theoretical propositions' recommendations and the general pattern of the other four case companies. In relation to the four other case companies, I have been looking for the releasing element of the transformation process. Staying with that concept, I will claim that the current CEO of company C 2 and his approach to management is the releasing point of the transformation.

From my interpretation of the data, I will claim that the current CEO carries a management approach as he takes over and breaks with the former CEO. The data indicate that the former CEO

had a more leadership based approach and by extending the data, it seems that the current CEO releases the transformation process in the breaking process with the former CEO. The transformation process in general can be characterised by (1) an increasing management approach in terms of control, systemisation and steering to avoid mistakes and a plan for management development which is prepared but not implemented, (2) a shift to a hard HRM approach entailing measuring on formal organisational elements like product quality and supply security, (3) a long-term written strategy which, however, is neither well-articulated nor addressing product development and (4) the network activities are the exception to the rule because in this area, the company actually follows proposition 7 as the transformation is supported by an increasing network activity with relevant stakeholders and with an outcome of product development and innovation. I found no indications of internal antecedents or organisational process directed toward network.

With this almost completely opposite transformation, a thought which suggests itself is how can these activities (1-4 above) support a transformation from a non-innovative to an innovative position? Actually, it may also be that if these activities (except network relations) stood alone, no transformation would have occurred but due to an autonomous product development department, a parallel process has taken place. Within the department, an ambition of creating more innovative products is clearly present and by extrapolating the data, I will argue that the releasing point of its transformation process is tied to a shift in strategic domain to an explicit focus on the entrepreneurial domain. This department has succeeded in making a different transformation process which can be characterised by (1) a heavy emphasis on leadership, (2) a soft HRM contracting form focusing on knowledge, learning, competency development and acknowledging the employees as the determining factor for innovation as well as linking HRM activities with the business strategy, (3) trying to change the strategic focus to an entrepreneurial domain and explicitly addressing innovation within the strategy and (4) as the company in general, this department has begun working extensively with relevant stakeholders to promote innovation.

Taking both situations into account, I will argue that the transformation from non-innovative to innovative has been released by the product development department's aim of developing more and better innovations. Furthermore, I will claim that the actual support to the transformation process has come from the product development department much more than from the company in general and naturally, the product development department is crucial when it comes to creating innovation.

From the data regarding company C 2, I will argue that a product development department can also be crucial when it comes to transforming from non-innovative to innovative. In addition, I find it interesting that the data indicate that a product development department can support and fulfil a transformation process even though the company in general does not support the transformation. By referring to the empirical evidence, the product development department and the way it acts in relation to all 10 propositions, I will argue that this department can be perceived as aligned in a new innovative equilibrium. Even though talking about an alignment on a departmental level can give rise to other questions like how can that be possible under a company culture that does not support this approach, I will still claim that the department by confirming 7 (2, 3, 4, 5, 6, 7 and 9) out of 10 propositions has reached a new innovative equilibrium.

As the company in general and the product development department address quite different transformation processes, no new equilibrium has been reached if we address C 2 as one company. A new equilibrium will not be reached until the company in general (including the product development department) supports the same concept. When performing the final analyses and comparisons in chapter 5, I will address company C 2 as not aligned in a new innovative equilibrium. However, I will address the product development department as a case in which an aligned and innovative new equilibrium has been reached as I believe that this is what the empirical evidence indicates.

4.6.4.2 General empirical contributions between the three sizes

There are three perspectives from which I will investigate if any contributions can be addressed in relation to the different sizes of the case companies. Firstly, I will deal with size in relation to the companies' ability to create a new aligned equilibrium. Secondly, I will discuss what seems to release the transformation and relate that to the different sizes. Thirdly, I will put forward some general comments on the empirical contributions from relating sizes.

As I interpret the data, the micro company (A) and one of the medium-sized companies (C 1) have been able to reach equilibrium of an innovative position whereas the two small companies (B 1 and B 2) and the other medium-sized company (C 2) have not created a new equilibrium in the innovative position. From the data, it is possible to argue that the product development department of C 2 has created an alignment in an innovative position (within its own department though). As it

is the micro and one of the medium-sized companies (and a department within company C 2) which are aligned, the relation between sizes and alignment does not seem to indicate a pattern.

Using the transformation releasing point as point of analysis, I will claim that the following pattern emerges. The micro company, the medium-sized company C 1 and, according to the data, also the product development department of company C 2 use a releasing point of changing strategic focus from the engineering domain to the entrepreneurial domain. Or in other words, they change their strategies from a defender to a prospector approach. The two small companies use an aim or a vision of creating more internal process innovation as a releasing point for the transformation. For company C 2 in general, it seems that the releasing point is a shift toward a more management driven organisation. With this diffusion between the sizes regarding transformation releasing point, I have to repeat the line above stating that releasing point does not seem capable of contributing with any indications of a pattern.

However, the analyses regarding level of alignment and releasing point provided some alternative ways to approach the data as a link and a pattern emerge when combining level of alignment and releasing point. Regarding the two companies (A and C 1) and the product development department (in company C 2), I argued that in these three situations, it was possible to talk about a new alignment in an innovative position and the releasing point in the three situations is also the same, namely a change in strategy conviction from a defender to a prospector approach. That means that the three situations also share the entrepreneurial domain as the primary strategic conviction and focus.

The next natural step is to extend this line of data analysis regarding the three companies (B 1, B 2 and C 2) which did not reach a new alignment. From that, other insights emerge because the two small companies share the same releasing point, namely an aim of improving the internal process innovation (whereas in the three situations of alignment, the focus is product innovation). Company C 2, which in general was not aligned, has a releasing point as I interpret to be an aim of changing toward a management dominated development of the company. In an interesting subarea, the three companies have another common feature and that is that they all still mainly focus on the engineering strategic domain.

4.6.4.3 General empirical contributions for SMEs

The above analyses and discussions on relations between the different sizes of companies did not uncover much coherence so far. However, the strategic approach and the domain focus seem to be a way to create contributions from the data as this perspective seems to indicate a more general pattern.

The three situations (two companies and one department) of alignment in a new innovative position are the three situations where the releasing point is related to a change in strategic focus from engineering to entrepreneurial focus. That means that these situations subsequently address a change in strategy on a more general level from a defender to a prospector approach. In addition, the focus on product or process innovation respectively seems to further contribute to the understanding. That is, the three situations with alignment and entrepreneurial based prospector strategy also share a product development focus whereas the three not aligned companies with the engineering based defender strategy all focus on process innovation.

A reflection and subsequent question regarding these patterns will obviously be; is it the focus on strategy domain, the strategy itself or the product/process distinction which determines the releasing point of the transformation and further develops the company's ability to transform and align to an innovative equilibrium? Then, of course, we have to abide by the fact that this is a social science and qualitative research which means that an endless number of variables are in play and thus that it is impossible to answer the question unambiguously.

Still, with these restrictions, I want to elaborate further on the question. The question is: What releases the transformation process and what determines throughout the transformation whether or not the company reaches a new equilibrium? In my opinion it is neither the focus of strategy domain, strategy itself nor the distinction between product or process innovations. After all, it is human beings who create and fulfil both the releasing point and the transformation. In relation to the five case companies, it is first and foremost the CEOs and their management colleagues (secondarily the employees) in these companies who carry out these decisions and processes.

The releasing point of and subsequent support to a transformation process will normally be addressed by the management (it has been so in all five case companies) through elements like

intentions, aims or visions for how and where to develop the company for which they are responsible. What shapes the management's intentions, aims and visions? From my point of view, the answer is the individual manager's convictions, attitude and beliefs which also turn out to be the way these managers' understand and act in terms of management and subsequent HRM, strategy and network activities as well. Therefore, I will argue that it is the management's convictions, attitudes and beliefs in terms of a vision for how to develop the company which become the fundamental releasing point of the transformation process. However, as the PhD project level of analysis is the organisation or company, the research is cleared of individual aspects and therefore also of the manager's convictions, attitude and visions. Still, it may be a potential further research opportunity (see chapter 6).

To fulfil a transformation process toward a new equilibrium, the vision needs to be clear and identify a direction for the development. This vision and direction have to address elements like management, HRM, strategy and network relations and translate them into instructions and guidelines for how to complete the transformation. The translation of these four elements (management, HRM, strategy and network) can be accomplished more or less consciously; that is, more or less through a detailed plan for the process.

From these elaborations, I will sum up the general empirical contributions by claiming that if the management of an SME has a vision and a direction pointing at process innovation, focusing on an engineering domain, then a new innovative alignment will most likely not evolve. The reason is that this management perspective will impact the releasing point of the transformation and the translations of management, HRM, strategy and network relations will remain unclear and not provide support to the transformation process which exposes a new equilibrium.

On the contrary, if the management has a vision and a direction for the movement which address product innovation, a focus on the entrepreneurial domain and the prospector strategy, then a new innovative alignment will most likely emerge, due to the interpretation of data and the general empirical contributions. The reason for this argument is that this management perspective will impact both the releasing point of the transformation as well as the translation of management,

HRM, strategy and network relations⁸⁹ so that a clear support to the transformation process in general will occur. These elements will in common create a new innovative position which will be aligned in a new equilibrium.

To sum up, a new management focus (based on vision and convictions⁹⁰) has the potential to initiate a transformation process. If this transformation process is to result in a new aligned and innovative equilibrium, it ought to rely on a prospector strategy with product innovation focus and then leadership, strategic HRM and network with innovative partners will naturally adapt to the new alignment, as evident in company A, C 1 and the product development department of company C 2.

If the management focus is based on process innovation and the engineering domain, the following transformation process will not result in a new innovative alignment as was the case in company B 1, B 2 and C 2.

⁸⁹ That is, heavy leadership, strategic HRM, a prospector strategy and network relations with relevant innovative partners.

⁹⁰ A manager's conviction and vision change and develop in a dynamic interrelation with the context. It does not mean that the typical manager changes focus often but from time to time, the focus will change as new insights change the manager's convictions and vision.

5 Comparison between theoretical proposition and empirical results

This chapter is about comparing the theoretical propositions with the empirical results as to see to what extent there is congruity between the two elements. If there is congruity, then the empirical data confirm the theoretically based proposition and add new insights in relation to the research question which is: How to manage SMEs through the transformation from non-innovative to innovative? In situations where no or only weak congruity transpires from comparing theory with the empirical data, I will discuss the relation between the general and the specific.

Although it is difficult to define the general and the specific explicitly and precisely, I understand the general as the theoretical aspects and the specific as the empirical data within this research. The reason why it is difficult to distinguish between these two elements is that they continuously interact with each other and by relating them, their independence disappears. That is, however, the whole point of social research because as it disappears, a new level of understanding, new knowledge and better insights evolves. This also illustrates the cumulative character of research and for me, it shows the beautiful and meaningful germ of coming to a better understanding of a problem.

The discussion between the general and the specific in situations with no or only weak congruity aims at putting forward arguments for a better understanding of the research question. I expect the empirical data to be capable of exemplifying whether theory or the empirical contributions provides the relatively best solution in each situation. The aim is to make these “best solutions” form a new model based on the knowledge created by this research for how to transform a production based SME from non-innovative to innovative. The more situations with no/weak congruity and the more situations in which the specific solutions are considered the relatively best, the more new knowledge is created and the more support is provided for a new or at least a modified model.

Throughout this chapter, I will address all 10 theoretical propositions in terms of this discussion of the general versus the specific and I will address the three different sizes of the companies. The reason for maintaining this focus on size⁹¹ in the comparison is based both on the literature which addresses size as a contingency and on a rational argument saying that the transformation has to be different for a micro company compared to a small or even a medium-sized company.

⁹¹ I extrapolated the empirical evidence as if size did not contribute with anything specific.

I will discuss the 10 propositions two at a time so that section 5.1 is dedicated to the two propositions regarding management, section 5.2 is dedicated to the two propositions regarding HRM, section 5.3 is dedicated to the two propositions regarding strategy, section 5.4 is dedicated to the two propositions regarding network and section 5.5 is dedicated to the two propositions regarding the transformation process. In section 5.6, I will address the SME sector in general.

5.1 Comparing theory with empirical data in terms of management

In this section, I will compare the two theoretically based management propositions to the empirical data from the micro company, the two small companies and the two medium-sized companies. That facilitates a situation by which I am able to explore how the theory meets the data for each company and for each of the three different company sizes. An overview of the frame for the comparison is illustrated in the figure below.

Figure 5.1 Comparison of the management propositions and the empirical data

| | Micro company A | Small companies B 1 B 2 | Medium-sized companies C 1 C 2 |
|---|--------------------|-------------------------------|--------------------------------------|
| P1: The transformation process will be supported by a written management development plan which has the focus of improving managerial skills in an action learning context. | ÷ | | + |
| P2: The transformation process will be supported by the management being simultaneously able to create an atmosphere of freedom and autonomy based on an explorative leadership approach with a limited and goal-orientated exploitative management approach. | + | | ÷ |
| | | | + |

Source: Own work

+ This sign means that data from the company indicate that the theoretical proposition is met.

÷ This sign means that the data do not meet the proposition.

In situations where there is a differences between company C 2 in general and its product development department, I will split up the section with the company at the top and the product development department at the bottom.

As the figure shows, only company C 1 has a written management plan for how to develop the management's abilities whereas the four other case companies do not meet this proposition. As company C 2 takes up a special position in relation to the other four case companies by only meeting one (number 7) out of ten propositions, I will argue that proposition 1 can be differentiated

in relation to size of the company. That is, in micro and small companies, it is unlikely that a written plan for management development is present whereas it can be expected for medium-sized companies. Thus, the pattern is: The smaller the company, the more seldom a written management plan will be and vice versa. That also follows the inference that larger companies have more managers and that they have the potential to benefit from implementing management plans.

As company A has created a new innovative equilibrium without a written management plan, a contribution is that a written plan is not an imperative for a successful transformation. However, as company C 1 is another strong example of a successful transformation to a new innovative equilibrium and as this company clearly received important support to the transformation process from having a written management plan implemented in an action learning context, C 1 confirms proposition 1. Company B 1, B 2 and C 2 can be seen as a reversed support to the proposition as these companies do not have a written plan for management development and they did not reach a new aligned innovative position.

In sum, the empirical evidence from company C 1 confirms proposition 1 as a written management plan in an action learning context can support the transformation. However, the specific contribution from the other four case companies is that it is not necessary to follow the proposition to create a successful transformation and it is unlikely for smaller (micro and small) companies to follow the proposition at all.

In relation to proposition 2, only company C 2 in general does not follow the proposition whereas the other four case companies and the product development department of C 2 meet the proposition. I see no indication of company size playing any role here and as C 2 is the only exception, I will argue that the proposition is strongly confirmed taking the special situation of C 2 into account. As four companies and one department follow the recommendations of this proposition, it seems to me that change towards a heavier leadership domination supported with some management elements is able to carry a more general movement. That is, a general belief that to manage and develop a company today will gain support from this kind of balance between leadership and management.

On the other hand, a successful transformation from non-innovative to innovative cannot be accomplished alone by finding this new balance between leadership and management. That is what

company B 1 and B 2 indicate as they have created a balanced situation of a heavy leadership approach supported by some management elements without being able to accomplish a successful transformation towards an innovative alignment. Company A, C1 and the product development department in C 2 exemplify how important this balance between leadership and management is for creating the freedom and autonomy that subsequently is life-giving to new knowledge and innovation. Company A, C 1 and the product development department exemplify how meeting proposition 2 is one element in creating an aligned innovative position.

In sum, proposition 2 is met by all case companies with the exception of C 2 and following the philosophy behind this proposition is highly recommendable to all SMEs (no matter what size) who want to transform toward an innovative position. The specific contribution is that meeting proposition 2 is an element which supports the development of a new aligned innovative position; however, meeting the proposition is in itself not sufficient to create a new innovative equilibrium.

5.2 Comparing theory with empirical data in terms of HRM

In this section, I will relate the two HRM related propositions with the data from the five case companies. An overview of the main results from the comparison can be illustrated like in the figure below.

Figure 5.2 Comparison of the HRM propositions and the empirical data

| | Micro company A | Small companies B 1 B 2 | | Medium sized-companies C 1 C 2 | |
|--|--------------------|-------------------------------|---|--------------------------------------|---|
| P3: The transformation process will be supported by changing the HRM philosophy from an internal labour market (hard) approach to a strategic HRM (soft) approach. | + | | | ÷ | |
| | | | | + | |
| P4: Linking the strategic HRM contracting system with the business strategy will support and develop the transformation process. | + | | ÷ | + | ÷ |
| | | | | | + |

Source: Own work

The pattern regarding proposition 3 is similar to the pattern regarding proposition 2 and I will argue that there are several reasons for this match. The overriding explanation is in my opinion that a

heavy leadership approach (proposition 2) supports the soft and strategic based HRM. The reason for this link is that leadership is about influencing, motivating and involving the employees so that they develop their own competencies and the soft HRM has an explicit focus on employee competency development as a way to create learning and new knowledge. The leadership approach focuses on creating circumstances under which the employees can act independently, self-responsibly and self-initiating whereas soft HRM is about creating social and psychological processes where the employees are interested in working with cross-functional activities outside their normal domain in the best interest of an innovative development of the company. Therefore, leadership supports a soft HRM approach and companies which have a dominating emphasis on leadership can be expected to follow a soft HRM contracting form as well. That is also what the empirical evidence shows as the pattern of proposition 2 is matching the pattern of proposition 3.

As shown in the figure above, company A, B 1, B 2, C 1 and the product development department in C 2 all meet proposition 3 as they have supported their transformation process from non-innovative to innovative by changing to a dominating soft HRM approach. Company C 2 in general does not meet this proposition as this company emphasises how an internal labour market can support product quality and supply security. As company C 2 also has a dominating management approach, it is natural to argue that there seems to be a link between management and internal labour market just opposite the link between leadership and strategic HRM.

There is no indication of size playing any role in relation to this proposition as all three sizes are represented in confirming this proposition. Still, I will argue that the empirical evidence confirms proposition 3 as a way to support the transformation process toward an innovative position. Meeting proposition 3 supports the transformation process toward an innovative position but it provides no guarantee that the company thereby creates a new equilibrium in the innovative position. That is what company B 1 and B 2 indicate by meeting proposition 3 without any innovative alignment. Company A, C 1 and the product development department in C 2 exemplify how meeting proposition 3 can be one element in the transformation toward a new alignment in the innovative position.

Summing up the empirical evidence (except C 2) confirms proposition 3 in general but with the specific contribution that size has no impact and that following the proposition can support and create a new innovative equilibrium; still, the proposition in itself is not a guarantee for alignment.

Regarding proposition 4, the following companies A, B 1, C 1 and the product development department of C 2 have linked the strategic HRM activities to the business strategy. On the other hand, company B 2 and C 2 do not link their strategic HRM activities to their business strategy. It may sound logical regarding the companies who create the link and self-contradictory for the companies who do not create the link. As the proposition is talking about a **strategic** HRM, it must be fair to expect the HRM activities to be linked to the business strategy. However, on the basis of my empirical evidence, we cannot take this link for granted as the empirical data are divided between three case companies (and one department) who create the link and two case companies who do not. An interesting element of subdividing the theoretical frames into smaller constructions is that it may uncover that things are not necessarily how they logically ought or seem to be.

I see no indications of size having any impact on this area as the different companies from micro toward medium-sized by turn either confirm or disconfirm the proposition. The two aligned companies (A and C 1) meet the proposition as does the product development department in company C 2 and also company B 1, even though this company has not developed into a new alignment and innovative position. Company B 2 does not meet this proposition as the company has no business strategy and company C 2 does not meet the proposition as the general HRM approach indicates an internal labour market philosophy although the company has a business strategy.

Summing up the empirical data in terms of HRM, company A, B 1, C 1 and the product development department of company C 2 confirm proposition 4. As A, C 1 and the product development department of C 2 have confirmed the proposition, I will argue that the specific contribution is that meeting this proposition supports the transformation toward an aligned and innovative position. Another specific contribution is, as B 1 also confirms the proposition, that it is in itself not enough to secure a new aligned innovative position. Based on the empirical evidence, company size seems to have no impact on this proposition.

5.3 Comparing theory with empirical data in terms of strategy

Below, I will turn to the relation between the strategy related propositions and the data from the five case companies. An overview of the main results from the comparison is illustrated in the figure below.

Figure 5.3 Comparison of the strategy propositions and the empirical data

| | Micro company A | Small companies B 1 B 2 | Medium sized companies C 1 C 2 |
|--|--------------------|-------------------------------|--------------------------------------|
| P5: The transformation will be supported by the development of a written and explicit long-term well-articulated strategy with attention on innovation. | + | ÷ | ÷ |
| | | | + |
| P6: The transformation process will be supported by initiating an adaptation process changing the entrepreneurial, engineering and administrative domains towards a prospector strategy. | + | ÷ | ÷ |
| | | | + |

Source: Own work

Proposition 5 is confirmed by company A, B 1, C 1 and the product development department of company C 2 and not confirmed by B 2 and C 2. As the two small and the two medium-sized companies in turn either confirm or disconfirm the proposition, I will claim that size does not add any specific knowledge to this proposition. The fact that company A, C 1 and the product development department of company C 2 confirm the proposition is an indication of this proposition supporting the transformation toward a new innovative equilibrium.

However, as B 1 also meets the proposition but has not created a new innovative equilibrium suggests that meeting this proposition is in itself not enough to create an innovative aligned position if I relate to the empirical evidence. Still, the data indicate that following this proposition has supported the transformation process within company B 1. As B 2 and C 2 do not meet the proposition and have not reached a new innovative equilibrium, I interpret that as a reverse argument for claiming that following this proposition is one element of creating a new innovative equilibrium.

Summing up, company A, B1, C 1 and the product development department confirm the general knowledge in terms of proposition 5 and therefore, it can be strongly recommended to follow this proposition if the aim is to transform toward a innovative position. The specific contribution from the empirical evidence is that following this proposition is not enough to develop the transformation toward a new innovative equilibrium as shown by company B 1.

The pattern showing up in relation to proposition 6 is very interesting because it follows the pattern regarding whether or not the companies has reached a new innovative equilibrium. That is, the empirical evidence indicates that company A, C 1 and the product development department in C 2 confirm proposition 6 and as I argue in section 4.6.4.1, company A, C 1 and the product development department in C 2 have reached a position which I recognise as a new innovative equilibrium.

The empirical evidence indicates that company B 1, B 2 and C 2 do not confirm proposition 6 and in section 4.6.4.1, I argued that these three companies have not reached a new innovative equilibrium. In other words, there is a match between confirming proposition 6 and a new innovative equilibrium and not confirming proposition 6 and not reaching a new innovative equilibrium. In my point of view, this indicates some additional specific knowledge because these insights may form the basis for an argument claiming that proposition 6 must to be confirmed in order to reach a new innovative equilibrium and further on, if proposition 6 is followed, my empirical evidence indicates that a new innovative equilibrium will be reached.

That is, companies which exchange a mainly engineering focus with a mainly entrepreneurial focus and further continue an adaptation process within all three domains towards a prospector strategy can transform to a new innovative equilibrium due to the empirical evidence. However, companies not changing toward the prospector position will not create a new innovative equilibrium if I refer to the empirical evidence. Still, one must bear in mind that claiming that proposition 6 must be met by companies who want to reach an innovative equilibrium position only relies on the five case companies within this PhD project. Therefore, the contribution should rather be taken as a further research suggestion than anything else.

Nevertheless, relating to the empirical evidence from company A, C 1 and the product development department of company C 2 confirms the proposition by establishing that it can support the transformation to an innovative equilibrium.

In relation to this proposition, I see no indications of company size adding any knowledge to the understanding of the transformation process.

Summing up, the proposition is generally confirmed by A, C 1 and the product development department of C 2 and not confirmed by B 1, B 2 and C 2. As company B 1, B 2 and C 2 do not confirm the proposition, there is a match between alignment/no alignment and this proposition. That enables me to state that an SME⁹² cannot reach an innovative equilibrium without following proposition 6, knowing that the coherence is only based on indications.

5.4 Comparing theory with empirical data in terms of network

Now, I will address the relation between proposition 7 and 8 regarding network and the data from the five case companies. An overview of the main results from the comparison is illustrated in the figure below.

Figure 5.4 Comparison of the network propositions and the empirical data

| | Micro company A | Small companies B 1 B 2 | Medium-sized companies C 1 C 2 |
|---|--------------------|-------------------------------|--------------------------------------|
| P7: If the SME is initiating and developing external relations with relevant and innovative stakeholders, the transformation process will be supported. | | + | |
| P8: The more internal processes such as planning, organising, staffing and human resource development are related to network activities, the more the transformation process will be supported. | + | | ÷ |

Source: Own work

Proposition 7 is the only proposition (out of 10) that is confirmed by the empirical evidence of all five case companies. This unanimous approach to the proposition creates a very strong support for

⁹² Supplier dominated or production based SMEs.

all kinds of supplier dominated or production based SMEs to follow this proposition if the aim is to transform toward an innovative position due to the empirical evidence.

There is obviously no indication of size playing any role and neither the element of reaching a new innovative equilibrium or not seems to add any specific knowledge to this proposition. That is, the empirical evidence strongly supports the general knowledge that initiating and developing external relations with relevant and innovative stakeholders will benefit the transformation process towards an innovative position. The specific contribution is that the proposition can also support the creation of a new innovative equilibrium (exemplified by company A and C 1) but in itself, it is not enough to create a new innovative equilibrium (exemplified by company B 1, B 2 and C 2).

Taken from the empirical evidence, only company A confirms proposition 8 whereas company B 1, B 2, C 1 and C 2 do not. That substantiates a specific argument for size saying that micro or very small companies have a preference for confirming this proposition. It is also possible to establish a logical argument for this relation between size and developing internal organisational processes which support the network activities. That is, the smaller the company, the more dependent is the company on relations with other actors in the business society if the aim is to develop as a small company does not normally allocate resources to handle anything else than daily activities. Vice versa, the bigger the company is, the more able, all things being equal, it is to internalise the activity and handle development activities within the organisation; still having in mind that all companies confirm proposition 7 and that these arguments are exclusively related to building up internal processes in terms of organising, planning, staffing and developing the employees to support network activities. Therefore, the argument is related to the smaller the company, the more it actively seeks to develop internal processes that can support network activities and compensate for the lack of resources for developing the company.

In general, it can be stated that as only company A confirms this proposition, the recommendation to follow it in relation to transforming to an innovative position is correspondingly weaker. Still, as it is confirmed by company A, following the proposition can support the transformation as well as it can support the creation of a new innovative equilibrium. On the other hand, a new innovative equilibrium can be reached without meeting this proposition as exemplified by C 1 and the product development department in C 2.

Summing up, the empirical evidence suggests that smaller companies are more likely to follow this proposition than larger companies are. Only company A confirms the proposition whereas the other four case companies do not confirm it. That means that the proposition can support a transformation towards a new innovative equilibrium but it is not necessary to follow the proposition in order to create a new innovative equilibrium (C 1 and product development department in C 2).

5.5 Comparing theory with empirical data in terms of the transformation process

Propositions 9 and 10 regarding the transformation process will in this section be related to the empirical evidence from the five case companies. An overview of the main results from the comparison is illustrated in the figure below.

Figure 5.5 Comparison of the transformation propositions and the empirical data

| | Micro company A | Small companies B 1 B 2 | Medium-sized companies C 1 C 2 |
|--|--------------------|-------------------------------|--------------------------------------|
| P9: The transformation process will be released by strategic considerations. | + | ÷ | + ÷ |
| P10: Starting a transformation process in one (e.g. strategy) of the four theoretical areas will automatically force through a transformation process in the other three theoretical areas as to create a new innovative alignment or equilibrium. | + | ÷ | + ÷ |

Source: Own work

Proposition 9 and 10 follow the same pattern as the figure shows and it is the same pattern as evolved around proposition 6 as well. There are obviously also some similarities between proposition 6 and 9 as they both address strategy. However, I will claim that the difference is that proposition 6 talks about how the transformation process presumably will benefit from initiating an adaptation process towards a prospector strategy. On the other hand, proposition 9 talks about the releasing point of the transformation process which is also expected to relate to strategic considerations. The fact that propositions 9 and 10 share pattern with proposition 6 is interesting

and contributes with important specific knowledge. Now, I will analyse the two propositions individually.

Proposition 9 is confirmed by A, C 1 and the product development department of company C 2 and the proposition is not confirmed by company B 1, B 2 and C 2. This pattern implies that the empirical evidence advances no specific insights in relation to the three different sizes of the case companies. There is, however, conformity between how proposition 9 is confirmed and the question of whether or the not the five case companies have reached a new innovative equilibrium. The empirical evidence suggests that having strategy as a triggering point for the transformation process not only supports the transformation process but also supports the creation of a new innovative equilibrium and vice versa; the three companies which did not confirm this proposition, as they had optimisation of internal process innovation (B 1 and B 2) or a fundamental change in the management approach (C 2) as releasing point, did not create a new innovative equilibrium. Like the situation regarding proposition 6, this creates an argument for claiming that proposition 9 must be met in order to create a new equilibrium and if it is met, the empirical evidence indicates that a new innovative equilibrium will be reached.

Summing up, the general knowledge is that proposition 9 is confirmed by A, C 1 and the product development department of C 2 and not confirmed by B 1, B 2 and C 2. As the empirical evidence creates an overlap between confirming this proposition and the company's ability to reach a new innovative equilibrium, I will claim the specific knowledge to be that proposition 9 has to be met in order to create a new equilibrium and if it is met, there is an indication that the company will create an innovative equilibrium.

As mentioned, proposition 10 follows the same pattern as propositions 6 and 9. That means that this proposition overlaps with the question of reaching a new innovative equilibrium and with good reason, of course, as proposition 10 reflects exactly the question of whether the company reaches a new innovative equilibrium or not. Still, the general knowledge is that proposition 10 is confirmed by A, C 1 and the product development department of company C 2 and the proposition is not confirmed by company B 1, B 2 and C 2. And the specific knowledge is that there is no indication of the three different sizes playing any role.

As there is an overlap between propositions 6, 9 and 10, the empirical evidence makes the following claim possible: For a supplier dominated or production based SME, a transformation process from non-innovative to innovative should be managed by using strategy as a releasing point (p: 9) and the transformation should be supported by an adaptation process that concentrates a heavy focus on the entrepreneurial domain and develops towards the prospector strategy (p: 6). That will create an automatically adaptation and self-regulating process (p: 10) which influences at least five (2, 3, 4, 5 and 7) out of the remaining seven proposition entailing that five propositions (2, 3, 4, 5 and 7) contribute to the creation of a new innovative equilibrium for the company.

5.6 Comparison of theory and empirical data in relation to the transformation model

At a certain point, I referred to whether or not it would be possible to talk about a tipping point in terms of an amount of propositions which should be reached to create a new innovative equilibrium. The answer can now be given, at least in relation to the empirical evidence of this research. I will only relate to the first nine propositions as number 10 is the one addressing the equilibrium. I will start out by relating to the three situations of equilibrium; that is, company A meets eight (2, 3, 4, 5, 6, 7, 8 and 9) out of the nine propositions only missing the proposition about having a written plan for management development. Company C 1 also meets eight (1, 2, 3, 4, 5, 6, 7 and 9) out of nine propositions and it only misses number 8 regarding a focus on developing internal organisational processes to support the network activities. The product development department of company C 2 meets seven (2, 3, 4, 5, 6, 7 and 9) out of nine propositions missing number 1 regarding a written plan for management development and number 8 regarding development of internal organisational processes to support the network activities.

From this more quantitative approach, at least 7 propositions should be confirmed by a company to reach a new innovative equilibrium. Further on, it seems as if the company does not need to meet proposition 1 and 8 in order to evolve in a new innovative equilibrium. On the other hand, the empirical evidence indicates that propositions 6 and 9 are particularly important in the first place and that propositions 2, 3, 4, 5 and 7 as an automatic and self-regulating process follows in establishing a new innovative equilibrium (p: 10). It could be argued that it is *not* surprising that an SME changing toward a prospector strategy will transform toward a more innovative position as the prospector strategy explicitly addresses innovation. It is, however, a new contribution indicated by the data that by using strategy as a releasing point and by changing toward a prospector strategy, an

automatic and self-regulating process will influence the areas mentioned in propositions 2, 3, 4, 5 and 7 in such manner that a new innovative equilibrium will be created.

The three situations in which no equilibrium has been reached are exemplified by B 1, B 2 and C 2. B1 confirmed five (2, 3, 4, 5 and 7) out of nine propositions; it missed the written plan for management development (1), it did not focus on the entrepreneurial domain and the prospector strategy (6), it did not develop any internal processes to support network activities (8) and it did not use strategy as releasing point for the transformation (9). Company B 2 confirmed 3 (2, 3 and 7) out of nine propositions and thereby missed the written plan for management development (1), it did not link the HRM activity to the business strategy (4), it did not have a written innovation based strategy (5) and did not address it in relation to the entrepreneurial domain and the prospector strategy (6), it did not develop any internal processes to support network activities (8) and it did not use strategy as releasing point for the transformation (9). Company C 2 did actually only confirm one (7) out of nine propositions although it can be discussed to what extent company C 2 met proposition 1 as the company was in the middle of developing a plan for management development. However, as the plan was not yet implemented, I will claim that proposition 1 was not met along with propositions 2, 3, 4, 5, 6, 8 and 9.

These figures created from the empirical evidence tell us that confirming five propositions (as well as three and one) is not enough to create a tipping point to a new innovative equilibrium. However, seven are sufficient provided that propositions 6 and 9 form part of the seven. Several interesting aspects arise when lengthening this line of thought and that is to add more knowledge about whether or not strategy is the releasing point and whether or not changing to a prospector strategy is determining whether or not a new equilibrium is created. The empirical evidence in this research does not provide an answer to this question and therefore, it is a recommendation for further research.

However, it is possible to argue that given that the releasing point is strategy considerations and the strategy is actually changed toward a prospector strategy, the company will develop to a stage where at least five other propositions will be met (as shown by the product development department in company C 2). That is, meeting propositions 6 and 9 prompts a successive confirmation of

proposition 10 seeing that at least five other areas in terms of proposition 2, 3, 4, 5 and 7 are confirmed.

On the other hand, if strategy is not the releasing point and no change has been made toward the entrepreneurial domain and the prospector strategy, only up to five propositions will be confirmed and that is not enough to create a new innovative equilibrium.

Size revisited

Although the case study had a focus on three different sizes of companies in the SME sector, it seems that the only area to which size adds specific knowledge is in relation to proposition 8. The contribution consisted in the fact that smaller companies are more inclined to develop internal organisational processes to support network activities.

However, from⁹³ re-approaching and thorough reflections based on size, a (in my point of view) brilliant moment of new insights occurred as I recognised a new pattern. In addition, it is a pattern which in a way goes behind the theory and data and demonstrates a rather simple explanation to the main research question. The transformation process is determined by what the management of the company considers to be the biggest and most urgent problem. That is, if the biggest and most urgent problem is related to the development of new products and activities, then the company transforms toward an innovative position and creates a new equilibrium. If the biggest and most urgent problem is related to optimising the production and the internal structures, then the transformation will develop in the direction of a non-innovative position. Actually, this can constitute a pattern nicely related to all five case companies and I will explain how starting with the micro company (A).

The main challenge of company A is the development of new products as a way to develop the company and as the company addresses these development problems most urgently, it will obviously constitute the focal point of the company. The focus will likewise have a huge impact on the releasing point (which I also related to in chapter 4) which still can be interpreted as based in strategy. By having this product development challenge as the biggest and most urgent problem, the transformation process will happen and the company will adapt to an innovative equilibrium

⁹³ Maybe also from the disappointment in size only having a relatively limited impact on the comparison.

position. Additionally, that means that what I previously called an automatic and self-regulating process is not that automatic and not unexplained any more. This so-called automatic and self-regulating process is initiated and controlled by the biggest and most urgent problem and then the roles and behaviour assumed by management and employees will impact management, HRM, strategy and network relations in the same direction.

If I turn to the two small companies (B 1 and B 2), it is important to understand that they have developed from a micro size most likely with an entrepreneurial focus. These two small companies have their main focus (biggest and most urgent problem) on internal production processes and internal structure related problems which have a heavy impact on the roles and behaviour which they assume in relation to management, HRM, strategy and network.

The two small companies are in the middle of a transformation toward what seems to be a new innovative equilibrium although they have not reached that new equilibrium yet. However, as their main problems are production and structure, the transformation undergone by these two companies are the opposite as they develop toward a non-innovative position. For example, company B 2 did not have a written strategy, its most urgent challenge was to optimise the production flow and the only element of strategy was figuring out when to buy new machinery.

Regarding the two medium-sized companies, I believe that the notion of the most urgent problem being the determining factor of the transformation process becomes even more explicit. Company C 1 has developed from once being a small company focusing on its own production to being a medium-sized company very clearly focusing (most urgent problem) on product development aspects. That has had an impact on roles and behaviour among management and employees which has created a new innovative equilibrium.

Focus and most urgent problem seem to explain the situation in company C 2 as well. That is, the company in general has devoted so much effort to optimisation of the production and resource allocation that it, in fact, has created a defender strategy with focus on lean production. That is, C 2 has developed from its previous small size with several aspects pointing at a more innovative focus to a current non-innovative focus. This, however, without creating a new equilibrium because the product development department has another agenda. This department has its urgency and focus

related to product development aspects and that has had so much of an impact on the roles and behaviour that the department has been able to create a new innovative equilibrium.

Especially this last example of C 2 and the product development department being able to develop two different equilibriums from different focal points and urgencies demonstrates how strong an impact the focus on the main problem has on the following transformation process. It demonstrates that the problem perceived to be the most important and urgent determines the following transformation process.

Simple and unambiguous explanation of the data

That which at a certain point seemed to be case study results going every which way without any common pattern can now be explained in a simple and unambiguous way. In an overall and broad sense, the data can be explained through “a problem based transformation” in the following way. Company A confirms almost all propositions (nine out of ten) because it has formulated a product development problem as the most central and urgent focus of the transformation of the company. That is the reason why the company arrive at a new innovative equilibrium.

Company B 1 and B 2 address optimisation of production and internal structure as their main problem which explains why these two companies only confirm five out of ten and three out of ten propositions, respectively. That also explains why company B 1 and B 2 do not reach an innovative equilibrium through their transformation processes.

Company C 1 addresses a production development problem and confirms nine of ten propositions in its transformation process. That is the explanation to why it has reached a new innovative equilibrium. Company C 2 in general has formulated a main problem regarding optimisation of the production flow and internal structure to support the production. Consequently, this company only confirmed one out ten propositions and no innovative equilibrium was reached. The product development department formulated its main and most urgent problem as a product development problem which is the reason why this department confirms eight out of ten propositions and reaches an innovative equilibrium.

From these explanations, another pattern emerges; micro companies start out by focusing on entrepreneurial problems and as they grow, a need for steering develops which makes the companies (B 1 and B 2) increase the focus on production and internal structural aspects. Then, as companies grow further, they come to a crossroad at which point they need to choose between transforming either toward an innovative company (C 1) or toward a production based company (C 2). Actually, C 2 tries to hedge its bets as the general company addresses production and administration systems and the product development department addresses product development and innovative based problems.

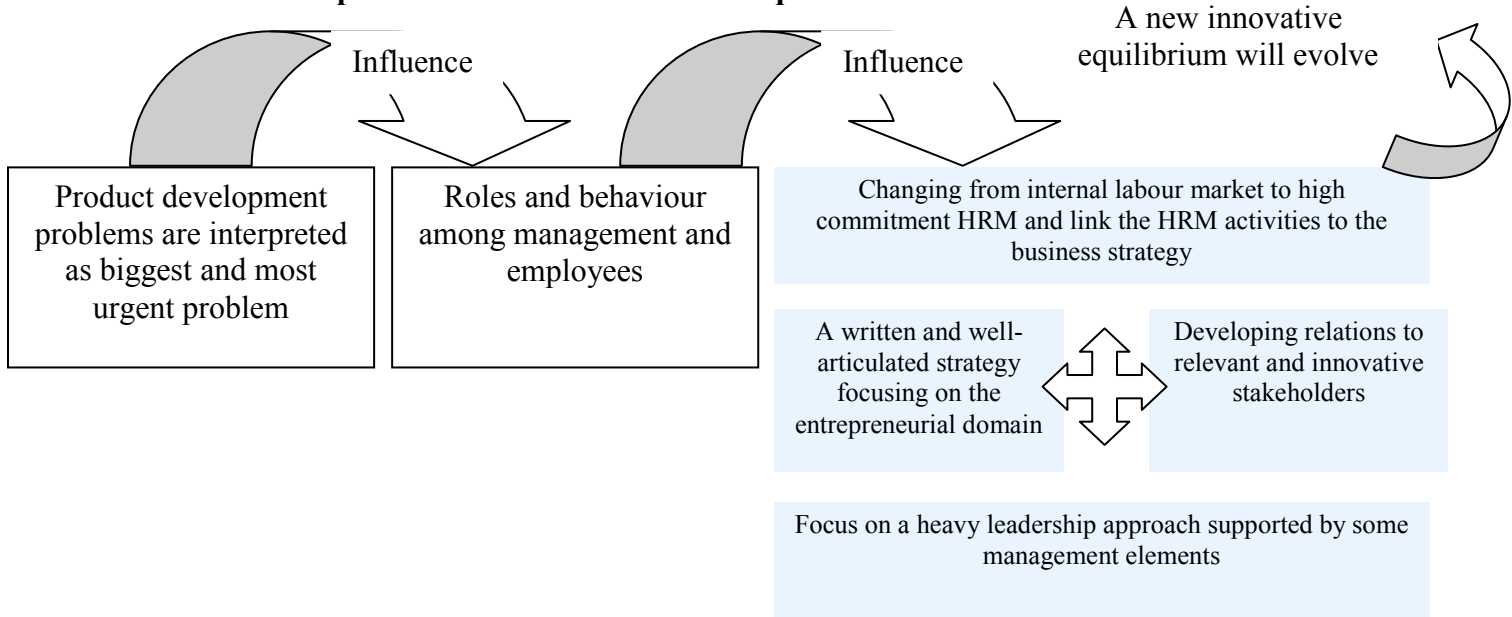
The problem based transformation

As I now have contributed with this understanding of size, I will return to the research question which was: How to manage SMEs through the transformation from non-innovative to innovative? The answer is that it is determined by what the management considers to be the biggest and most urgent problem and if the aim is to create an innovative position, the urgency has to address entrepreneurial problems.

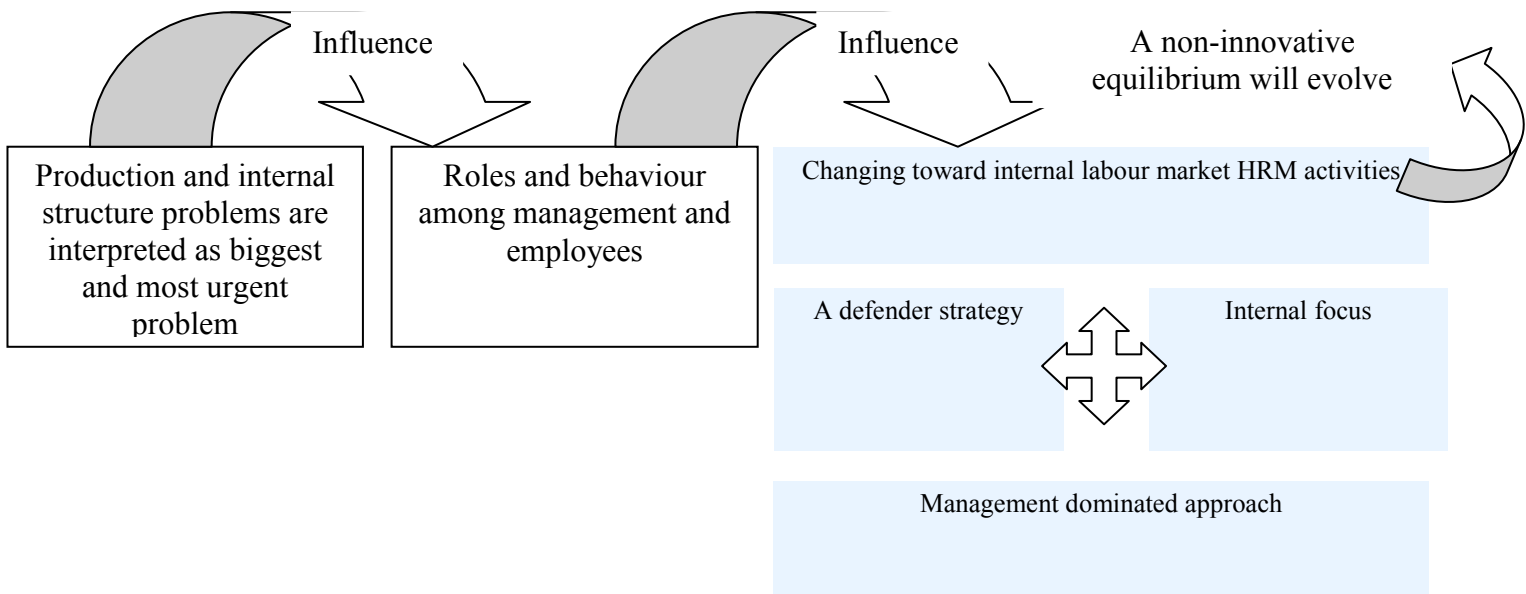
Below, I will illustrate how my findings from the empirical evidence of the five case studies and contributions in general impact the theoretical transformation model created in section 3.7. I have chosen to call figure 5.6 “problem based transformation” as I think that it best cover the idea.

Figure 5.6 Problem based transformation

The transformation process toward the innovative equilibrium



The transformation process toward the non-innovative equilibrium



Source: Own work

The main contribution of this PhD project research becomes visible when specifying and relating the “problem based transformation model” to the theoretically based transformation model (see section 3.7). To manage a transformation in a supply and production based SME, the management of the company has to be consciously aware of what is interpreted to be the biggest and most urgent

problem because that problem will determine how the following transformation process will proceed.

If the aim is to transform from a non-innovative SME to an innovative SME, the management has to address product development problems as the most urgent. Then a transformation process with the following characteristics will develop: Strategy becomes the releasing point of the transformation (p: 9) and it should be supported further by a change toward the entrepreneurial domain and the prospector strategy (p: 6). By doing this, the management's and the employees' roles and behaviour will be influenced toward a heavy focus on leadership with some elements of management (p: 2), a strategic HRM approach (p: 3) which is linked to the business strategy (p: 4), a written and well-articulated innovation based strategy (p: 5) and finally, development of external relations to relevant and innovative partners (p: 7). These processes illustrate how companies following the problem based transformation model will reach a new innovative equilibrium (p: 10).

However, the transformation to a new innovative equilibrium does not necessarily involve a written plan for management development or any explicit focus on internal organisational processes that support the network activities.

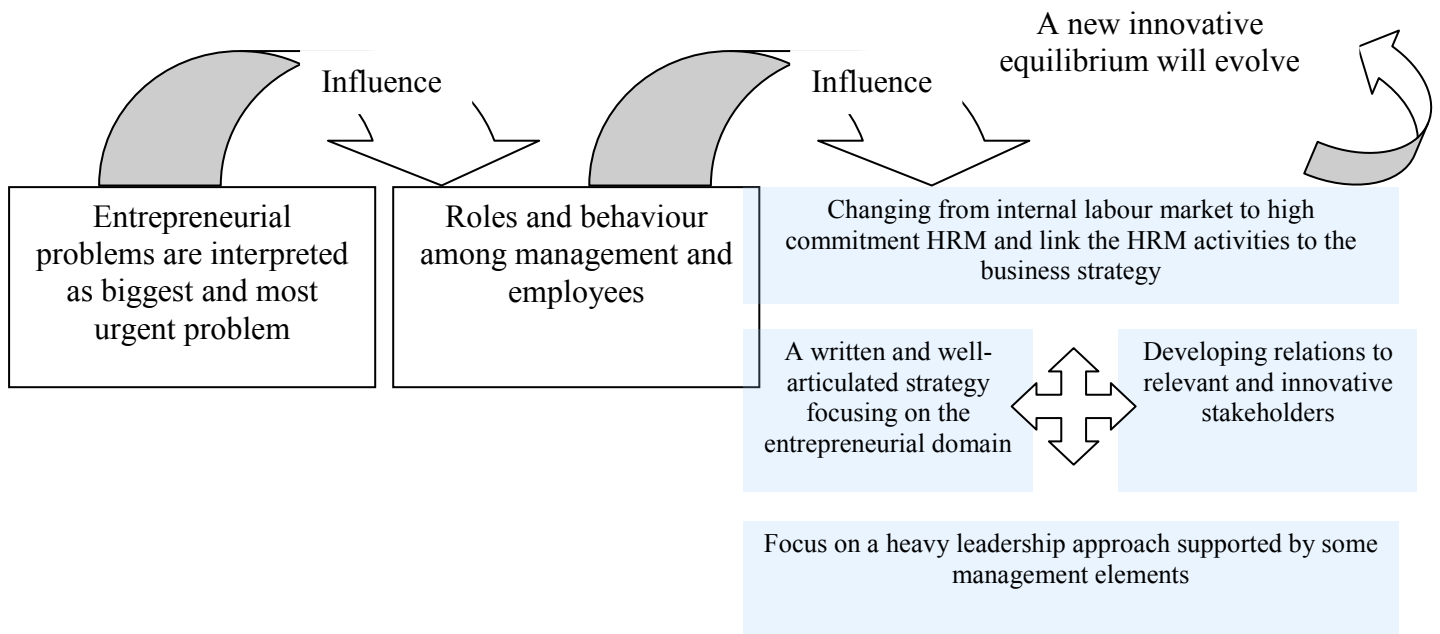
If the aim is to transform into a non-innovative position or to remain non-innovative, it is against the fundamental argumentation in (the introduction of) this PhD project saying that SMEs need to transform toward an innovation based position to survive on a medium long term. If for one reason or another, a company nevertheless wants to approach a non-innovative position – here is what to do. The SME must address engineering and administrative problems as the most urgent and a defender strategy approach will evolve influencing the management's and employees' roles and behaviour toward a heavy management focus, an internal labour market approach, further development of the engineering domain emphasis and retainment of as much focus as possible on internal organisational processes.

6. Conclusion and further research opportunities

The conclusion should be able to answer the research question which is: **How to manage SMEs through the transformation from non-innovative to innovative?** Throughout this PhD project, the aim has been to investigate and create more knowledge in relation to this research question and the following main contributions and answers have evolved.

First of all, I will rephrase the short answer to the question of how to manage the transformation process from non-innovative to innovative. It depends on the company's biggest and most urgent problem because the interpretation of the problem determines how the transformation process evolves and toward what kind of equilibrium it will develop. If the challenge is to transform from a non-innovative SME toward an innovative SME, the most urgent problem ought to be entrepreneurial and product development related and the process will follow the line presented in the figure below.

Figure 6.1 Problem based transformation toward an innovative position



Source: Own work

As company A especially focuses on product development and entrepreneurial problems, the company transformed into a new innovative equilibrium. As company B 1 and B 2 direct their focus

much more toward internal engineering and production problems, their transformation process indicated no innovative equilibrium, rather it tended toward a non-innovative position. The two medium-sized companies have separately developed to new and different equilibriums. As C 1 and the product development department of C 2 focus on entrepreneurial and product development problems as the most urgent, they managed to transform into an innovative equilibrium. As C 2 focuses on engineering and production problems, a non-innovative equilibrium was reached.

For a supplier dominated or production based SME, a successful transformation from a non-innovative equilibrium to an innovative equilibrium is first and foremost about focusing on the biggest and most urgent problem. Therefore, strategy becomes a releasing point followed by a shift in focus towards especially the entrepreneurial domain and the prospector strategy in general. From these starting elements of the transformation process, the management's and the employees' roles and behaviour will take charge and influence the further development. This prompts a development of a heavy focus on leadership with some elements of management, a pressure for developing a strategic HRM approach which is linked to the business strategy and also a development of a written and well-articulated innovation based strategy and finally, it creates a development of external relations to relevant and innovative partners. As these processes will support the SME to evolve in a new innovative equilibrium, they turn out to be the answer to the research question.

Further research opportunities

The comparison between the theoretical transformation model based on the propositions and the problem based transformation model based on the five case studies opened up for some future research opportunities which I will address here.

Changing the level of analysis

As this PhD project has had the company (SMEs) as its level of analysis, an interesting further research direction could be an individual level of analysis. As I mentioned in chapter 4, the releasing point of a transformation must be leaders' convictions and beliefs and their ability to create visions for how to develop the company. Thus, it could be interesting to conduct more research into the relation between the individual leader and the problem based transformation model. That will add some knowledge to why and how these leaders choose different problems to follow.

Substituting some propositions

A second further research opportunity could be to examine other relevant propositions. As Becheikh et al. (2006) in their research found sixty variables having an influence on what innovation is and on what determines its development in manufacturing firms, other propositions can be created to further investigate the question of how to transform SMEs toward an innovative position. Becheikh et al. (2006) reduced the sixty variables to seven internal and six external variables. Internal variables like organisational structure, control activities and culture could serve as substituting areas for relevant propositions for further research. Likewise, external variables like the firm's industry, the firm's region, knowledge/technology acquisition, government and public policies and the surrounding culture could serve as substituting areas for relevant propositions for further research. These new perspectives related to the same research question will also be able to add more knowledge to our understanding of how to transform an SME from a non-innovative to an innovative position.

Quantitative studies

A third opportunity for further research is to support this qualitative research with some quantitative research addressing different economic figures to investigate what a new innovative equilibrium means to the SMEs in terms of earnings and profits. One thing is that the problem based model showed three examples of new innovative equilibrium positions and that companies in this position based on the innovation literature in general will capitalise and benefit from it, another thing is to demonstrate that this relation can be justified through economic key figures.

Postscript

As I mentioned in the background for doing this PhD project, I am very enthusiastic about steep learning and development curves and for sure, doing a PhD has satisfied my hunger for new insights as I have learned so much on so many different levels in the working process. Here, at the other end of the PhD project, two things come to mind.

One is the amazing structure and relations between all the parts which constitute a PhD project; it is like a very large set of Chinese boxes. The other thing is that as I have come through these steep

learning curves, one could expect a feeling of now I know how and why – but I am not sure; that is why I will:

Stay hungry and stay open!

7. References

- Ahuja G. (2000): "Collaboration networks, structural holes, and innovation: A longitudinal study" *Administrative Science Quarterly*, 2000
- Alchain, A.A. (1960): "Uncertainty, evolution and economic theory" *Journal of Political Economy*. Vol 58 pp. 211-221 June 1960
- Almeida, P. and Kogut, B. (1999): "Localization and knowledge and the mobility of engineers in regional networks". *Management Science*, 45, 905–917.
- Andersen (2006): "Responsibility and intersubjectivity as challenge to informed consent. Københavns Universitet, Biocampus,
- Astley W.G. (1984): "Toward an appreciation of collective strategy" *Academy of Management Review*, 1984 -
- Acs, Z and Audretsch, D: "Innovation in Large and Small Firms: An empirical Analysis". *The American Economic Review*, September 1988, Vol. 78 No. 4.
- Acs, Z and Audretsch, D: "Innovation and Small Firms" Cambridge MA: MIT Press 1990
- Adam, A. (1982): "Barriers to product innovation in small firms: policy implications". *European Small Business Journal*, 1, pp: 67-86.
- Amabile, T.M. (1998): "How to kill creativity" *Harvard Business Review* September/October pp. 76-87.
- Amar, A.D. (2001): "Leading for innovation through symbiosis" *European Journal of Innovation Management*, 2001; Vol. 4 Number 3, 2001, pp. 126-132.
- Amburgey T. L. & Dacin T (1994): "As the Left Foot Follows the Right? The Dynamics of Strategic and Structural Change". *Academy of Management Journal*, 37, 1994, pp. 1427-1452
- Andrews, K.R. (1967): "The Concept of Corporate Strategy". Richard D. Irwin, Homewood, IL.
- Ansoff, T.J. (1965): "The Firm of the future". *Harvard Business review*, pp. 162-178.
- Argyris C. & Schon D. (1978): "Organisational learning: A theory of action perspective". Reading, Mass: Addison Wesley.
- Armstrong, M (2006) "Strategic Human Resource Management – a guide to action" Kogan Page London and Philadelphia, 3 rd edition.
- Baldwin J. R., Chandler C. Le and Papailiadis T. (1994): *Strategies for success: A Profile of growing Small and Medium-sized Enterprises in Canada*. Catalogue No. 61-523R E. Ottawa: Statistics Canada.

- Baldwin, J. and Johnson, J. (1996): "Business strategies in more- and less-innovative firms in Canada" *Research Policy* 25 (1996) pp. 785-804.
- Baldwin, J. and Lin, Z. (2002): "Impediments to advanced technology adoption for Canadian manufacturers" *Research Policy* 31 (2002) pp. 1-18.
- Baldwin T.T. & Patgett M.Y (1994): "Management development: a review and commentary". in Cooper, C.L, Robertson, I.T (Eds), *Key Reviews in Managerial Psychology*, Wiley, New York, NY, pp.270-320.
- Barney, B.B. (2001): "Resource-based theories of competitive advantages: A ten-year retrospective on the resource-based view". *Journal of Management* 27 pp 643-650.
- Baron, J. N. & Kreps, D. M. (1999) *Strategic Human Resources. Frameworks for General Managers*.
- Bass, B.M. (1990): "From transactional to transformational leadership; learning to share the vision". *Organizational Dynamics*, Winter 18 (3), pp. 19-31.
- Bhaskar R. (1975): "A Realist Theory of Science" London Verso
- Bayo-Moriones, J. & Merino-Díaz de Cerio A. J. (2001): "Size and HRM in the Spanish Manufacturing". *Industry, Employee Relations* 23(2), 188–206.
- Becheikh N, Landry R and Amara N (2006): "Lessons from innovation empirical studies in the manufacturing sector: A systematic review of the literature from 1993- 2003. *Technovation* 2006 Volume 26 Issues 5-6 May-June pp. 644-664.
- Beer M, Walton R.E. and Spector B.A. (1985); "Human resource management: a general manager's perspective: text and cases" Free Press 1985
- Bennis, W. & Nanus, B. (1985): "Leaders". HarperCollins USA 1985
- Bergman, E. and Feser, E. (1999) *Industrial and Regional Clusters: Concepts and Comparative Applications*, Regional Research Institute, West Virginia University.
- Bhaskar R. (1975): "A Realist Theory of Science. London Verso
- Beugelsdijk S. and Cornet M. (2002): "A Far Friend is Worth More than a Good Neighbour': Proximity and Innovation in a Small Country". *Journal of Management and Governance* Vol. 6 Number 2 may 2002 pp. 169-188
- Binks, M. & Vale, P. A. (1990): "Entrepreneurship and Economic Change". London: McGraw-Hill.
- Borgatti S.P. and Foster P.C. (2003): "The Network Paradigm in Organizational Research: A Review and Typology". *Journal of Management* 2003, 29(6) pp. 991-1013.

- Bougrain F. & Haudeville B. (2002): "Innovation, collaboration and SMEs internal research capacities". *Research Policy*, 2002 Volume 31, Issue 5, July 2002, Pages 735-747
- Boxall P. & Purcell J. (2000): "Strategic human resource management: where have we come from and where should we be going?" *International Journal of Management Reviews* Volume 2 Issue 2, Pages 183 – 203 2003
- Brand M.J. & Bax E.H. (2002): "Strategic HRM for SMEs: implications for firms and policy Education + Training Volume: 44 Number: 8/9. 2002 pp:451-463
- Branzei, O. and Vertinsky, I. (2006): "Strategic pathways to product innovation capabilities in SMEs". *Journal of Business Venturing*, Vol. 21 Iss. 1,
- Brinberg, D and McGrath J. E. (1985): "Validity in the research process". California, Sage Publications 1985.
- Brown and Duguid (2001): "Creativity versus Structure: A Useful Tension". *MIT Sloan Management Review*, summer 2001
- Brewster C. (2004): "European perspectives on human resource management". *Human Resource Management Review* Volume 14, Issue 4, December 2004, Pages 365-382
- Burgoyne J., Hirsh W. and Williams S. (2004): "The Development of management and Leadership Capability and its Contribution to Performance: The evidence, the prospects and the research need". *Research Report 560*, Lancaster University.
- Burns, T and Stalker, G.M. (1966): "The management of innovation" Tavistock Publications Limited, London.
- Burton R. M. & Obel B (1995): "Strategic Organizational Diagnosis and Design: Developing Theory for Application" Kluwer Academic Publishers
- Burrell G. and Morgan G. (1979): "Sociological Paradigms and Organizational Analysis Elements of the Sociology of Corporate Life". Heinemann, London, 1979
- Cagliano, R., Blackmon, K. and Voss, C. (2001): "Small firms under MICROSCOPE: International differences in production/operations management practices and performance. *Integrated Manufacturing Systems*, 12 pp 469-482.
- Chandler, A.D. (1962): "Strategy and structure Chapters in the history of the American industrial enterprise". MIT Press 1962.
- Chesbrough, H.W. (2003): "Open Innovation". Harvard Business School Press, Boston, Massachusetts.
- Child J. (1972): "Organizational, Structure, Environment and Performance – The Role of Strategic Choice". *Sociology* Vol. 6 pp. 1-22 January 1972

- Choueke, R. and Armstrong, R. (2000): "Culture: a missing perspective on small- and medium-sized enterprise development?" *International Journal of Entrepreneurial Behaviour & Research*. Vol 6. No. 4, 2000 pp. 227-238.
- Christensen, Frøslev J. (2002): "Produktinnovation – process og strategi". Handelshøjskolens Forlag
- Christensen, J.C. (1998): "Innovator's Dilemma". Harper and Row, New York, NY.
- Cole A. H. (1959): "Business enterprise in its social settings". Cambridge MA Harvard University Press
- Collin F. (1990): *Videnskabsfilosofi. Enhed og mangfoldighed i videnskaberne*, Museum Tusulanums Forlag, København 1990
- Collin, J. and Porras, J.I. (2004): "Built to last – Successful Habits of Visionary Companies" Harper Business 2004.
- Coombs R. & Tomlinson M (1998): "Technology Analysis & Strategic Management. Journal: Technology Analysis & Strategic Management. Sep 1998 Vol 10 No 3.
- Constable J. and McCormick R. (1987): *The Making of British Managers*. London: British Institute of Management.
- Cosh A. and Hughes A. (2000) "British enterprise in transition: growth, innovation and public policy in the small and medium sized enterprise". ESRC Centre for Business Research.
- Cosh A. and Hughes A. (1996) "The Changing State of British Enterprise – Growth, innovation and Competitive Advantage in Small and Medium Sized Firms" ESRC Centre for Business Research University of Cambridge 1996.
- Cowan R. J. & Zimmermann J. B. (2002): „The joint dynamics of network and knowledge“. *Economic and Finance* vol 354.
- Cummings, T. G. & Worley, C. G. (2005). *Organization Development and Change*, 8th ed. (latest edition). South Western College Publishing (Thomson Learning).
- Glaser B. G. and Strauss A.L. (1967): "The discovery of Grounded Theory: Strategies for Qualitative Research" Aldine Publishing Company, Chicago.
- Curran J., Blackburn R, Kitching J. and North J. (1998): "Establishing Small Firms' Training practices, Needs, Difficulties and Use of training organizations". *Research Studies* RS 17. London: HMSO.
- Daft, R., and Weick, K. (1984): "Toward a model of organizations as interpretation systems". *Academy of Management Review*, 9, 284-295.

- Dahler-Larsen, P.(2002): "At fremstille kvalitative data" Syddansk Universitetsforlag, Odense.
- Damodar Y D. and Deshpande S.P. 1997,"HRM Practices of Large and Small Canadian Manufacturing Firms". *Journal of Small Business Management* 35(3), 30–38.
- Dankbaar, Ben (edited by) (2003): "Innovation management in the knowledge economy" Imperial College Press.
- D'Aveni, R.A. (1994): "Hypercompetition – Managing the Dynamics of Strategic Maneuvering". The Free Press, New York, NY.
- Debackere, K, B Clarysse, MA Rappa (1998): "Dismantling the ivory tower: the influence of networks on innovative output in emerging technologies". *Technological forecasting and social change* vol:53 issue:2 pages:139-154 Oct-1996.
- DeCenzo D. A. and Robbins S.P. (1988): "Human Resource Management ". John Wiley and Sons, Inc., 1988
- Dewey, J. (1988): "The quest for certainty". In J. A. Boydston (Ed.), Carbondale, IL: SIU Press.
- Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L. (Eds) (1988) *Technical Change and Economic. Theory* (London: Pinter).
- Drejer, A. (2004): "Back to basic and beyond – Strategic management – an area where practice and theory are poorly related" *Management Decision*, Vol. 42 No ¾, 2004 pp. 508 520.
- Drejer A & Printz L (2006): " Luk op - Nye Strategier I En Brydningstid". Jyllandspostens forlag 2006.
- Drucker, P. F. (1988): "Management: Tasks, responsibilities, practices". Heinemann Professional, London.
- Drucker, P.F. (1985): "Innovation and entrepreneurship – Practice and Principles". New York: Harper and Row.
- Dun and Bradstreet Corporation, (2001): "The Business Failure Record". New York: Dun & Brandstreet Corporation 2001.
- Dunphy D. and Bryant B. (1996): "Teams: panaceas or prescriptions for improved performance?" *Human Relations*, Vol. 49, pp. 677-699.
- Dyer L. Holder G.W. (1988): "Human resource management: evolving roles & responsibilities". The Bureau of national Affairs - 1988 - Bureau of National Affairs Washington
- Edwards L-J and Muir E. J (2005): "Promoting entrepreneurship at the University of Glamorgan through formal and informal learning" *Journal of Small Business and Enterprise Development* volume 12 Number: 4, 2005 pp: 613-626

- Eisenhardt K.M. (1989): "Agency Theory: An Assessment and Review". *Academy of Management Review*. 1989, vol. 14. No. 1 pp. 57-74.
- Elenkov, D.S. and Manev, I.M. (2005): "Top Management Leadership and Influence on Innovation: The Role of Sociocultural Context". *Journal of Management*, Vol. 31 No. 3, June 2005, pp. 381-402.
- Erickson, C. and Jacoby, S. (2003). "The effects of employer networks on workplace innovation and training". *Industrial and Labor Relations Review*, 2003. 56, 203–223.
- Ernø-Kjølhede et al. (2001): "Managing university research in the triple helix. *Science and Public policy*, volume 28, number 1, feb. 2001.
- Espedal B. (2004): "Management and Leadership Development in Norway: Discrepancies Between Talk and Action". *Advances in Developing Human Resources*, Vol. 6, No. 4, 470-485 (2004)
- Fama E. & Jensen M. (1983): "Separation of ownership and control". *Jornal of Law and economics* Vol 26 no. 2 1983.
- Ferris, G. R., Mitchell, T. R., Canavan, P. J., Frink, D. D., & Hopper, H. (1995): "Accountability in human resource systems". In G. R. Ferris, S. D. Rosen, & D.T. Barnum (Eds.), *Handbook of human resource management*: 175–196. Oxford, UK: Blackwell Publishers.
- Fischer M. M. and Varga A. (2002): "Technological innovation and interfirm cooperation: an exploratory analysis using survey data from manufacturing firms in the metropolitan region of Vienna". *International Journal of Technology Management* Vol 24, Number 7-8 2002, pp. 724-742.
- Flyvbjerg B. (1991): "Rationalitet og magt". Akademisk forlag Odense
- Fombrun, C. et al (1984): "Strategic Human Resource Management". New York: John Wiley & Sons.
- Foss, N.J. & Husted, K & Michailova, S & Pedersen, T. (2003): "Governing Knowledge Processes: Theoretical Foundations and Research Opportunities". Copenhagen Business School, Work in progress, 11. September 2003.
- Fredrickson, J.W. (1984): "The comprehensiveness of strategic decision processes: extension, observations, future directions". *Academy of Management Journal*, Vol. 27 pp.445-66.
- Freedman C. and Perez C. (1988): "Structure crises of adjustment" in *Technical change and economic theory*. Eds Dosi, Freeman, Nelson, Silverberg, Soete. Frances Pinter London pp 38-66
- Freel, M. (2005): "Patterns of innovation and skills in small firms" *Technovation* 25 (2005) 123-134.
- Freel, M. (2004): "Small Firm Innovation, Growth and Performance". *International Small Business Journal*, 2004, Vol. 22(6) pp. 561- 575.

- Freel, M. (2003): "Sectoral patterns of small firm innovation, networking and proximity" *Research Policy* 2003, 32, pp. 751- 770.
- Freel, M. (2000 A): "Do Small Innovating Firms Outperform Non-Innovators?" *Small Business Economics* 14. 2000, pp. 195-210.
- Freel, M. (2000 B): "Barriers to Product innovation in Small Manufacturing Firms" *International Small Business Journal* 18, 2 2000.
- Freel, M. (2000 C): "External linkages and product innovation in small manufacturing firms" *Entrepreneurship & Regional Development* 12, 2000, pp. 245-266.
- Freel, M. (1999): "Where are the skills gaps in innovative small firms?" *International Journal of Entrepreneurial Behaviour & Research*, Vol. 5 No. 3, 1999, pp. 144-154.
- Fuglsang, L og Olsen P.B. (red.): "Videnskabsteori I samfundsvidenskaberne: På tværs af fagkulturer og paradigmer", 2. udg. Roskilde Universitetsforlag (2004)
- Fuglsang, L. & Sundbo, J (2005): "The organizational Innovation System: Three Modes". *Journal of Change Management*, Vol. 5, No. 3, pp. 329-344, September 2004.
- Fuchs, M. (1997): "Evolving combinators. In Proc" 14th Conference on Automated Deduction (CADE-14), LNAI 1249, pages 416{430. Springer
- Gadenne, D. (1999): "Critical success factors for small business: An inter-industri comparison. *International Small Business Journal*, 17, pp 36-51 (1999).
- Gales, L. M, & Boynton, A. C. (1992): "Information ties and innovation management: A qualitative assessment of information processing and the strength of weak ties. *Technology Management Research*, 3, pp. 169-188.
- Gay, B. & Dousset, B. (2005): "Innovation and network structural dynamics: Study of the alliance network of a major sector of the biotechnology industry". *Research Policy* 34. 2005 pp. 1457-1475.
- Gellatly, G. (1999): "Differences in Innovators and Non-innovators Profiles: Small Establishments in Business Services". Research paper, Statistics Canada No. 11F0019MPE No. 143.
- Gerring J. (2001): "Social Science Methodology: A Criterial Framework". Cambridge University Press, 2001
- Ghobadain, A. and Gallear, D.: "Total Quality Management in SMEs". *Omega International Journal of Management Science*, vol. 24. No. 1, pp 83-106, 1996.
- Giddens A. (1982): "Profiles and critiques in social theory". University of California Press Berkeley
- Giorgi A (1994): "Phenomenological perspective on certain qualitative research methods"
- *Journal of Phenomenological Psychology*, 1994

- Goleman, D, Boyatzis, R and Mckee, A. (2002): "Primal Leadership: Realizing the Power of Emotional Intelligence". Boston, Harvard Business School Press.
- Grant, R.M. (1995): "Contemporary Strategy Analysis". Blackwell Publishers, Cambridge.
- Gray, C and Mabey, C. (2005): "Management Development: Key Differences between Small and Large Businesses in Europe". *International Small Business Journal*; Oct2005, Vol. 23 Issue 5, p467-485, 19p
- Guba E.G. (1990): "The paradigm dialog" Sage 1990.
- Habermas J. (1987): "The Theory of Communicative Action / Reason and the Rationalization of Society". Boston: Beacon Press, 1987
- Hannan, M. T., & Freeman, J. (1977): "The population ecology of organizations". *American Journal of Sociology*, 929–965.
- Hamel G. Doz, CK Prahalad (1989): "Collaborate with your competitors and win". *Harvard Business Review*, 1989
- Hamel G & CK Prahalad (1990): "The core competence of the corporation". *Harvard Business Review*, 1990
- Hatten K & Schendel D. (1977), "Heterogeneity within an industry", *Journal of Industrial Economics*, Vol. 26 pp.97 - 133
- Herlau H. Tetzschner H. (2001): "Fra jobtager til jobmager – model 2". Samfundslitteratur 2001.
- Heunks, F. (1998): "Innovation, Creativity and Success" *Small Business Economics*. 10, pp 263-272, 1998.
- Heunks F. J. and Roos H. (1992): "Entrepreneurs in a Changing Cultural Context", in J. J. J. Van Dijck and A. A. L. G. Wentink (eds.), *Transnational Business in Europe, Economic and Social Perspectives*, Tilburg: Tilburg University Press, pp. 4-13.
- Hill, L.A. (2004): "New manger development for the 21st century" *Academy of Management Executive*, 2004, Vol. 18, No. 3.
- Hippel von E. (1988): "The sources of innovation". Oxford University Press, 1988
- Hippel von E. (2005) "Democratizing innovation" The MIT Press, Massachusetts Institue of technology
- Hirich, R.D. and Drnovsek, M. (2002): "Entrepreneurship and small business research – a European perspective". *Journal of Small Business and Enterprise Development*. Volume 9, Number 2, 2002 pp. 172-222.

- Holmes, S. and Gibson, B. (2001): "Definition of small business". Final report. The University of Newcastle, 5. April 2001.
- Hornsby J.S. & Kuratko D. F. (2003): "Human resource management in US small businesses: a replication and extension". *Journal of Developmental Entrepreneurship*, 2003.
- House, R.J., Hanges, P.J, Ruiz-Quintanilla, S.A, Dorfman, P.W, Javidan, M., Dickson, M, Gupta, V, Globe Coordinating Team. (1999): "Cultural influences on leadership and organizations". JAI Press, Stamford.
- House R. and Aditya R.N. (1997): "The Social Scientific Study of Leadership: Quo Vadis? *Journal of Management* 1997, Vol. 23, No. 3, pp. 409-473.
- House R., Wright N. and Aditya R.N. (1999): "Leadership: A Critical Analysis and a Proposed Theory". *Leadership Quarterly* 1999.
- Huang, X. and Brown, A. (1999): "An Analysis and Classification of problems in Small Business". *International Small Business Journal* 18, 1, 1999.
- Husted, K (1998): "Industriell forskning: Styring og autonomi" Samfundslitteratur, København.
- Jacobs, T.O., Jaques, E. (1990): "Military executive leadership" In Clark, K.E. & Clark, M.B. (Eds): "Measures of leadership". Leadership Library of America, West Orange.
- Jacobsen, D. I & Thorsvik J. (2002): "Hvordan organisationer fungerer – Indføring i organisation og ledelse". København: Hans Reitzels Forlag
- Jimenez, D. J. and Sanza-Valle, R. (2005): "Innovation and human resource management fir: an empirical study". *International journal of Manpower*, Vol. 26 No. 4, 2005. pp. 364-381.
- Johnsen, E. (2002): "Managing the Managerial Process" DJØF Publishing, Copenhagen.
- Johnson G. Scholes K & Whittington R. (2005): "Exploring Corporate Strategy" Prentice Hall 2005
- Johnson D & Tilley F (1999): "HEI and SME linkages: Recommendations for the Future". *International Small Business Journal*, Vol. 17, No. 4, 66-81 (1999)
- Julien P-A (2001): "The State of the Art in Small Business and Entrepreneurship". Aldershot: Ashgate 2001.
- Jørgensen og Reddersen (1990): "Valg af analysedesign i forskningsprocessen". Statens byggeforskningsinstitut.
- Kamoche K (1996): "The integration–differentiation puzzle: a resource-capability perspective in international human resource management". *The International Journal of Human Resource Management*, 1996 - Routledge

- Karlsson C and Olsson O (1998): “ Product Innovation in Small and Large Enterprises” Small Business Economics. Vol 10, number 1, pp. 31-46
- Kanter, R. M. (1983): “The Change Masters: Innovations for Productivity in the American Corporation”. London:Unwin 1983.
- Kanter, R.M., (1989): “When Giants Learn to Dance; mastering the challenges of strategy-management and careers in the 1990s”. Routledge, London.
- Kaufmann, A. and F. Tödling (2001): "Science-industry inter-action in the process of innovation: the importance of boundary-crossing between systems," Research Policy, 30 (6), pp. 791-804.
- Keizer, J.A.; Dijkstra, L. And Halman, J.I.M. (2002): “Explaining innovative efforts of SMEs. An exploratory survey among SMEs in the mechanical and electrical engineering sector in The Netherlands”. Technovation 22 (2002) 1-13.
- Kerr, I. (2006): “Leadership Strategies for Sustainable SME Operation” Business Strategy and the Environment 15, pp 30-39 (2006).
- Kets de Vries, M. (2006) “The Leadership Mystique: Leading Behavior in the Human Enterprise”, Prentice Hall, second edition,
- Khan, A.M. (1990): “Innovation in small manufacturing firms. In: Allesch, J. (Ed.), Consulting in innovation. Elsevier Amsterdam.
- Kirzner I. M. (1978): “Competition and entrepreneurship” Edition: 7. University of Chicago Press, 1978
- Kitching, J. and Blackburn, R. (1999): “Management Training and Networking in Small and Medium-Sized Enterprises in Three European Regions: Implications for Business Support”, Environment and Planning C: Government and Policy, 17, 621-635.
- Kok de Jan (2003): ”Human Resource Management within small and medium-sized enterprises” Policy Research 2003.
- Kok De J. & Uhlaner L. M. (2001): “ Organization Context and Human Resource Management in the Small Firm”. Small Business Economic, Vol 17, number 4 dec. 2001.
- Kotter, J.P. (1990): “A force for change: How leadership differs from management”. Free Press, New York.
- KPMG (1997): ”The Environmental Challenge and Small and Medium-Sized Enterprises in Europe”. KPMG Environmental Consulting: The Hague.
- Kuhn T.S. (1970): ”The structure of scientific revolutions” University of Chicago, 1970

Kvale S. (1999):” InterView En introduktion til det kvalitative forskningsinterview. København, Hans Reitzels, 1999..

Laursen, K. (2002): “The Importance of Sectoral Differences in the Application of Complementary KRM Practices for innovation Performance”. *International Journal of the Economics of Business*. Vol. 9, No. 1, 2002, pp. 139-156.

Laursen, K. and Foss, N.J. (2003): “New human resource management practices, Complementarities and the impact on innovation performance”. *Cambridge Journal of Economics* 2003, 27, pp. 243-263.

Lawson, Tony (2003) *Reorienting Economics* (London and New York: Routledge).

Leede, J. and Looise, J. K. (2005): “Innovation and HRM: Towards an Integrated Framework”. *Creativity and Innovation Management*, Volume 14, Number 2. 2005.

Lengnick-Hall C.A.,& Lengnick-Hall M.L. (1990): “Interactive human resource management and strategic planning” Quorum Books New York 1990

Love J.H & Roper S (2001): “Outsourcing in the innovation process: Locational and strategic determinants”. *Papers in Regional Science*, 2001 -

Maaløe E. (2002): “Casestudier af og om mennesker I organisationer”. Akademisk 2002.

Manz, C. C. (1986): “Self leadership: Toward an expanded theory of self-influence processes in organizations”. *Academy of Management review* 1986, vol 11 no. 3.

Manz, C.C., Neck, C.P. (1999): “Mastering Self-Leadership: Empowering Yourself for Personal Excellence”. 2nd ed., Prentice-Hall, Upper Saddle River, NJ, .

Manz, C.C. and Sims, H.P. (1987): “Leading Workers to Lead Themselves: The External Leadership of Self-Managing Work Teams”. *Administrative Science Quarterly*, Vol. 32, No. 1. pp. 106-129.

Manz, C.C. and Sims, H.P. (2001): “The new super leadership: Leading others to lead themselves Berrett-Koehler Publisher Inc. San Francisco 2001.

March (1991): “Exploration and exploitation in organizational learning”. *Organizational Science*, Vol. 2, No. 1.

March J.G:& HA Simon, (1958): “Organizations” John Wiley & Sons Inc

Martins, E.C. and Terblanche, F. (2003) “Building organizational culture that stimulates creativity and innovation”. *European Journal of Innovation Management*, Volume 6, number 1, pp. 64-74.

McAdam, R., Convery, T and Armstrong, G. (2004 A): “Barriers to innovation within small firms in a peripheral location” *International Journal of Entrepreneurial Behaviour & Research*. Vol. 10, No. 3, 2004, pp. 206-221.

- McAdam, R. Reid, R. and Gibson, D (2004 B): "Innovation and organizational size in Irish SME's: An empirical study" *International Journal of Innovation Management* 2004, vol 8, no 2.
- McAdam, R., Stevenson, P. and Armstrong, G. (2000): "Innovative change management in SME's beyond continuous improvement" *Logistics Information Management* vol 13, Number 3, 2000 pp. 138-149.
- Miles R.E. and Snow C.C. (1992): "Causes of failure in network organizations". *California Management Review*, 28 pp. 62-73.
- Miles R.E. and Snow C.C. (2003 originally 1978): "Organizational Strategy, Structure, and Process". *Stanford Business classic(2003) / McGraw-Hill (1978)*.
- Milgrom, P. and Roberts, J. (1995): "Complementarities and fit Strategy, structure, and organizational change in manufacturing". *Journal of Accounting & Economics* 19 (1995) pp. 179-208.
- Miller, D. and Shamie, J. (2001): "Learning across the CEO life cycle". *Strategic Management journal* 22 (8), pp. 725-745.
- Millward, H. and Lewis, A. (2005): "Barriers to successful new product development within small manufacturing companies". *Journal of Small Business and Enterprise Development*. Vol. 12 No. 3, 2005 pp. 379-394.
- Mintzberg H. (1975): "The manager's job: Folklore and facts". *Harvard Business Review*, July – August
- Mintzberg, H. (1987): "Crafting Strategy". *Harvard Business Review*. pp. 66-75.
- Mintzberg, H (2000): "The Rise and Fall of Strategic Planning". Prentice Hall, 2000
- Mintzberg H & Lampel J (1999): "Reflecting on the strategy process" *Sloan Management Review*, 1999
- Mintzberg, H & Quinn, J. B. (1991): "The Strategi Process". 2.ed. New Jersey, Prentice Hall.
- Mintzberg H and Waters J.A. (1985): "Of Strategies, Deliberate and Emergent" *Strategic Management Journal*, Vol. 6, No. 3 (Jul. - Sep., 1985), pp. 257-272
- Mollerup E. (2000): "Modalities of self-managing teams". *International Journal of Operations & Production Management*. Vol. 20 No. 8, 2000, pp. 889-910.
- Morrison A. (2003): "SME management and leadership development: market reorientation". *Journal of Management Development* Volume: 22 Number: 9. 2003 pp: 796-808

- Mosey S (2005): "Understanding new-to-market product development in SMEs" *International Journal of Operations & Production Management* Volume: 25 Number: 2, 2005 pp:114-130
- Mosey, S., Clare, J. N. and Woodcock, D. J. (2002): "Innovation decision making in British manufacturing SME's". *Integrated Manufacturing Systems*. 13.3 2002, pp. 176-183.
- Mumby-Croft & Berman Brown (2005): "Management development; Small enterprises; Continuing professional development; Skills training". *Journal of Management Development* Volume: 24 Number: 8. 2005 pp: 670-682
- Murphy, S.E. and Ensher, E.A. (2001): "The Role of Mentoring Support and Self-Management Strategies on Reported Career Outcomes". *Journal of Career Development*, Vol. 27, No. 4, 2001.
- Nahavandi, A.: (2006): "The art and science of leadership" 4. Edition. Pearson Prentice Hall
- Nelson, R. R. & Winter, S. (1982): "An Evolutionary Theory of Economic Change". The Belknap Press of Harvard University, London.
- Norman, R. (1977). "Management for growth". Chichester: John Wiley.
- Nygaard (ed.) (2005): "Samfundsvidenskabelige analysemetoder". Samfundslitteratur 2005
- OECD Small and Medium Size Enterprise Outlook 2002
- Ojasalo J. (2008): "Management of innovation networks: a case study of different approaches". *European Journal of Management* Vol 11. No. 1 pp. 51-86.
- O'Laoire D and Welford R. (1996): "The EMS in the SME, In Corporate Environmental Management, Welford R (ed.) Earthscan: London.
- O'Regan, N. and Ghobadian, A (2004): "Short- and long-term performance in manufacturing SME's". *International Journal of Productivity and Performance Management* Vol. 53 No. 5; 2004 pp. 405-424.
- O'Regan, N., Ghobadian, A and Galleary, D. (2006 A): "In search of the drivers of high growth in manufacturing SME's". *Technovation* 26 (2006) 30-41.
- O'Regan, N., Ghobadian, A and Sims, M. (2006 B): "Fast tracking innovation in manufacturing SME's". *Technovation* 26 (2006) pp. 251-261.
- O'Regan, N., Sims, M. and Ghobadian, A (2005): "High performance: ownership and decision-making in SME's". *Management Decision* Vol. 43 No. 3, 2005, pp. 382-396.
- O'Reilly C. A & Tushman M.L. (2004): "The ambidextrous organization". *Harvard Business Review*, April 2004. pp. 74-81.

“Oslo Manual - Guidelines for Collecting and Interpreting Innovation Data”, 3rd Edition. Organisation for Economic Co-operation and Development, EUROSTAT, OECD

Oughton C & Whittam G (1997): “Competition and cooperation in the small firm sector” Scottish journal of political economy, 1997

Panizzolo, R. (1998): “Managing Innovation in SME’s: A Multiple Case Analysis of the Adoption and Implementation of product and Process Design Technologies” Small Business Economics 11, pp 25-42 1998.

Penne, G., Beers, C. and Kleinknecht, A. (2003): “Success And Failure Of Innovation: A Literature Review”. International Journal of Innovation Management. Vol. 7, No. 3. (2003) pp. 309-338.

Papadakis V & Bourantas D. (1998): “The CEO as corporate champion of technological innovation: an empirical investigation”. Technology Analysis and Strategic Management, 1998

Patton, D. and Marlow S. (2002): “The Determinants of Management Training within Smaller Firms in the UK: What Role does Strategy Play?” Journal of Small Business and Enterprise Development 9 (3) pp. 260-270.

Pavitt, K. (1984): “Sectoral patterns of technical change: Towards a taxonomy and a theory” Research Policy 1984, vol 13, pp 343-373

Penrose, E., 1959. The theory of the growth of the firm. , Wiley, New York

Pfeffer, J., & Salancik, G. R. (1978): “The external control of organizations. A resource dependence perspective”. New York: Harper Row.

Pinchot, G. (1985): “Intrapreneuring: Why You Don’t Have to Leave the Corporation to Become an Entrepreneur”. New York: Harper and Row.

PittaWay L., Robertson M., Munir, K. Denyer D. and Neely A. (2004): “Networking and Innovation: A Systematic Review of the Evidence”. International Journal of Management Reviews, Vol. 5-6, No. 3-4, pp. 137-168, September 2004

Politis, J.D. (2005): “Dispersed leadership predictor of the work environment for creativity and productivity” European Journal of Innovation Management, Vol. 8 No. 2, 2005 pp. 182-204.

Popper K. (1983):” Induction in: Realism and the aim of science edited by W.W.Bartly, III, Postscript to the logic of scientific discovery, Part I The critical approach, Rowan and Littlefield, Totowa 1983

Porter, M.E. (1980): “Competitive Strategy”. The Free Press, New York, NY.

Porter, M.E. (1985): “Competitive Advantage”. The Free Press, New York, NY.

Porter, M.E. (1996): “What is strategy?” Harvard Business Review, Vol. 17, pp. 33-47.

- Powell W. W. (1990): "Neither market nor hierarchy". *Research in organizational Behavior* vol. 12 pp. 295-336. 1990
- Prahalad, C.K. and Hamel, G. (1990): "The core competencies of the company". *Harvard Business Review*, May/June pp. 79-91.
- Quinn, J.B. (1980) *Strategies for change: Logical incrementalism*". RD Irwin Homewood 1980
- Rhenman, E. (1973). "Organization theory for long range planning". London: Wiley
- Ritson N. (1999): "Corporate strategy and the role of HRM: critical cases in oil and chemicals". *Employee Relations* Volume: 21 Number: 2, 1999 pp:159-176
- Ritter T. (1999): "The networking company: antecedents for coping with relationships and networks effectively" . *Industrial Marketing Management* 1999;28(5) pp. 467 –79.
- Ritter T & Gemünden H.G (2003): "Network competence Its impact on innovation success and its antecedents" *Journal of Business Research*, 56. 2003 pp. 745-755
- Roger, E.M. (1995): "Diffusion of innovations, 4th ed, The Free Press, New York, NY.
- Roger, E.M. and Shoemaker, F.F. (1971): "Communication in Innovation" The Free Press, New York, NY.
- Romijn H & Albaladejo M (2002): "Determinants of innovation capability in small electronics and software firms in southeast England". *Research Policy*, 2002
- Rosenfeld, (1995) Bringing Business Clusters into the Mainstream of Economic Development, *European Planning Studies*, Vol.5, pp.3-23.
- Rost, J. (1991): "Leadership for the twenty-first century" Praeger New York
- Rothwell, R. (1992): "Successful industrial innovation: critical factors for the 1990s. *R&D Management* 22 (3), pp. 221-239.
- Rothwell. R. and P. Gardiner (1985): "Design and Competition in Engineering". *Long Range Planning*. Vol. 17. No. 3. June. pp. 78--91.
- Runkel P.J. & McGrath J.E. (1972): "Research on human behavior: A systematic Guide to Method. Holt Rinehart and Winston new York.
- Ry Nielsen, J.C. (2004): "What Managers do – Influence Attempts as Another Piece to the Managerial Jigsaws". Working Paper, Copenhagen Business School.
- Sabourin, D. (2001): "Skill Shortages and Advanced Technology Adoption". *Analytical Studies Branch – Research Paper Series*, Statistics Canada, No. 11F0019MPE No. 175.

- Sako M. (1994): "Supplier relations and innovation", in Dogson and Rothwell "The handbook of Industrial Innovation". Pp. 268-274.
- Schein, E. H. (1992): "Organizational Culture and Leadership". 1992 Jossey- Bass.
- Schumpeter, Joseph A. 1934. The Theory of Economic Development. Cambridge: Harvard University Press. (New York: Oxford University Press, 1961.) First published in German, 1912.
- Schumpeter, Joseph A.(1939): "Business Cycle". McGraw-Hill Book Company, New York.
- Schumpeter, Joseph A.(1942): "Socialism and Democracy". Harper, New York.
- Scott, M. (1991) "A European View", Proceedings of the 1991 Conference of the Small Enterprise Association of Australia and New Zealand, Wollongong, NSW, September, pp. 10-19.
- Sels, L., Winne, S., Delmotte, J., Maes, J., Faems, D. and Forrier, A. (2006): "Linking HRM and Small Business Performance: An Examination of the Impact of HRM Intensity on the Productivity and Financial Performance of Small Business". Small Business Economics, Vol. 26, 2006, pp. 83-101.
- Selznick, P. (1957): "Leadership in Administration". Harper & Row, 1957
- Shaw, E. (1999): "A guide to the qualitative research process: evidence from a small firm study". Qualitative Market Research vol. 2. number 2 1999 pp. 59-70.
- Shelanski, H.A. and Klein P.G. (1995): "Empirical Research in Transaction Cost Economics: A Review and Assessment". The Journal of Law, Economics, & Organizations Volume 11 N2 1995.
- Shipton, H., West, M.A., Dawson, J, Birdi, K. and Patterson, M. (2006): "HRM as a predictor of innovation". Human Resource Management Journal, Vol. 16, No. 1.
- Silverman D. (2000): "Doing qualitative research – a practical handbook". Sage Publications Ltd 2000.
- Smith, A.J., Boocock, G., Loan-Clarke, J. and Whittaker, J. (2002): "HRM and SME's: awareness, benefits and barriers. Personnel Review, vol 31 No. 1, 2002, pp 62-85.
- Souitaris, V. (2002): "Technological trajectories as moderators of firm-level determinants of innovation". Research policy 31 (2002) pp. 877-898.
- Stacey R. D. (2003): "Organizations as Complex Responsive Processes of Relating". Journal of Innovative Management. Vol. 8. No. 2: 27 – 39.
- Stadler F (1997): "What is the Vienna Circle?" Springer Netherlands 1997
- Stogdill R.M. (1974): "Handbook of leadership: a survey of theory and research". Free Press

- Storey, J. (2007): "Human Resource Management – A critical text". Thomson London 2007
- Sundbo, J. (1995): "Innovationsteori: tre paradigmer. Kbh.: DJØF's forlag 1995.
- Sundbo, J. (1998): "The theory of innovation". Cheltenham: Edward Elgar Publishing 1998.
- Swan, J.A. and Newell, S. (1995): "The role of professional associations in technology diffusion. Organization Studies 16, 846-873.
- Sydow J. and Windeler A.: "Organizing and evaluating interfirm networks: A structurationist perspective on network processes". Organization Science 9(3) pp. 265-284.
- Tanabe, K and Watanabe, C (2005): "Sources of small and medium enterprises excellent business performance in service oriented economy". Journal of Service Research, vol 5, number 1, April/Sep 2005.
- Tannenbaum, Robert; Schmidt, Warren H.. Harvard Business Review, Mar/Apr58, Vol. 36 Issue 2, p95-101, 7p, 1 diagram; (AN 6780272)
- Teece, D.J. and Pisano, G. (1994): "The dynamic capabilities of firm's: an introduction". Industrial and corporate change, Vol. 3, pp. 537-556
- Teece, D.J., Pisano, G. and Schuen, A. (1997): "Dynamic capabilities and strategic management". Strategic Management journal, Vol. 18 No. 7, pp. 509-533.
- "The Fourth Community Innovation Survey (CIS 4)" Published in: Innovation i dansk erhvervsliv. Innovationsstatistik 2002-2004 Statistikken er udarbejdet af: Udgiver: Dansk Center for Forskningsanalyse. Adresse: Finlandsgade 4, 8200 Århus N.
- Therrien, P. (2000): "What distinguishes Innovative Firms from Other Firms: Results from the 1999 Innovation Survey". Paper submitted for publication in the volume of ISRN conference papers.
- Tidd, J, Bessant, J. and Pavitt, K. (2001): "Managing Innovation". 2nd ed. Wiley and Sons Ltd. England.
- Tourigny, D. and Le, C.D. (2004): "Impediments To Innovation Faced By Canadian Manufacturing Firms". Econ. Innov. New Techn., 2004, Vol. 13(3), April, pp. 217-250.
- Tushman, M. L. and O'Reilly III, C, A. (1997) Winning through Innovation: A Practical Guide to Leading Organizational Change and Renewal, Boston: Harvard Business School Press.
- Twiss, B. (1992): "Managing technological Innovation. Pitman, London.
- Uhlener L. M. (2003): " Trends in European Research on Entrepreneurship at the Turn of the Century". Volume 21, number 4 december 2003 Small Business Economics
- Ulrich D. (1997) "Human resource champions" Harvard Business School Press, Boston Massachusetts.

- Van de Ven, A.H., Angle, H.L. and Marshall (Edited by) (1989): "Research on the Management of Innovation - The Minnesota Studies". Oxford University Press 2000/ 1. Edition 1989.
- Verhees, F. and Meulenber, M. (2004): "Market Orientation, Innovativeness, Product Innovation, and Performance in Small Firms". *Journal of Small Business Management*, 2004, 42, pp 134-154.
- Vermeulen, P.A.M. (2005): "Uncovering barriers to Complex Incremental Product Innovation in Small and Medium-Sized Financial Services Firms". *Journal of Small Business Management*, 2005, 43 (4), pp. 432-452.
- Williamson, O. E. (1975): "Markets and Hierarchies: Analysis and Antitrust Implications. New York: Free Press". (1981) "The Economics of Organization: The Transaction Cost Approach," 87 *American Journal of Sociology* 548-77. (1985): "The Economic Institutions of Capitalism". New York: Free Press.
- Vossen, R (1998 A): "Relative strengths and weaknesses of small firms in innovation". *International Small Business Journal*, April-June 1998 v16 n3 p 88(7).
- Vossen, R (1998 B): "Combining small and large firm advantages in innovation: theory and examples". University of Groningen, Research Institute SOM (Systems, Organizations and Management) in its series Research Report with number 98B21
- Wang, Z. (2005): "Organizational effectiveness through technology innovation and HRM strategies". *International Journal of Manpower*, Vol. 26 No. 6, 2005, pp. 481-487.
- Wang Z. & Zang Z (2002): "Strategic human resources, innovation and entrepreneurship fit". *International Journal of Manpower* Volume: 26 Number: 6, 2005 pp: 544-559
- Weick, K. W. (1979). "The social psychology of organizing (2nd ed.)". Reading, MA: Addison-Wesley.
- West M. A., James P. Guthrie , Jeremy F. Dawson , Carol S. Borrill , Matthew Carter (2006): "Reducing patient mortality in hospitals: the role of human resource management". *Journal of Organizational Behavior*, vol 27 issue 7, pp 983-1002
- Wilkinson F., Lawson C., Keeble D., Lawton-Smith H and Moore B. (1996): "Innovative behavior of technology-based SMEs". Paper presented at a Warwick SME Centre conference, University of Cambridge.
- Wittgenstein L. (1963): "Philosophical Investigations. Oxford: Blackwell.
- Wright & McMahan (1992): "Theoretical perspectives for strategic human resource management". *Journal of Management* 18. Pp. 295-320
- Yin R. K. (1989): "Case study research" Sage Publications 1989.
- Yukl, G.A. (2001): "Leadership in Organizations". 2001 Prentice Hall.

Yukl, G.A. (1989): "Managerial Leadership: A Review of Theory and Research". *Journal of Management* 1989, Vol. 15, No. 2, pp: 251-289.

Zaleznik, A. (2000): "Managers and leaders: Are they different?". *Harvard Business Review*, 55 (5) pp 67-78.

Appendix A

1. Validity and reliability in the research process

The research method should enable the collection of information required to answer the research question. Although the choice of research method can be partly determined by the nature of the research, it is most often the case that a research question can be treated through different research methods. There are several good reasons for choosing a particular research method; one is to create the highest possible level of validity and reliability of the research process as such; another is the fact that the research method is a determining and important factor in relation to how my PhD project is structured and how it shows a strictly logical way of answering the research question.

Validity in the social science research process is more a question of pursuing rather than attaining. I have to struggle to reach the highest possible level of truth, strength and value in the research results, knowing that one will never achieve the truth in an absolute sense (see appendix B for a discussion of ontology and epistemology). Among scholars (e.g. Brinberg & McGrath 1985, Gerring 2001, and Silverman 2000) in qualitative research, there are different models to use and procedures to follow to seek a high level of validity and reliability. Gerring (2001) calls his model for “The Criterial Framework” and Brinberg and McGrath (1985) term their model “The Validity Network Schema” (VNS). The VNS is based on five cardinal concepts which are; domains, levels, stages, paths and validity, each of these concepts will be further elucidated below.

This thesis follows “The Validity Network Schema” developed by Brinberg and McGrath (1985), because the model has a very logic and clear way of addressing the research process through three **domains**. The first domain relates to the focal area of interest for the research and it is called the substantive domain. The second domain is the conceptual domain and it comprises theories and ideas which give meaning to the substantive domain. The third domain is called the methodological domain and is centred on the techniques and procedures for how to execute the study. The three domains are viewed from three different **levels** which are the element, relation and embedded system levels. Research is about studying relations between some elements which invariably form part of a surrounding system; here called the embedding system (Brinberg & McGrath 1985). The domains and levels in the VNS system are represented in figure A1 below.

Figure A1; Domains and levels in the VNS system

| | | | |
|-----------------|--------------------------------------|--|--|
| Domains | Substantive | Conceptual | Methodological |
| Levels | | | |
| Element | Phenomena | Characteristic concepts of the phenomena | Mode of treatment of the concepts within the phenomena |
| Relation | Pattern of relations among phenomena | Logical, causal, chronological relations among phenomena | Comparison of techniques for modes of treatment |
| Embedded system | Substantive system | Conceptual paradigm | Research strategy |

Source: Adapted from Brinberg and McGrath

There are three all-embracing **stages** which research in the VNS perspective should follow. The first stage is the preparatory element and the focal point is generation, development, clarification and evaluation of both elements and relations within the three domains. In short, the purpose of stage one is to establish the foundation for the research. In section 1.5, I will argue for the relation between the VNS system and this PhD project regarding all three phases.

Stage two is strictly speaking the real research, during which the study (the five case studies) is conducted and the researcher contributes to the field by displaying the empirical findings which have been generated by different combinations of elements and relations among the three domains (Brinberg & McGrath 1985). Depending on which domain the researcher begins with and uses as the central point for the research, Brinberg and McGrath term it either (a) basic research (start/focus on the conceptual domain), (b) applied research (start/focus on the substantive domain) or (c) technological research (start/focus on the methodological domain).

Within stage two there are three varied ways (different combinations of two out of the three domains) of structuring the research process. Brinberg and McGrath (1985) mention it as three different **paths** or instrumental structures. These paths or styles for conducting stage two research are called experimental path (combination of the conceptual and methodological domain), theoretical path (combination of conceptual and substantive domain) or empirical path (combination of substantive and methodological domain), respectively. All three paths have the same objective, namely to contribute with new knowledge through a set of empirical findings. Which path the researcher chooses to use depends on the preferred and applied domain.

Stage three is about systematic search in all three domains for the range and boundaries of the stage two findings. The intended focus of stage three is to verify, extend and delimit the findings from stage two.

The three stages are closely linked but possess distinctive foci and contribute differently to the research process. “As stage one is “generative” or “constructive” and stage two is “logical-empiricist” or “hypothetical-deductive” stage three most nearly reflects a “generalizability” or “credibility” paradigm for the research” (Brinberg & McGrath 1985).

Brinberg and McGrath view **validity** in the light of each stage. Stage one validity is about the value that the researcher puts into identifying, developing and clarifying elements and relations that he finds important and useful. This kind of stage one validity is called valuation validity (Brinberg & McGrath 1985). How a high validity is created in relation to this PhD project will be explained in appendix D regarding all three stages.

In stage two, the validity focuses on three phases. Phase one deals with the question of whether or not there is correspondence between the elements from the three domains, the second phase encompasses correspondence between relations from two domains (one of three paths mentioned above) and the third phase relates to correspondence between the path chosen in phase two and the relations from the third domain. This means, that if we e.g. follow the theoretical path (combining the conceptual and substantive domain), the researcher would have to formulate a set of hypotheses and then have to test these hypotheses with some elements and relations from the methodological domain. In stage two, the research follows either the experimental, theoretical or empirical path, and

the crux in relation to validity is the degree of correspondence between the elements noted in phase two and three. Brinberg & McGraft (1985) name all kinds of stage two validity correspondence validity.

Stage three validity is concerned about the external validity, which has to do with the assurance of the researcher's interpretation of the empirical findings. The aim of creating high validity in stage three is to reduce uncertainty in the range of variation within the substantive, conceptual and methodological elements and relations. That is, a high validity in stage three will create certainty about what kinds of stage two findings which can be confirmed and which cannot be confirmed. It is about the extent to which the results of the research can be generalised. (Brinberg & McGrath 1985). Stage three validity is called generalisation validity.

In the following sections, I will address each of the three domains in its own theoretical context; the substantive (section 1.1), the conceptual domain (section 1.2) and the methodology domain (section 1.3). Then, in section 1.4, I will argue for the motives for choosing the VNS system and in section 1.5, I will relate the VNS system specifically to this PhD project.

1.1 The substantive domain

In many ways, this domain can be characterised as being fundamental because it deals with “what's there” before the research is planned. But the domain is also elusive and indescribable because it is normally difficult to talk about the substantive area without using elements from the conceptual and methodological domain (Brinberg & McGrath 1985).

The embedded system in this domain is a higher order system⁹⁴ in which the research entities and the pattern, which comes from relations between these entities, are embedded. (Brinberg & McGrath 1985)

On the relation level in the substantive domain, we see patterns of two or more phenomena related to each other. That is e.g. the instances of two or more social units acting towards an object in the

⁹⁴ Higher is seen from the relation level point of analysis. If the relation level focuses on groups, the embedded system will look at organisations and so forth.

context. Indeed, it is these patterns and the way they are identified, analysed and understood, which will remain the core object of social science (Brinberg & McGrath 1985).

The element level of the substantive domain is defined as these phenomena that are able to explain the action being made on the relation level. (Brinberg & McGrath 1985). It is when these phenomena are constructed in patterns that they explain the action on the relation level.

As already mentioned, there are a number of validity factors in relation to each domain. Validity in the substantive domain is the most difficult to define and describe, however, Brinberg and McGrath (1985) enumerate the following three; (1) system well-being, (2) system task performance effectiveness and (3) system cost. This means that the most important validity criterion for the substantive area is to describe it in a way that secures an evolutionary development (contrary to a revolutionary) of the field and that the description takes its point of departure as close to the (in general) existing macro conditions as possible (system well-being). Validity in the system task performance effectiveness is a matter of evaluation of conditions and behaviour. Conditions and behaviour which support the system in effective performance are desirable and vice versa (system task performance effectiveness). The third validity criterion is system costs and it relates to all the conditions which either increase or decrease the unit expenses (in terms of energy, money, raw material etc.) in its search for task performance effectiveness and system well-being (system cost). That is, conditions which can support a decrease in system cost will raise the validity through better task performance and system well-being and vice versa. These three validity criteria in the substantive domain are all interdependent but they are also conflicting. For instance, by raising the system performance effectiveness which will be followed by higher system costs, one may reach high validity on performance effectiveness but at the same time lower the validity on system costs (Brinberg & McGrath 1985).

1.2 The conceptual domain

The embedded system level within the conceptual domain contains paradigms which are the superior principles for the conceptual domain (Brinberg & McGrath 1985). For any given focal system, there will be a certain paradigm and paradigm is here to be understood in the context of Kuhn (1973) who was responsible for popularisation of the term, which he described as essentially a collection of beliefs shared by scientists, a set of agreements about how problems are to be

understood. According to Kuhn, paradigms are essential to scientific inquiry, as well as the embedded system in the conceptual domain is essential as a framework within which the whole research process and project are to be understood (see appendix B for a further discussion of paradigms).

The relation level examines any logical, causal or chronological links between each of the concepts which constitute the element level. The relation between two or more of these concepts is reflected in the theories which will be treated in the study.

The element level of the conceptual domain is made up of characteristic concepts of the theoretical phenomena of interest. These concepts are meant to describe the states and actions of the theoretical phenomena which are going to be investigated. The conceptual domain is basically addressing the concepts (element level) of the theories (relation level) and the respective theoretical paradigm (the embedded level) which the research theoretically is based on.

The conceptual domain contains various validating criteria of which the most important one is what Brinberg and McGrath call parsimony. Parsimony refers to the principle that the fewer concepts and relations employed when interpreting a certain connection or body of evidence, the higher level of validity and vice versa. Another element of validity is scope, which proposes that the wider your conceptual formulation of the focal problem is the better. The last validity consideration is what Brinberg and McGrath call differentiation of detail and it contrasts with the scope view, as it emphasises the advantages of working with the focal problem in detail rather than handling it in a more general or holistic form.

In short, validity in the conceptual domain concerns conflicts as well as dilemmas such as those between scope and differentiation, but also between scope/differentiation and parsimony. Thus, a choice is necessary and parsimony (the density criterion) will be used as the most important validity criterion in the conceptual domain keeping scope and differentiation validity high, provided that it does not have any negative effect on parsimony.

1.3 The methodology domain

This third domain concerns the tools used for measuring, manipulating or controlling the characteristics of elements and relations within the substantive and conceptual domains. On the element level, the methodology focuses on different modes (or data collecting techniques) of handling the concepts of the relevant phenomena. As a logic continuation of the element level, the relations level measures the comparison between different modes (measuring, manipulation or controlling) of treatment, and Brinberg & McGrath (1985) use the following steps to illustrate the three ways of comparison:

- 1) “A set of one or more elements that have been given “treatment Y” and that are considered “dependent variable(s)” or measures of the phenomena of interest.
- 2) A set of one or more elements that have been given either “treatment X” or “treatment Y” and that are considered “independent variables” or potential antecedent conditions for those phenomena of interest.
- 3) A third set of elements that have received any of various control treatments (held constant, treatment K; matched, treatment M; randomized, treatment R; or ignored, treatment Z) and that are to be considered “other properties” that provide the context and limiting conditions for the comparison”.

The third level pass on to the research strategy which contains the relation and the element level of the methodological domain. Runkel and McGrath (1972) have argued for eight different research strategies to consider in a methodological perspective and these are: Field studies, field experiments, experimental simulations, laboratory experiments, judgment studies, sample surveys, formal theories, and other computer simulations. The choice between these eight research strategies depends mainly on two things; one is the subject and the other the context of the research project.

Within this domain as well, the validity issue is quite a conflicting and complex matter with some dilemmas along the research process. Presumably, it would be fair and appropriate to divide validity in the methodological domain into three key areas or dilemmas. First of all, a dilemma arises in connection with three validity criteria; each for one of the following areas: Actors, behaviours and context. Furthermore, a dilemma is obvious in relation to deciding whether the focus is standardisation or generalisation. The last dilemma concerns different treatment modes.

The challenge of handling the three validity criteria is deeply rooted in social science's desire to maximise three mutually incompatible wishes and those are: **Generalisation** (to reach a high validity in the interpretation of the population on which the research is conducted), **precision** (to reach a high validity in measuring and controlling behavioural variables) and **realism** (to reach a high validity in relation to the applied context) (Brinberg & McGrath 1985). Due to the fact that these three wishes relate to the methodological domain, it would be fair to say that the validity aspect is crucial to the methodological domain. Normally, the validity challenge is directly related to the methodology more so than to the conceptual or substantive aspects. No single research strategy will be able to take into consideration all three validity criteria at the same time. Actually, by focusing on any of the three criteria, it will unavoidably imply a devaluation of the other two criteria. For instance, maximising precision (measure and control behaviour variables) by using a laboratory experiment would entail a relatively unrealistic context and low validity on generalisation to the outside population as well. On the other hand, a field study would prompt a high validity on the context realism, but it would inversely see lower validity on precision (less ability to measure and control variables) and relatively little opportunity for generalisation to a large population.

The second dilemma has to do with the dualistic relation between standardisation and generalisation. In any research process, one has to find a balance between standardisation of the conditions for the variations which have not been investigated but are important and relevant and find the variation in the unimportant variables with the aim of enhancing the reliability of the results (Brinberg & McGrath 1985).

The last dilemma concerns choice of the right techniques for data treatment. Brinberg & McGrath (1985) operate with six different techniques, namely: Measures (treatment Y/dependent variables), manipulation (treatment X/independent variables) and four control variables; control (K), Match (M), randomised (R) and ignore (Z). Depending on how one treats the Y variables (dependent), the result can either be increased precision of information but narrowed scope of the study (treatment X & K) or the result can be a wide scope but imprecise and "noisy" information (treatment Z) (Brinberg & McGrath 1985).

As indicated above, there are three major dilemmas with several derived questions when it comes to validity in the methodological domain. To handle all of these dilemmas in one research project would require the employment of several different techniques and research strategies, which would normally be too resource-consuming. Almost every research project needs to adjust its ambition level and decide what kinds of research strategies and techniques are the most appropriate on the basis of the focal research area (gain highest validity).

1.4 Motives for “The Validity Network Schema”

There are at least four arguments in favour of using the VNS system in this PhD project. Especially the fact that the VNS system permits high levels of validity and reliability has been an important reason for choosing the system. Moreover, both the systematised structure within the VNS system and the facility to separate theory and praxis has been factors influencing the preference.

The first and principal argument for using VNS is that the validity considerations are quite comprehensive in all three domains, with special focus on generalisation, precision and realism in the methodological domain. Therefore, the VNS system has a clear attitude towards the complex matter of validity.

The second argument concerns the structure of the three domains and the three levels with recommendations for how to conduct the whole research process. This structure will also enhance the possibility of comparing one research project with another one of the same nature. This well-defined structure opens good possibilities of making realistic comparisons between two or more similar research projects which, in return, open possibilities of addressing the reliability of the research process; although some researchers argue that discussing reliability in social science is nonsense. If we recognise social reality as being in dynamic flux, it makes no sense whether our research instruments measure accurately or not. (Marshall & Rossman 1989/ Silverman p 10). Conversely, if we posit some stable concepts in the social world, it would be important to work with reliability in order to enable other researchers to replicate the properties by following the same procedures (Silverman 2000)

The third argument is derived from the VNS system itself and deals with the idea of dividing the research process into the three domains. This means that the researcher is able to work with each

domain explicitly, thereby defining an area of future interest (substantive), describing this area by using ideas and concepts which are fruitful for the focal subject (conceptual) and determining strategies and techniques for investigating the subject (methodological).

The fourth and last reason for preferring VNS is the clear separation between theory and praxis. The fact that VNS is only dealing with existing theory and its relation to the empirical data allows the researcher to develop his or her own theory contributions. From identification, selection and combination, the VNS research frame should provide the researcher with the possibility of making new theory contributions.

1.5 The VNS system in relation to this PhD project.

Research is basically about relations (Brinberg & McGrath 1985). Therefore, the central focus of this PhD project is the horizontal level of relation going from the substantive domain (the research question) through the conceptual domain (theoretical foundation) until the methodological domain (the empirical field work). The elements are the indispensable underlying parts supporting the relations with content and the embedded system is the surroundings and the contexts within which the relations are interpreted.

It is from the relation level of the substantive domain that this PhD project's research question is formulated: How to manage SMEs through the transformation from non-innovative to innovative? Thus, the relation level is addressing organisations as the level of analysis and it is to create more knowledge about how to transform these SMEs which constitutes the main research purpose. Hence, the element level focuses on all the different phenomena which form part of the transformation of SMEs from non-innovative to innovative. The embedded system in the substantive domain is related to how the overall development of the business community can benefit from the transformation of these SMEs.

On the relation level, the conceptual domain contains the main theories of the research, namely theories about management, HRM, strategy and network. The element level is made up of different phenomena and concepts which can be seen as building blocks for the applied theories. It is when theories are defined and subdivided into the underlying concepts that I as a researcher am able to understand and work with them. These underlying concepts subdivided from the theories form the

elements on the conceptual level. On the other hand, when these concepts are combined in different patterns, they constitute theories. Actually, my research in this PhD project has been a matter of subdividing the theories into concepts which I was able to compare with the phenomena (element level) of the substantive domain. This comparison on the element level between the conceptual and substantive domains determined if the ten propositions could be confirmed or not. The knowledge created through this comparison made it possible to return to the relation level and answer the research question and generalise the results. In my point of view, that is what social science is all about. The embedded system level addresses the theoretical paradigm (for Kuhn's definition, see appendix B) which in this situation relates to the technology-economic paradigm.

The methodological domain has, as its main part of the relation level, the case studies which will be described in detail in appendix C. The element level consists of the in-dept and semi-structured interviews and all different kinds of background data about the companies. The embedded system in this domain is expressed by the research strategy, which is the field study, as it is the best suitable in relation to the research area.

The reason is that the field study creates high validity on context realism. Context realism is the most important validity criterion in relation to this PhD project because the aim is to better understand how these SMEs act and work in relation to their business contexts. Therefore, as context validity is the most important criterion for the field study chosen, my research must "pay the price" so to speak with little opportunity for generalisation to a large population and less ability to measure the variables. Still, I have tried to make these generalisations to larger population in chapter 5. Below in figure A2, the VNS system is applied as the framework for the present PhD project.

Figure A2. The VNS system and the PhD project

| Domains | Substantive | Conceptual | Methodological |
|-----------------|---|--|---|
| Levels | | | |
| Element | The companies' conditions and their actions | The concepts which relate to management, HRM, strategy and network | Semi-structured interviews Relevant data about the companies |
| Relation | The transformation of non-innovative SMEs toward innovative SMEs | Theories related to management, strategy, HRM and network | Pilot study Case studies |
| Embedded system | Developing the business community to gain more advantages from the innovation society | The technology and economic based paradigm | Field studies |

Source: Own adaptation from Brinberg and McGrath 1985

The research process of this PhD project follows the theoretical path (Brinberg & McGrath 1985: 63-65) with a hypothetical-deductive⁹⁵ point of departure. The dependent variable (Y) measures SMEs' ability to transform themselves from non-innovative into innovative companies. The independent variables, which are used to manipulate the dependent variable, are constructed from the theoretical areas of management, HRM, strategy and network.

⁹⁵ As Brinberg and McGrath call it hypothetical-deductive, they address the hypothesis as the main point of the deductive research process. Through this appendix A, I will keep the hypothesis frame to be true to the source (Brinberg and McGrath). But in appendix C, by referring Yin (1989), I will argue that proposition is a more recommendable term in case studies than hypothesis is.

2. The different phases of the research process

As a stage two activity (see section 1 in this appendix), Brinberg & McGrath set the scene for two essential choices, one of them is the study path and the other one is the underlying research orientation. There are three different paths to follow in the research process, depending on whether the point of reference is theoretical, methodological or empirical.

The theoretical path (as used in this PhD project) is characterised by the combination of the conceptual (concepts, relations and the conceptual paradigm) and the substantive (phenomena, relations among phenomena and the substantive system) domains. By merging the conceptual domain with the substantive domain, the process will result in some hypotheses or one could say that the theory will outline some assumptions as to the reaction of a particular substantive pattern. However, the result of merging these two domains is an instrumental structure called a set of hypotheses or even a theory (Brinberg & McGrath 1985) which will be described in further details below. Stage three (see section 1 in this appendix) of the theoretical path is a matter of a permutation between the hypotheses and items from the methodological domain. Through different kinds of processing and ways of gathering information (element level in methodological domain), some comparison techniques (relation level) will be used to measure the selected variables.

“When comparison techniques are combined with hypotheses, the results - as in the experimental path – are a set of findings. And, as in the experimental path, the embedding system for variables and findings is a body of evidence” (Brinberg & McGrath 1985:64).

There are two possible research orientations (or pathways to build a set of hypotheses) underlying the theoretical path. One is called “concept-driven hypotheses” covering the situation where the researcher commences the research process in relation to the conceptual (theoretical) domain and formulates some hypotheses on that basis and then works towards the substantive domain in order to test the hypotheses. The other pathway – called “the system-driven hypotheses” – uses the substantive domain as its point of departure and relates it to the conceptual domain (Brinberg & McGrath 1985). The research approach implemented in this PhD project is the concept-driven orientation; the first choice of domain being the conceptual and the second the substantive which in the third stage will be followed by activities in the methodological domain. It is the so-called

“concept-driven hypotheses” structure where the hypothesis tests (in terms of theoretically based hypotheses meeting the practical phenomena and patterns) are the product which should create the field contributions and findings (Brinberg & McGrath 1985).

To make a clear differentiation between the three main steps of the research process and to relate the present PhD project to stage one, two and three of the VNS system, each stage will be described below.

2.1 Stage one - the preparation phase

This first stage of the research process is dedicated to identifying the problems and challenges that the research subject gives rise to. Furthermore, the researcher should create an overview of the theoreticians who have contributed to the field, especially when it is a concept-driven approach. From this rather broad perspective, the aim is to generate the element and relation levels for the three domains starting out with the theoretical aspects. Here Brinberg & McGrath (1985) point at another validity aspect which is important in this early stage and it is associated with the term value and should be seen in relation to the description of the relevant elements and relations. To gain high value validity, the selected elements and relations should be correctly identified, described and developed. I did that by using the research question as the determining factor and from that point, I chose a relevant theoretical paradigm, relevant theoretical areas and divided them into relevant theoretical aspects and elements. These literature reviews and considerations were developed into the theoretical construction which has formed both 10 propositions as well as the theoretical transformation model (see section 3.7).

2.2 Stage two – the implementation phase

This stage is about conducting the “real” research and now the work is based on an explicit research problem. Attention is focused on generating the empirical data and relating these data, through a certain research strategy, to the conceptual and substantive domains. In this implantation phase, there are three steps to follow: Firstly, one should select and develop the element and relation level from the primary domain; secondly, one should combine the element and relation level from the 1st choice domain with the 2nd choice domain; and thirdly, one should compile elements and relations from the 3rd choice domain into the step two activities, thereby generating empirical data (Brinberg & McGrath 1985).

In the implementation phase, the validity aspect focuses on the level of correspondence between the three domains and is seen as “the meshing together of two complementary networks of relations” (Brinberg & McGrath 1985:94). The level of correspondence validity depends on the connectivity between the elements of the three domains and the fit between the relations of 1st and 2nd choice of domain and finally the fit between relations of 1st/2nd choice of domain and the 3rd choice of domain.

In relation to the present PhD project, the conceptual domain is of primary interest and the 1st choice of domain (see figure A2). Therefore a structure of elements and relations from the conceptual and substantive domain (2nd choice of domain) has been composed. These structures of elements and relations are created by combining the theories (relations in the conceptual domain) and the empirical based patterns of how to transform toward an innovative SME (relations on the substantive domain). As a final point, the hypotheses from this instrumental structure are tested by means of the five case studies (relation level of the methodological domain). This truly underlines the fact that the research is conducted on the relation level throughout the three domains, although the element level with its concepts and phenomenon’s is a condition for the relation level. One need some concepts in order to create a theory and one needs to possess data collecting methods to complete a case study as to see and understand that the phenomena are the building blocks which render patterns of relations in the substantive domain visible. That was what I discovered, especially throughout the work with the empirical evidence in chapter 4.

The correspondence validity together with the valuation validity (stage one) is what Brinberg and McGrath call the internal validity of the research process and I will return to that subject in appendix C regarding internal validity in the case study method.

2.3 Stage three - the follow-up phase

This last phase focuses on verifying the material used in the preparation phase and to search the range of variation among the three domains (element and relation level). This variation determines whether or not the stage two findings can be approved or not. The aim is to test the generalizability of the research through a systematic examination of the conducted research in order to point out the limits for the results and findings. Here, the validity aspect directs its attention to the reliability and generalizability of the limits for the research results. The validity level is measured on the basis of

the variation uncertainty of elements and relations within the three domains. The validity related to this phase is called the external validity (Brinberg & McGrath 1985) and I will return to the external validity in appendix C.

Stage three activities in relation to this PhD project were addressed throughout chapter 5's comparison between the theoretical transformation model (theoretical propositions) and the problem based transformation model (the empirical findings). The aim was to discuss to what extent the stage two findings could be approved or confirmed and to discuss to what extent the findings could be generalised to a broader context (see chapter 5 and 6).

Being aware of the strengths of the VNS system (the three stages, the paths and the pathways), it is important to recognise one restriction: Each path/pathway has its weaknesses. Consequently, working with multiple paths is an efficient procedure for emphasising the strengths and minimising the weaknesses of the research process (Brinberg & McGrath 1985). However, due to restricted resources, this way of strengthening social research is not frequently used, nor does it form part of this PhD project.

Appendix B

1. The theory of science perspective

Theory of science is about exposition of different basic rules for how to understand research problems and about the validity of the ongoing research results. Normally, these basic rules are viewed as interdisciplinary, aiming at defining what science and research are and can be. But when different angles on how to understand theories of science are offered, these rules can turn out quite diverse. Depending on the theory of science perspective adopted, there can be quite a wide gap between the different definitions; ranging from a positivistic, quantitative natural science definition on the one hand to constructivism based on a qualitative social science definition on the other hand. Between these two extremities, there are several sets of rules (paradigms) within natural science as well as social science. However, these differences do not mean that one should discard the idea of determining unambiguous criteria for what science is. But it does mean that one should be very clear about how to conduct research, from one extremity, the theory of science perspective, to the other, the detailed methodological aspects. I seek to reach that clearness of how to conduct social science research through appendices A, B, C and D.

In this appendix, the idea is to clarify how research is conducted and therefore to understand theory of science in general and in relation to the current PhD project in particular. Focal points are different overall approaches to reflecting on the conceptual domain (theory) and how the process of creating new knowledge in social science is to be understood. In the following sections, the relation between methodology, paradigm, ontology, epistemology and conclusion forms will be expounded in general and in relation to this PhD project in particular.

1.1 The main concepts in theory of science

As a researcher, one has to be conscious about the assumptions (especially related to ontology and epistemology) and choices one makes in relation to the research process. After having chosen a certain way of understanding ontology and epistemology, the researcher should specifically be able to reflect upon the methodological consequences deflected from these choices. In all kinds of social science research projects, the researcher needs, as a way of clarifying the methods and the results, to be explicit about the recognition of ontology and epistemology. However, these are not the only important concepts to be explicitly aware of in the research process. In the social science theory

literature (Brinberg & McGrath 1985, Gerring 2001, Fuglsang & Olsen 2004), there are some basic concepts which are essential, no matter what kind of science tradition we view the research process from. The five primary concepts (ontology, epistemology, paradigm, methodology and conclusion forms) will be described in the following sections.

Ontology is basically about defining what is reality or true knowledge in relation to the chosen research object. The continuum, on which reality is to be understood, ranges from regarding reality as something in fact existing (realistic positivism) to conceiving reality as a social construction (relativistic constructivism) (Nygaard 05). That is why ontology has to be defined explicitly in each research process.

Ontology is a way of studying different conceptions of reality and this must be done at least to the extent where epistemology and methodology can be defined. The way we understand reality (ontology) has a huge impact on how reality can be recognised (epistemology) and how the researcher can investigate the reality (methodology). Therefore, the question of how to understand ontology is the determining factor for epistemology and methodology (Nygaard 2005).

Epistemology is a fundamental assumption for recognising the reality (ontology) defined in the research. Epistemology is derived from the Greek word episteme which is equivalent to knowledge. Epistemology is also known as the theory of knowledge, especially with regard to its methods, validity and scope (Oxford Dictionary). The concept epistemology treats of methods for recognising and validating the data or information which the researcher collects throughout the research process.

Paradigm has no unambiguous definition, even Kuhn, who originally coined the term, used different definitions throughout his career. Hence, it is important for every researcher to define exactly what paradigm they belong to, thereby providing a common foundation for discussing the research. Theory of science encompasses several different perspectives whereas different logics of ontology and epistemology are inherent. These different logics are what Kuhn (1973) calls paradigms and he defines them as scientists' shared beliefs and agreements on how to understand certain problems. He saw the activity in a certain group of people (scientists) carried out as a paradigm and it is the paradigm which binds the group together and makes it a society with shared values, beliefs and behaviour. Viewing paradigms as different ways of understanding ontology and

epistemology, is a basic condition to be taken into account in all kinds of social science processes, although these aspects are often quite underestimated and unspoken in many research contexts. Ontology and epistemology are closely related to paradigms, because the way the researcher perceives the theoretical system (paradigm) depends on the actual conviction and way of understanding ontology and epistemology. However, these paradigms can be like a double-edged sword seeing that on the one hand, they support the researchers' ability to understand and work with a defined area, but on the other hand the researchers risk rigidity and inflexibility in the way they look at the field. There is an inclination among scientists to hesitate to abandon their theories due to a misfit with the paradigm, even though some empirical data contradicts them (Fuglsang & Olsen 2004).

Methodology is a collection of knowledge creating methods and it is the most comprehensive concept, because it contains all the elements within theory of science. Methodology is to be understood as the components in a defined scientific approach, comprising its own ontology, epistemology, conclusion forms, methods and research techniques (Fuglsang & Olsen 2004). This implies that the chosen ontological and epistemological (paradigm) standpoint and the conclusion form will have a considerable impact on the methodological elements of the research.

Conclusion forms deal with the process of reaching an end conclusion on the basis of an initial argument. Basically, there are two ways to do that; firstly, by means of the inductive principle (the so-called bottom-up design), which uses research field details as a point of departure for the formulation of commonly accepted rules for the field as a whole. Secondly, contrary to the inductive principle, the deductive principle (the so-called top-down design) uses the generally accepted rules (in terms of theories) as a starting point for working towards particulars within a certain research area. Jørgensen and Reddersen (1990) formulate the difference between the two in the following phrase: *“In deductive studies pre-formulated theory will be tested against empirical material – whereas an inductive investigation builds up a theory through observation of a huge quantity of empirical data”*.

1.2 The science philosophy in the thesis

The theory of science angle in this PhD project will be discussed from two central levels, starting with the overall theory of science philosophy and proceeding with the scientific paradigm used in the thesis.

1.2.1 The philosophy within the theory of science

Until the sixties, almost every philosophy of science was based on a logic positivistic natural science discourse (Kuhn 1973). But in Kuhn's early work (1962) and among some natural scientist as well (The Wiener-school/ Stadler 1997), this dominance was criticised for its one-sidedness and rather partial way of defining what science is, how it is recognised, conducted and verified. Especially the following theses within the positivistic school were criticised (Kuhn 1973:8);

- All human recognition should be writable which means that implicit knowledge is not to be found.
- Recognition can be reduced to elementary sentences.
- All speech which cannot be reduced to elementary sentences is meaningless. If you do not know the circumstances under which a sentence is true or false, then the sentence is idle talk and gives no meaning. This is the so-called verification criteria for meaning.
- One can definitively determine whether or not meaningful speech is true or false; it is true (verified) when the speech can be reduced to an elementary sentence which is in accordance with the established reality. The speech is false (falsified) if the opposite is the case. In other words, all kinds of problems can be solved definitively.
- Only scientific recognition can be verified and science (positivistic) is therefore the only type of recognition.

In Kuhn's mind, these theses lacked logic and he was particularly critical in relation to the verification criteria for meaning used in the positivistic thinking. In fact, the verification criteria for meaning (see item 3 above) cannot be verified in reality and consequently, it is not logically true; on the contrary, it is self-destructive and the problems related to it have, for good reasons, never been solved (Kuhn 1962). In order to counter the criticism, Kuhn (1962, 1973) argued for a wider

definition and understanding of science by talking about a science community including psychological and social realism. Kuhn was convinced that the scientific society or group, within which researchers are trained and work, will have an enormous psychological and social impact on habits, language and even mentality. Wittgenstein (1963) calls the superior relation between the elements of these scientific societies (habits, language, mentality etc.) the researchers' behaviour and Kuhn called it the scientific paradigm (see also the definition in this appendix A, section 1.2). Kuhn as well as Wittgenstein view the relation to a certain scientific group (whether it is seen as behaviour or a paradigm) in a broad perspective and argued that one scientific group will invariably relate or interact with other scientific groups or societies.

In describing his paradigm concept, Kuhn (1973) has formulated some theses which provide a more concrete and comprehensive understanding of science compared to the theses within the positivistic school.

- There is no such thing as a neutral observation language or a language independent of theory.
- It is not possible to set up rules for the validity of the paradigm, because the paradigm is a form of "lifestyle" held together by the society members' work and behaviour. The research activities are not verified through the idea of defining what is true and false, because it is a too strong demand which does not take into account the context in which the theory takes part.
- The utilisation of the paradigm cannot be specified due to the paradigm being recognised as a "lifestyle" or society.
- Therefore, the scientific work is a conceptual, instrumental and practical composition of the paradigm which brings the researcher's competences into focus at the expense of the paradigm itself.
- Kuhn agrees with the logic positivists by claiming that any given problem has a guaranteed solution, but he differs from the positivists on a cardinal point by saying that we do not know the way to the solution beforehand.
- Only by constantly elaborating every paradigm, can science get more depth and exactness in connection with exploring the world.

The psychological and social elements in Kuhn's theory of science are clear in several of the mentioned theses, e.g. there is not a neutral observation language (item 1) and paradigm validity relates to the "lifestyle" in the society (item 2 and 3). In addition, Kuhn also mentions that it is only the individual science society which is able to develop and criticise its own paradigm. In relation to Kuhn's understanding of the paradigm, it is important to note his 1969 postscript in which he translates paradigm into a professional matrix which proposes that the researchers are able to delimit a definite scientific society with different kinds of further specification (for a description of the paradigm or professional matrix in relation to this PhD project, see section 1.3.2).

1.2.1.1 Natural and social science; is there a link?

It is beyond any doubt that natural science always has had the position of being the "right" and more "valuable" and "important" way of conducting research compared to the nonentity social science upstart. Kuhn's work broke new ground in a long fight for making social science a valid alternative to natural science; a very difficult fight as it seems in Giorgi (1994), "*the natural science paradigm has been the framework for the training of most social scientist in our time*". Flyvbjerg (1991, vol. 1) also claims that social research has taken the model of natural science as its ideal and even though it is unfair to claim that this model governs the social sciences today, both Habermas (1987) and Giddens (1982) have tried to link social science very closely to natural science. Habermas (1987) talks about a "scientism" and employs a natural scientific approach to social science. Giddens (1982) writes about a positivistic and empirical identification of sociology and social science in general. Giddens terms it "orthodox consensus" and he tries to combine the positivistic philosophy with functionalism and modern industrial theory.

However, some important distinctions between the ideal natural science theses and Kuhn's social science based theses are to be made, e.g. in terms of the role of the researcher. In natural science, the basic epistemology aims at creating an absolute independent relation between the research object and the subject/researcher. In social science, however, each researcher will be in a state of dependence on the research object, because defining ontology in social science inevitably takes into account the thoughts, feelings, values and presumptions etc. of the researcher. One could also say that the social science researcher cannot avoid polluting her/his own data. Whereas natural science is concerned with impersonal descriptions of the laws of nature, the social scientist cannot avoid an ongoing interaction with the field. The social science researcher's impact on the field as well as the

field's impact on the researcher throughout the research process is well-known (Maaløe 1996, Andersen 2006).

Another distinction between natural and social science is linked to objectivity. Within natural science, objectivity is achieved by representing the phenomenon without any modification or judgment from the researcher's part. Consequently, objective natural science will ensure a high level of reproducibility and reliability; however, it is important to be aware of the fact that there is at least one more way of understanding objectivity in science (Collin 1990). Fuchs (1997), for instance, claims that objectivity is also about "*a quality of methods and rules of inquiry that discipline arbitrary and accidental forces impacting on knowledge*". This approach to objectivity is centred on ensuring that the research in fact measures what is intended to be measured (validity) to the highest possible degree. It stresses the importance of disciplining the research process in a logic and clear way in order to minimise the potential for errors, avoid personal bias and create valid knowledge (in appendix A, the VNS system is described in relation to attaining high validity, in appendix C, validity is related to doing case studies and appendix D explains how a high validity is created in this PhD project). It leaves us with at least two different perceptions of objectivity:

- Natural science inspired perception which views objectivity in relation to the knowledge gained from investigating the research object. In natural science, the researcher is supposedly able to objectively demonstrate whether a sentence is true or not.
- The other perception of objectivity is more vital in relation to social science since the objectivity focus is on how a certain object is studied (Collin 1990).

In my opinion, the most essential difference between natural and social science is connected to the objectivity aspect, especially in the first understanding of the phenomenon (see 1 above). In natural science, the researcher and her/his field are often presented as a subject-object relation "*then a subject/object relation is the name of the game in social science since both the researcher and the "object" are actors in the social field..... what it does mean is that in terms of ontology social and natural science are substantially different and cannot and should not be linked*" (Ernø-Kjølhede 2001). In social science, researchers will never attain the same level of objectivity (first understanding) as in natural science, due to the fact that the social science research process always

will remain hermeneutic; hence, the results are open for discussion and will never constitute one single truth. Therefore, the latter understanding of objectivity (second understanding) is particularly important in social science and it is about *“putting forward for scrutiny the premises on which interpretations are based, presenting openly the methodology behind the results and showing no mercy throughout the research process in the hunt for sources of errors and misinterpretations”* (Ernø-Kjølhede 2001). The intention is to show and reflect that kind of objectivity and scrutiny not only in these appendices (A-D) but throughout the PhD dissertation as well.

The fact that social science cannot reach the same level of objectivity (first understanding) as natural science, however, does not mean that there are any reasons for the social science researcher to react in a servile manner. On the contrary, one should strive to realise intersubjectivity instead (Andersen 1994). In Andersen’s (2006) terminology, intersubjectivity means retention of a high level of objectivity (second understanding) and presentation of the research result in a proper and well-documented manner which facilitate further testing and discussion. Furthermore, this implies that a social scientist should be able to leave the protected and secure base of theory⁹⁶ and contribute to practitioners’ activities and society in general within the research field instead. The price to pay for the premises on which social science functions is that it cannot take place in a value-free interaction with the empirical context; normative elements will inevitably be implicated. Again, it is legitimate that social science presents normative results from combining theory and practice, as long as it is done explicitly and with a high level of objectivity (second understanding).

Needless to say, this PhD project rests on the social science premises and the aim is to add new knowledge to the current theoretical standpoints by investigating the empirical aspects of the research question. The hypothetical-deductive approach will be employed as the main approach (see more details in section 1.3.2 and appendix C) in a so-called top-down design with the objective of adding new insights to the existing body of knowledge. The way paradigm, ontology and epistemology will be understood and used in detail in this PhD project is the topic for the next section.

⁹⁶ Although it sometimes seems as if social scientists evade reflecting on the more practical aspects of their research.

1.2.2 The paradigm approach

Any researcher has a paradigm-based standpoint towards knowledge creation, consciously or unconsciously, and a paradigm is constituted by its ontological (defining what is knowledge/reality), epistemological (defining how this knowledge is recognised) and methodological (defining how reality is investigated) convictions. Hence, to attain the highest possible level of objectivity (second understanding), it is crucial to be explicit about how the paradigm influences the research process in terms of the research question, the research methodology and the interpretation of the results (Nygaard 2005). In other words, the closer and more rational the links between the five basic elements of social research are (paradigm, ontology, epistemology, methodology and research process), the higher research output quality⁹⁷.

According to Guba (1990), there are four superior and generally accepted paradigms: The positivistic paradigm, the neo-positivistic paradigm, the critical paradigm and the constructivist based paradigm. The positivistic paradigm has since Descartes (1596-1650) been, and still is, the absolutely dominating paradigm within natural science, just like the neo-positivistic paradigm is the most used paradigm within social science (Guba 1990). However, with a growing intensity, both the critical and the constructivist based paradigm are increasingly establishing themselves in the paradigm discourse of social science (Nygaard 2005).

Positivism is the paradigm of natural science believing that reality exists and that true knowledge can be found objectively, which make the ontology realistic, the epistemology objective and the methodology experimental and manipulating.

The neo-positivistic paradigm is influenced by positivism but differs from it in terms of ontology by claiming that reality exists *but* a precise definition of what true knowledge is and how reality works is unattainable. This is due to the neo-positivistic conviction stating that we are constantly influenced by our own values and emotions, although the aim is to come as close to objectivity and reality as possible. This gives the neo-positivistic paradigm a limited realistic ontology, a modified objective epistemology and the methodology is modified experimentally/manipulative. The modification of methodology is an attempt to approximate reality as opposed to the controlled tests normally used in the positivistic paradigm. This close relation to reality is the very reason

⁹⁷ This appendix focuses on paradigm, ontology and epistemology, whereas appendix A focuses on the research process and appendix C on the methodology.

researchers have difficulties as regards not influencing or being influenced by the research subject (Nygaard 2005).

Critical theory is based on ideology, values and politics which take for granted that reality is value-based and cannot be separated from people's own values. This entails that ontology is limited realistic and aims at describing what "true" (politically based) recognition of reality ought to be. It causes the epistemology to be subjective, since the idea is to sway other people to share the same values and perception of reality prescribed by the political manifest. The methodology is a dialogue used to convince people about the "true" values (Guba 1990).

In the constructivism paradigm, reality is something which does not exist; it is just a construction or an interpretation which man puts on the world in order to understand it better. These interpretations generate reality and theories because the researcher and the research object melt together, mutually influencing each other which, consequently, produce a relativistic ontology and a subjective epistemology and a quite complex methodology (Nygaard 2005).

Burrell and Morgan (1979) argue for dividing ontology into two main positions; firstly, realism ontology which assumes that reality exists independent of the researcher (positivism and neo-positivism) and secondly, nominalism which claims that reality only exists by way of the researcher forming concepts when ascribing different names and labels to reality (critical theory and constructivism). In the realism ontology, the research revolves around investigating the social reality and assigning names and labels to the new insights concurrently with the research process. However, there are always unrecognised elements of the social reality which we do not have coined a name for yet and it is the intended purpose of research to disclose these elements and name them. In relation to creating knowledge of social aspects, Burrell and Morgan (1979) divide epistemology into two main positions as well. First, the positivistic epistemology (positivism and neo-positivism) argues that the researcher is able to create a knowledge so detailed about social reality that one is able to explain and predict future developments. Second, Burrell and Morgan also claim that one could argue for a reverse way of understanding epistemology, an anti-positivistic epistemology (critical theory and constructivism), which views social reality as relativistic and therefore impossible to predict in any way.

Due to the research question⁹⁸ and the fact that this PhD project is based on a social science and qualitative tradition, it is quite evident that this project relates to the neo-positivistic paradigm because, in my point of view, both the research question and the technology and economic based paradigm match the neo-positivism best; I will argue for this choice and discuss this paradigm further below. First of all, I will indicate why the three other paradigms do not match the idea of this research.

As argued above (Kuhn 1992/1973, Burrell & Morgan 1997, Nygaard 2005), social science disagrees with the positivistic and natural science approach in general and the present research question in particular, seeing that it would be unrealistic to argue for detached descriptions of the “laws” in this area. Certainly, it would be very improper to apply the critical theory paradigm, as this research process does not aim at imposing one single truth on anyone as to understanding the problem. Since the research process in its initial phase is based on existing theory regarding the transformation between non-innovative and innovative SMEs and therefore is viewed from a hypothetical-deductive (Brinberg & McGrath 1985: 63-65) perspective, the constructivist paradigm is also precluded as a paradigm for leading and supporting the research process.

Because of the neo-positivistic paradigm adopted, an obvious candidate to follow is Roy Bhaskar (1997), the leading author of critical realism paradigm (Nygaard 2005). In this PhD project, the critical realism paradigm and its approach to understanding social science will be used to support the research process, for which reason the paradigm will be explicated in the following sections.

Critical realism

Critical realism is part of the neo-positivistic position and Bhaskar (1975) sees some limitations in the way natural science recognises reality. Bhaskar regards reality as consisting of some deeper layers of transcendent phenomena and when some hitherto unknown layers or new phenomena are discovered, it adds new knowledge to our understanding of reality. Hence, Bhaskar (1975) perceives reality as an open and changeable system which has the potential of continuously expanding through the aforementioned transcendent layers of unknown elements of reality.

⁹⁸ How to manage SMEs through the transformation from non-innovative to innovative?

In his search for a more complete comprehension of society, Bhaskar argues that critical realism should encompass a tripartite ontological understanding which could justify the paradigm as a research discipline.

Lawson (2003) has reproduced (from Bhaskar 1975) the three ontological domains as they are displayed in figure below.

Figure B 1 Ontology in a critical realism perspective

| The tripartite ontology of critical realism | |
|--|--------------------------------|
| 1. The empirical domain: data | Imprecise measurements |
| 2. Present domain: tendencies, occurrences | Condition based predictions |
| 3. The real domain (deeper layer of transcendent phenomena): structures, forces and mechanisms | “Open” theories and hypotheses |

Source: Lawson 2003

The fundamental challenge is to create a link between the three ontological domains. This is necessary in order to acquire more knowledge of the research field and be able to give a systematic explanation of the empirical data (Lawson 2003). Reflecting on these relations (between the three ontological domains) is the trade mark of critical realism; however, before further elaborating on this cardinal point, each of the three domains will be described.

The empirical domain (1) is made up of the experiences that we acquire through theories, hypotheses and concepts as well as through intuition. This knowledge is not value-free, on the contrary, it is influenced by the person who realises it and the social context within which it is created. Bhaskar (1975) calls the empirical domain knowledge transitive objects because our experiences can be the leading (transitive) object for new knowledge. It was also Bhaskar’s conviction that our experiences are developed through an interaction with an existing reality. In other words, he saw the empirical domain as something real which continuously contributes to our experience.

The present domain (2) contains all kinds of phenomena, some of which are quite familiar whereas others are unknown to us. As human beings, we are incapable of comprehending everything; our

capacity is limited, hence, a world exists “outside” our cognitive abilities. These aspects which figure outside our intellect are called intransitive objects (Bhaskar 1975) and they exist independently from our recognition of them. Bhaskar argues that knowledge is derived from something and this “something” does not emerge from our recognition of it, on the contrary, it has always been in existence and it always will be to some degree, ensuring that there will always be new things to acquire knowledge of (the society exists and it is an open system) (Bhaskar 1975).

The real (domain (3)) world is different from the present (domain) and empirical (domain) world. The real world has the ability of constituting phenomena in terms of new phenomena as well as developing already existing phenomena. It is from the real domain and the inherent structures, forces and mechanisms that research should search for new knowledge about the constitution of phenomena. Structures can e.g. be physical, psychological or social (Nygaard 2005) and forces are the inherent power in these structures which facilitates the empirical outcome and mechanisms present unique ways of combining structures and forces. Actually, these mechanisms form the constitution of the phenomena and due to fact that this PhD project is based on social science, we cannot expect to derive any regularities or provable rules about this constitution. Hence, Bhaskar (1975) talks about structures’, forces’ and mechanisms’ tendency to constitute new phenomena as the most important aspect of being a critical realism researcher.

The relation between these three domains is, as mentioned, the core of this paradigm; here, the researcher connects the real domain with the present domain using his or her own empirical experience (empirical domain). Bhaskar establishes a certain condition when arguing for a mismatch between the world (real and present domain) and our experience (empirical domain); we cannot discover the world 1:1, neither can we claim that the relation between structures/forces/mechanisms and the constituted phenomena are 1:1. Moreover, we cannot define what constitutes these phenomena or what kind of relations they have to other phenomena. As a critical realist seeing the society as an open system, it is important to realise that we (or researchers) cannot fully comprehend a social phenomenon, its constitution, structures, forces or mechanisms, which obviously have a huge influence on ontological and epistemological aspects (Nygaard 2005).

Addressing the question of conclusion forms in a critical realism perspective is absolutely relevant and quite challenging. Relatively often, the scientific methodology literature (Fuglsang & Olsen

2004) presents the question of induction and deduction as a question of either...or, arguing that the two conclusion forms mutually exclude each other. Critical realism adopts a different approach; as Lawson describes it, the conclusion form is “*neither induction nor deduction but one that can be styled retroduction or abduction or “as if” reasoning*” (Lawson 1997:24). Retroduction is a method which involves the main elements from induction as well as deduction; in fact, the two conclusion forms are seen as complementary. Compared to Lawson (e.g. also Maaløe 2002), it ought to be the research question and research area which determine the choice of methodology and thus establishes the conclusion form. Retroduction combines the observed data (induction) with hypothetical deduction (which is a conditioned deduction from the observed data) and this deduction is only valid with a certain, and sometimes unknown, probability (as opposed to the positivistic deduction definition) (Fuglsang & Olsen 2004). To gain new knowledge about deeper layers in social reality, the critical realism researcher needs to operate with the abduction or the “as if”, in order to better understand these social relations (as a distinction to the paradigm of natural science). The more knowledge we gain about a certain social phenomenon or the more transcendent we work with this social phenomenon, the less our understanding relies on these “as if” metaphors. On the other hand, critical realism can never be executed without some kind of “as if” and stochastically variables, due to the perception of society as an open system (Fuglsang & Olsen 2004).

The methodology of combining induction and deduction is also seen in Maaløe (2002 and Klein 1993) who talks about an explorative – integrative approach. Even though he argues for starting with the deductive phase and continuing with the induction phase, it is still a so-called full circle which combines the two conclusion forms. In relation to this PhD project, I will argue that the research strategy and process had some elements of the retroduction path due to the initial phase of the PhD project. This phase was composed of a certain mix between doing the literature reviews, writing the theoretical structure (chapters 2 and 3) and conducting the pilot study (observed data from 10 interviews and elements of an induction phase – see also appendix C). That creates some inductive elements as the pilot study had an impact on how the literature reviews were performed, how the theory was written and how the propositions were formulated. That is, the pilot study had some, although minor, impact on forming the ten propositions. Still, it is important to stress that this research is hypothetical-deductive in its fundamental approach and that the element of retroduction due to the pilot study is a more adapted element. From the ten propositions, the five case studies

were conducted in the hypothetical-deductive manner. In this way, the conceptual part (the theories) of this research process was tested against the empirical material (deductive conclusion form).

Appendix C

1. Methodological considerations and the research strategy

This appendix is dedicated to unfold the research strategy and the related methodology aspects. As mentioned in appendix A, the aim is to choose a research strategy most suitable for investigating how SMEs transform into innovative positions and the field study was obviously the most appropriate (chosen from eight different research strategies (Brinberg & McGrath 1985)) carried out as a case study (Yin 1989).

The case study has been chosen because it is a relevant frame for empirical data collection and treatment, enabling the researcher to analyse the companies based on their real daily activities and contexts (high context realism validity). This, in turn, enables me to answer the research question. The case study method will be described in more detail in the following sections.

1.1 The case study method

Yin (1989) emphasises that the case study is relevant for research questions which are formulated using a how or a why; there are no requirements for behavioural event control, however, the focus is on contemporary events in their real contexts. Furthermore, it is not possible to separate the event (research object) from its relation to reality and there will be a variety of documentation sources.

Indisputably, the current research process fits these characteristics perfectly: It is a how research question, there are no requirements for behavioural event control and indeed, the focus is on contemporary events within the companies' own contexts. The companies' transformation towards an innovative position is a contemporary investigation within the companies' own contexts and consequently, it is not possible to separate the event (the transformation process) from its relation to reality seeing that the transformation process is an implicit part of these companies' way of existing. In addition to the interviews, several other documentation forms were used, e.g. information from home pages, strategies, organisational diagrams, important agreements, main performance indicators in terms of economical figures etc.

It is also important that there is a close relation between the frame for the whole research process (VNS system) and the guidelines for collecting empirical data (Yin's case study method). Yin

(1989) divides the case study method into three main phases which relate to the process of starting with the case study design, continuing with the data collection and concluding with the different analysis methods.

The first design phase is partly about identifying the challenges which relate to the research theme and partly about literature and theory reviews enabling the researcher to relate the research project to relevant theory. This theory basis is the guiding principle for selecting appropriate cases and measuring points within these cases, which in addition specify the deductive conclusion form. These measuring points possess the quality of being themes around which a group of questions can be designed, thereby forming the data collection protocol (see the study protocol in appendix E). The data collection (or study) protocol serves several purposes: First, it provides a close link between relevant theory and the questions guiding the data collection. Second, it ensures that the same questions and themes are used from one case study to the other. Third, it guides the interviewee as to the idea, structure and process of the interview (Yin 1989).

In the second phase, the actual research is conducted by means of interviews, observations and collection of various documents (in section 1.2 below, the specific design of the case studies will be described). The first elements of data analysis are also related to this phase as the preparation of an individual case report reveals the first signs of patterns and implications (Yin 1989).

The last phase is basically about analysing the limitation of the data in terms of contributing to theory modification or development. When Yin (1989) speaks about cross case analyses and conclusions, the aim is to investigate to what extent it is possible to generalise the data material and to discover the limitations within it. In qualitative studies, the generalisation approach is mainly analytical (Yin 1989: 38) in opposition to the statistically established generalisations normally used in quantitative research. The analytical generalisation is founded on “measuring” the closeness of the link between already developed theory and the base of empirical data collected through actual research (see the comparison conducted in chapter 5). The deductive method prompts a comparison between the theory and the empirical data to define to what extent the research supports or does not support the theories. Section 1.3 in this appendix will further discuss the validity aspects caused by applying analytical generalisation; the next section (1.2), however, will elucidate the case study design and its relation to the applied theory.

1.2 The case study design

Designing a case study is a matter of going from A: The research question to B: A satisfactory answer to that question. Yin (1989) recommends that the researcher divides the whole case study into three core elements, the first is the design phase (discussed in this section, 1.2), the second is the data processing phase (discussed in section 2) and the third is data analysis (discussed in section 2).

The design phase is structured around five components (Yin 1989) which each sets the scene for the case study as such but which also specifies the research field. These five components are 1) type of question, 2) the theoretical research field, 3) choice of analytical units, 4) linking the empirical data with the theoretical positions and 5) criteria for data interpretation. The first three components (1-3) will be discussed in this section, whereas the last two components (4-5) will be discussed in relation to the relevant sections. In section 2 (data collection), component 4 will be discussed and in section 3 (data analysis), component 5 will be discussed.

1.2.1 Type of question

In a case study, the aim is to create a qualitative explanation in relation to some social aspects. In this connection, it is appropriate to use the question form of how or why because it underlines the descriptive and explanatory element of the case study (Yin 1989). In this PhD project, the research question is based on a how⁹⁹ question which points in the direction of three possible research strategies, one is a case study, another is a historical study and the last one is an experiment. What differentiates the case study from the two other research strategies is that within the case study, the researcher does not need to have control of the behavioural variables and focus is on contemporary events (Yin 1989). Taking the above aspects into account, the case study method is the most suitable research strategy in relation to the current PhD project.

1.2.2 The theoretical research field

As it appears from chapter 3 and the theoretical transformation model, the theoretical foundation is based in that particular part of the innovation management literature which focuses on SMEs in order to set up a frame for how to transform an SME from a non-innovative to an innovative position. This frame is constituted by four classic organisational themes: Management, HRM,

⁹⁹ How to manage SMEs through the transformation from non-innovative to innovative?

strategy and network literature. The research question is (of course) related to these theoretical areas because of the how question, the deductive angle applied and the study of what constitutes the transformation which is in play when SMEs attempt to become more innovative. The aim is to test the theoretical transformation model against the empirical data in order to answer the question of how to transform to an innovative position.

1.2.3 Analytical units in the case study design

It is important to emphasise that Yin (1989) proposes that the researcher choose between four different archetypes of case study design. As it appears from the figure below, the four different types of case studies result from choosing between single case and multiple case designs on the horizontal angle and between a single unit of analysis (holistic) and multiple units of analysis (embedded) on the vertical angle.

Figure C 1 Basic designs of case studies

| | Single case design | Multiple case design |
|---|---------------------------|-----------------------------|
| Holistic (single unit of analysis) | TYPE 1 | TYPE 3 |
| Embedded (multiple units of analysis) | TYPE 2 | TYPE 4 |

Source: Yin 1989

A single case study (type 1 or 2) is analogous with one solitary experiment and is preferred in situations where the case either challenges well-established theory or forms part of a unique new insight into a certain research area. A single case study may also be used to investigate new research areas and it may take the form of a pilot study for a multiple case study as well (Yin 1989). The unit of analysis is the decisive determinant for choosing between a holistic and an embedded case study within the single case design. If the relevant theory points to one single unit of analysis or the unit of analysis cannot be divided into any natural groups, then a type 1 case study is preferable.

The disadvantages of using a type 1 design are linked to the issue of the empirical data which might occasion a reason to change the original purpose of the study. Basically, a type 1 case study is not suitable for handling results which are radically different than those indicated by the empirical data, because the type 1 design is intended to test social relations which already are well-established.

The embedded (multiple units of analysis) single case design (type 2) is well-qualified when the research aims at both a superior and several subdivided areas of interest (Yin 1989). Yin uses research in organisational changes as an example; here, the superior level could be the organisation and the subdivided areas could be divisions, groups and persons. It is important as a researcher to be alert, especially as to the potential type 2 design weaknesses ; for instance, one could pay too much attention to the subdivided areas, thereby losing sight of the superior theme or vice versa (Yin 1989).

As to the multiple case designs (type 3 and 4), the primary characteristic is the use of several cases to investigate the same research question in one study. The main advantage of a multiple case design is a high level of validity for which reason this design should be chosen when possible (Yin 1989). Its main disadvantage, and often the reason for not choosing this design, is the resource requirements (time and money) imposed upon the researcher throughout the multiple case studies (Yin 1989:53).

Underlying the multiple case design is an idea of replication, implying that the researcher can use one out of two main positions as his/her point of departure. The first is to choose cases with the intention of producing the same results (if the results are the same in all cases, it is called replication) and the second is to choose cases with the intention of producing conflicting results but for predictable reasons (it is called theoretical replication). The researcher decides on replication approach preference on the basis of the research question and the related theory.

A multiple case study can also employ either a holistic (type 3) or embedded (type 4) design depending on the context of research as it was described in relation to the single case study.

From the “Validity Network Schema” (VNS in Brinberg and McGrath 1985), we are able to see the whole research project in the light of the substantial domain (practical area of interest), the

conceptual domain (theoretical area which reflects the ideas of the substantial domain) and the methodological domain (describing techniques to investigate the research area). Somehow, all three domains should be taken into account when deciding on the right analytical approach or design of the case study. It is quite obvious that SMEs need to focus increasingly on innovation to stay competitive in the future (substantial domain) and several theoretical positions describe recommended ways to do so (conceptual domain and the theoretical transformation model) and arguments have already been put forward for conducting the investigation by means of a qualitative, deductive case study (methodology domain). Because of Yin's (1989) guidelines and the fact that the case design features five individual companies (or cases), it is apparent that the case design is multiple. The unit of analysis is embedded because the focus is on several selected (and embedded) aspects of how to transform toward an innovative position within SME organisations. The current case design is therefore a type 4 design (see the figure above) which aims at producing replication while maintaining an open mind as to new insights produced by the empirical data.

1.3 Criteria for validation

Criteria for validation are a kind of quality guide for the research conducted; hence, in qualitative research (as opposed to quantitative research), there are no predetermined rules for keeping a high level of validity. Yin (1989) argues for four core validation areas, which ought to be taken into consideration in relation to qualitative case study research: 1. Construction validity, 2. Internal validity, 3. External validity and 4. Reliability in the research process. Before going further into these validity aspects, three arguments will be stated which underline the importance of validity in qualitative research. First of all, it is important to be aware of the validation criteria as early in the research process as possible making validation aspects a part of the researcher's focus before, during and after conducting the actual research. Of course, this will have a positive impact on the validity. Second of all, being aware of these validation aspects will also improve the chance of avoiding several problems in the follow-up and data processing phase. The last argument in favour of validation is connected to different techniques which ensure high validity in the data collection and data processing phases. These techniques will be discussed in detail in appendix D.

Construction validity is mainly about two things; one is precisely to define and explicate how to understand the subject of the research, the other is to create a set of operational concepts or measures which are designed to test the original objectives of the study (Yin 1989). Three

construction validity strengthening tactics are available, the first one is to use multiple sources of evidence, the second one is the so-called chain of evidence and the third one is to have key interviewees read and comment on the case study relevant to them (Yin 1989). The construction validity in the current study is first of all treated in chapter 1 and 2 where the research field, subject and question are defined and explicated. Another core element of the construction validity occurs in chapter 3, which feature the design of theoretically based concepts and measures. This theoretical construct is in general created through the different literature studies and especially through the discussion of how the four theoretical positions (management, strategy, HRM and network) are to be understood as main constructions of the theoretical transformation model. The three tactics for strengthening the constructions validity will be further discussed in section 2.1.

Internal validity is basically about relating the research to two aspects. One is a question of establishing and describing the right causal connections between variables within the research; i.e. are the chosen variables representative of what the research is trying to measure? The stronger the link between the chosen variables and the object of the research is, the higher the internal validity will turn out and vice versa. Another question deals with the level of right inference, “*is the inference correct, and have all the rival explanations and possibilities been considered?*” (Yin 1989: 43). In social science, it is impossible to answer these questions definitively; the intention is rather to keep the internal validity high by establishing convergent evidence between research design, theoretical positions and the collected empirical data. Discussing problems and possibilities within the inference, which relates to the research, is an additional way of influencing the internal validity.

Three different tactics are available to strengthen internal validity and they are: Pattern matching, explanation building and time-series analysis. Two of these tactics (pattern-matching, explanation building) are relevant to this study. The pattern-matching logic compares the empirically based pattern with one or more predicted patterns; in the current situation this means the predictions derived from the theoretical patterns¹⁰⁰, which include the dependent as well as the independent variables of the study. If there is a match between the empirically based pattern and the predicted theoretical pattern, it will strengthen the internal validity (Yin 1989). If the comparison analysis between the empirical data and the theoretical construction results in a weak pattern-match, it may

¹⁰⁰ The theoretical pattern creates a hypothesis or a proposition which is tested in relation to the collected data; this underlines the deductive approach and design.

be relevant to employ the explanation building tactic, which aims at ensuring that the theoretical construction is susceptible to empirical data indications. This illustrates that explanation building is capable of strengthening the causal relation in the study as well, thereby fortifying the internal validity (Yin 1989). In order to realise a high internal validity in this study, the tactic of pattern-matching will be employed and in situations of mismatches, the tactic of explanation building will be used (see chapter 5 for examples of both pattern-matches and mismatches followed by the tactic of explanation building).

External validity is the third core area of validity discussed by Yin (1989) and it focuses on determining to what degree the case study results can be generalised in a broader perspective (outside the actual case study). It is important to differentiate the statistical and analytical generalisation; the former is related to survey, mathematical calculations and quantitative studies whereas the latter is relevant in case studies and experiments and is as such related to qualitative studies. Hence, the focus is on analytical generalisation seeing that this PhD project seeks to transform the case study findings into some kind of theory contribution. The use of a multiple case study design with replication ability is one way of improving the external validity. The data analysis results will somehow turn out to be the ultimate evaluation of the external validity.

Reliability is the fourth and last validity criteria to be discussed here and it is related to the strength of the research design. This means that the reliability is high if another researcher is able to investigate the same cases on the same terms and infer the same results. As already argued, it can be rather far-fetched to talk about reliability in social research, because another researcher will never work under the exact same conditions as his/her predecessor due to the many variables involved in qualitative social research. Still, it is important to have a solid research strategy/design and measuring tool which argue for reliability focus, even in a social science context. Thus, all appendixes (A, B, C and D) have laid the foundations of securing a high reliability.

2. Data processing

The most important purpose of data processing is “*to treat the evidence fairly, to produce compelling analytic conclusion, and to rule out alternative interpretations*” (Yin 1989:106). As a researcher, the aim is to select a strategy which is capable of reinforcing and supporting the data processing which, due to the nature of quantitative social science, is rather fragile.

As mentioned in section 1.2 (the case study design) and in relation to Yin's (1989) recommendations, there are still two main elements¹⁰¹ of the overall case study process which need to be dealt with; one is the data processing phase and the other is the data analysis phase. These two phases are the core elements of this section (2) and they are also intended to cover the last two out of the five mentioned (see above in section 1.2) components of the design phase. The two remaining components are: Linking the empirical data with the theoretical positions and criteria for data interpretation¹⁰².

2.1. Linking the empirical data with the theoretical foundation

There are two general strategies (Yin 1989) for analysing the case study evidence, thereby creating a link between data and theory. The first analysing strategy is based on the notion that the theoretical suggestions are correct and appropriate. Yin (1989) argues that the strategy of following the theoretical propositions is recommendable because *“the original objectives and design of the case study presumably were based on such propositions, which in turn reflected a set of research questions, reviews of the literature, and new insights”*. Hence, this strategy will, from a theoretical point of view, not only form the data collection plan but also focus attention on predetermined relevant data and ignore the irrelevant data (Yin 1989). As a consequence, this strategy will be suitable for shaping the case study and correspondingly suggest other relevant areas to be examined. In general, Yin formulates the advantages of using this strategy by saying: *“Theoretical propositions about causal relations – answers to “how” and “why” questions – can be very useful in guiding case study analysis in this manner”* (Yin 1989: 107).

The point of departure of the other strategy is somewhat opposite of that of the first-mentioned strategy¹⁰³. This strategy starts with some descriptive activities from fields of interests which through the case study work (hopefully) manage to generate theories and new insights. However, Yin states that *“this strategy is less preferable than the use of theoretical propositions but serves as an alternative when theoretical propositions are absent”* (Yin 1989:107).

¹⁰¹ The first one is case study design which has been discussed in former sections.

¹⁰² The first three components which have been treated in former sections are; 1) type of question, 2) the theoretical research field 3) choice of analytical units.

¹⁰³ The first strategy is deductive in its perspective whereas the other is inductive.

In relation to the current PhD research project, the theoretical proposition strategy is indisputably the most suitable and preferable. It is also due to Yin's preference for proposition and not hypothesis that I use the term proposition in relation to the theoretical work. Clearly, the theoretical transformation model with its theoretical positions recommends this strategy of proposition reliance and it sets the scene for the analytical methods of combining theory and empirical data.

2.2. Criteria for interpretation of the data

As pointed out earlier, a part of the internal and external validity is to secure an appropriate data analysing process which, in turn, ensures optimum data interpretation and valid research results. The analytic methods of pattern-matching and explanation building have been chosen as the most relevant for the current case studies, for which reason they will be described in detail in the following sections.

Pattern-match is mainly designed in three ways¹⁰⁴; the so-called “non-equivalent dependent variables as a pattern” (Yin 1989) is particularly pertinent in relation to the current study. In studies with several dependent variables, one way of testing for pattern match is to investigate every dependent variable for two things; 1) are the initially predicted values confirmed? And 2) is it possible to reject the alternative patterns for the predicted value? (Yin 1989: 109). If the data analysis prompts a yes to these two questions for all the dependent variables in the present study, then Yin talks about a pattern-match¹⁰⁵ with strong causal inference and a high level of internal and external validity. This (non-equivalent dependent variables (NDV)) way of designing the pattern-match test is highly applicable as to the present case studies, because the main research question¹⁰⁶ is investigated through the four non-equivalent variables of management, HRM, strategy and network. Therefore, a high level of NDV pattern-match will strengthen the causal relation between the independent and dependent variables of the study, which will result in high internal as well as external validity. Consequently, NDV pattern-match is vital for data interpretation and a high level of pattern-match ensures a high level of research result reliability. If the study is a multiple case study and different sets¹⁰⁷ of dependent variables are used in different case studies, then an NDV

¹⁰⁴ Non-equivalent dependent variables pattern, rival explanations pattern and simpler pattern.

¹⁰⁵ Non-equivalent dependent variables pattern-match.

¹⁰⁶ How to manage SMEs through the transformation from non innovative to innovative?

¹⁰⁷ In the present study, a set of 4 dependent variables is used. Another set of dependent variables could be created by changing one of these variables (strategy) with another one (culture).

pattern-match in one case study with one set of dependent variables will be a theoretical replication across cases (Yin 1989:110). Using the same set of dependent variables and finding an NDV pattern-match in two or more different case studies, would constitute a literal replication (Yin 1989:110). Since the same set of dependent variables has been used in all cases throughout this PhD project, it will at best be a question of literal replication. On the other hand, if just one of the dependent variables does not fulfil the pattern expectations “*your initial proposition would have to be questioned*” (Yin 1989).

Both rival explanations and simpler patterns are attached to different independent variables which are mutually exclusive as well. These kinds of pattern design are of no relevance due to the fact that there is only one independent variable in the current study.

Explanation building is also an analytic strategy for interpretation of the case study data, “*in fact a special type of pattern-matching*” (Yin 1989:113), which aspires to build up a set of explanations about the case. This strategy, on par with pattern-matching, is more relevant to explanatory case studies; however, when used in exploratory studies, it may aid the process of generating hypotheses (Yin 1989). “*To “explain” a phenomenon is to stipulate a set of causal links about it*” (Yin 1989:113); this quote implies that the aim is to create (by arguing) a number of links between the dependent and the independent variables. As these links are created through arguments and explanations, it must be recognised that these links are quite imponderable in most social science case studies. However, one way of making approximated and acceptable measurements is to use a narrative form when “explaining” the links supported by existing strong theoretical propositions or other empirical evidence (Yin 1989). In doing so, the concrete causal links will reflect critical insights and potential recommendations to theory and praxis, **provided** that the “explanation” is correct. Of course, in social science it is never a question of correct or not, it is rather a question of whether or not it is probable that these explanations are correct or not. If there are good reasons to believe that the explanations are right, then the case study results have the potential to create social science propositions and contribute to theory building (Yin 1989).

Yin (1989) further elaborates the explanation strategy by adding the notion of iterative process of explanation building, which is divided into the following seven steps: 1) Make an initial theoretical statement or proposition, 2) compare step 1 with an initial case study, 3) revise the theoretical

statement or proposition, 4) compare with other details from the initial case, 5) once again revise the theoretical statement or proposition, 6) compare this revision (step 5) with the data from the second, third or more cases (the main study/data collection), 7) repeat this process as many times as needed. This iterative process modifies the explanations along the seven steps, which means that *“the final explanation may not have been fully stipulated at the beginning of a study and therefore differs in this respect from the pattern-matching approaches previous described”* (Yin 1989:115). Still, the aim is to furnish evidence in support of a valid interpretation of the case study results and to reject alternative (rival or plausible) explanations or evidence. In addition, explanation building in multiple case studies is not only an analysis of the single case study, but also a cross-case analysis (Yin 1989).

Examining pattern-match (seen as a more instant interpretation mode) and explanation building (seen as a more dynamic interpretation mode), actually reveals that the two strategies supplement each other well and consequently, they are potentially able to raise both the internal and external validity.

Especially one latent problem is connected to explanation building; when using the iterative process, the researcher risks losing sight of the original topic of interest. Frequent references to the purpose of the study and a well-established study protocol are methods of reducing the problem to a minimum (Yin 1989).

Taking advantages and disadvantages into account, both pattern-match and explanation building are relevant strategies for the present case studies. These strategies will be appropriate to investigate depending on whether or not and to what extent there is a match/link between the four dependent variables (management, HRM, strategy and network) and the independent variable (the research question), thereby testing the theoretical transformation model in an empirical context. If the data interpretation process (pattern-match and explanation building) shows a significant difference in relation to the theoretical propositions (the theoretical transformation model), then it would be appropriate to modify the theoretical propositions and even the theory.

In other words, two things are important in relation to data interpretation; one is to verify the theoretical transformation model and two is to add new insights from the collected data to the theoretical transformation model and to theory in general.

In relation to the current research case study, I will argue that the pattern-match is fundamentally what happens in the research process each time the theoretical based propositions are related to the data from the five case studies. The explanation building happens through the research process and to a certain point, it follows the seven step iterative process mentioned by Yin. I started out with the theoretical propositions (step 1), then I related them to the first case studies (step 2 (pilot study)), then I revised the propositions (step 3, see also 3.1 below creating the study protocol), then I compared to other details e.g. discussions with my supervisor and other business managers (step 4), then I revised the propositions once more (step 5) and then I related these propositions to the embedded multiple case study (step 6). Due to restricted resources, I refrained from following step 7 recommending replicating the case study more than once.

Yin indicates that this explanation building process takes place in explanatory case studies and Glaser and Strauss (1967) relates it to explorative case studies. Therefore, I will term my case study an explanatory and explorative case study.

2.3 Presentation of the case study results.

Yin (1989) argues for at least four different ways of composing the written report which presents the case study results. (1) The first type is related to the single case study for which reason a single narrative is used to describe and analyse the case. (2) The second type refers to the multiple case studies and therefore, it contains multiple narratives “*usually presented as separate chapters or sections, about each of the cases singly*” (Yin 1989:134). In addition to these individual case descriptions, one section is dedicated to the cross-case analysis and interpretations. (3) The third method is not a normal narrative approach. Instead, it is composed of a series of questions and answers; the questions are taken directly from the case study protocol and the answers to these questions are loyally rendered. This method can be used in all kinds of case studies and it is very suitable for creating an overview of the central and important parts of the collected data. (4) The fourth method focuses on multiple case studies and seeing that it does not prompt a separate case

description, all attention is focused on cross-case analysis. This method is suited for studies whose focal point is the differences between multiple cases.

In the present study, the presentation will employ some ideas from method 1 and some from method 2. First of all, each of the four theoretical positions (management, HRM, strategy and network) with the related propositions will form one particular narrative angle which is used to display relevant data from the whole dataset. Each theoretical position represents a single narrative which is used to describe the results from the five cases, basically to clarify if and to what extent the propositions can be confirmed (partly use of method 1). In this phase, the attention will also be focused on the potential new insights supplied by the empirical data as compared with the existing body of theory.

In another section, focus will be dedicated to cross-case analyses and interpretations to determine if and to what extent a replication can be confirmed (partly use of method 2).

2.3.1 The structure for presenting the case study results

Yin (1989) recommends five workable types of structures which may be advantageous for arranging the results of explanatory studies. After a brief description, each of them will be evaluated in relation to the present study.

The first one is the **linear-analytic structure**, which is quite common and frequently used in scientific articles. The “line” goes from stating the problem to be studied, it continues with the methods used to solve this problem, the findings or contributions from the empirical data and it ends with the conclusion and the implications of the findings. The second structure is the so-called **comparative structure** which repeats the case study twice or more to illustrate how employment of different theoretical models may change the perception of the same “facts” in a certain case study. The (third) **chronological structure** is used when development over time is an important aspect of the case study. The structure and presentation often follow an early, middle and late phase of the case study. The fourth structure is called **theory-building** and here the chosen theory or topic sets the scene; each section or chapter discloses another part of the theoretical construction in a consecutive structure. The fifth and final structure, **suspense structure**, turns the analytical structure upside down by presenting the answer or the findings in the initial chapter.

The choice of structure for presenting the case study results is based on at least two premises, partly on the case study design and partly on the choice of how to structure the written rapport, cf. above. From the case study design it is possible to exclude the comparative structure (not using different theoretical models) and the chronological structure (the case studies are not related to time). Any one of the last three methods may be relevant in relation to the case study design, but employing method 1 and 2 when presenting the results in the written report entails that the linear-analytic structure is the most appropriate and thus the preferred structure for presenting the case study results.

3. Data collection

The data collection phase can essentially be divided into two aspects; firstly, preparing the data collection and secondly, the actual data collection. Each of these aspects will be subject to a further elaboration in the following sections.

3.1 Preparing the data collection

In order to make a sound preparation for the data collection, Yin (1989) outlines three steps which are to be followed. These steps are 1) increasing the general competences of the researcher, 2) fulfilling a pilot case study and 3) preparing a case study report.

Yin (1989) points out five elements which are important to be conscious about in situations where the aim is to maintain as well as further increase a high level of **general researcher competences**. The researcher should be focusing on asking relevant questions and interpreting the answers, he/she should be good at listening without preconceptions, he/she should be adaptive and flexible ensuring a supple attitude when in unexpected situations, he/she should possess a good understanding and insight in the research field in advance and he/she should be able to work unbiased without any prejudiced positions.

Before preparing the actual case study, it is important to conduct a pilot case study, which should grant the researcher several advantages. First of all, the researcher consolidates her/his knowledge of empirical data collection as an overall competence and in the current research project, this was accomplished by interviewing leaders from 10 SMEs, who all have undergone the process of transformed their businesses from less to more innovative orientated companies. A pilot case study

is also an opportunity to train and develop anyone of the five researcher skills mentioned above. For the researcher to make *“intelligent decisions about the data being collected”* (Yin 1989: 66), the pilot case is a veritable goldmine of experience which every researcher ought to learn from seeing that *“once in the field, each case study fieldworker is an independent investigator and cannot rely on a rigid formula to guide his or her behaviour”* (Yin 1989: 66). Despite the knowledge and learning which the researcher acquires through the pilot case study, one will never be able to make the definitive protocol. On the contrary, it is essential to keep the case study design and protocol open for any kinds of modifications deflected from the pilot study in order to create the best possible protocol (see appendix E). In relation to the current research project, the pilot case study has prompted several alterations to the protocol used in the main case studies. In other words, the research protocol has seen several different versions. This brings us to the third and last area of preparation mentioned by Yin (1989), namely the case study report preparation.

A case study protocol is crucial for considerably central parts of the whole research process, for which reason Yin (1989) recommends thorough protocol preparation and work. Firstly, the protocol secures a certain level of reliability, secondly, the protocol is a kind of master plan for the whole data collecting phase and it specifies the demand for documentation as well and thirdly, it makes presentation of the results a more straightforward process.

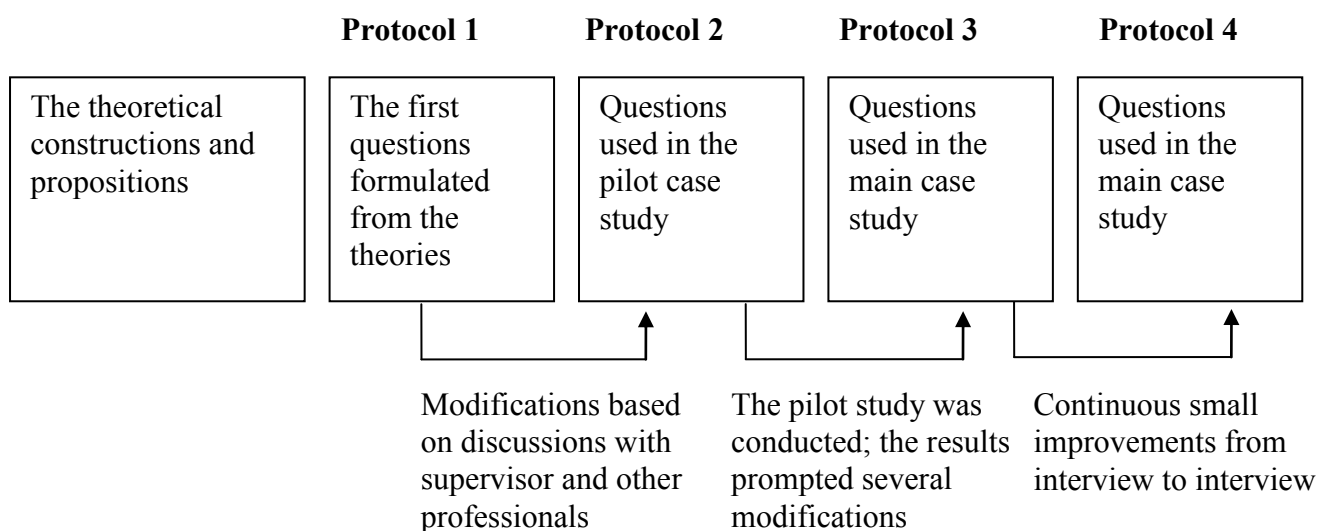
The main protocol conditions are to be found in the methodology and the conceptual domains. The methodology relates to the protocol through the determined research strategy, data collection reflections, validity criteria and the like. The conceptual domain specifies the theoretical constructions and makes as such the principal contribution to the questions which constitute the backbone of the protocol (due to the deductive approach). These questions are, of course, the most important element of the protocol, which is reflected in Yin's (1989) way of discussing this particular aspect of the protocol as well. He divides protocol questions into five levels: 1) Specific questions to the interviewee about her/his function in the company 2) questions about the specific case (in the current case study company) which are actually the questions listed in the protocol, 3) questions related to findings across multiple cases, 4) questions covering the entire study e.g. *“calling on information beyond the multiple cases and including other literature that have been reviewed”* (Yin 1989: 78) and 5) normative questions which seek to establish a link to reflections and conclusions outside the scope of the study (Yin 1989). The purpose of listing these five

categories of questions is not to claim that every case study should employ all five (Yin 1989), instead, the purpose is to compel the researcher to be conscious about choosing the relevant question level for each study.

As it appears from the protocol (see appendix E), questions in the current research project relate mainly to the levels 1, 2 and 3, which also corresponds with the way the case study results are presented (see section 2.3 in this appendix). The presentation follows the notion of creating one narrative for each of the four theoretical positions including the propositions (involving questions from level 1 and 2) and it continues with cross-case analysis and interpretations (involving questions from level 3). The link between the three levels of questions and the manner in which the results are presented secures that the questions asked by the researcher (and the case study as such) are appropriate and within the overall scope of the research. Jointly with the documentation (concrete data collection, see next section for further details), the questions within these three levels are the guarantor for collecting relevant data.

The process of creating the protocol, securing that the “right” questions are part of it and that the interviewees are able to understand them, follow the line illustrated in the figure below.

Figure C 2. Creating the protocol



Source: Own work

The process started with the theoretical considerations and some propositions which were formulated in a series of questions (protocol 1). These questions were then modified through discussions with my supervisor and other colleagues and formulated in a less academic manner, enabling every interviewee to understand them. The pilot case study was conducted and the following elements were changed before initiating the main case study: 1. I chose to change the introductory part of the interview, especially the part about the PhD project, which was abridged compared to the one used in the pilot study. 2. In the entire five main question sections, somewhere between two and four questions were extended by a how and/or a why, in order to induce the main study interviewee to go more thoroughly into the question and the related situation. 3. By listening to the recorded pilot case study files, I learnt that I should seek to talk less in the main case study interviews and not be afraid to pause, letting the interviewee speak his part and be more patient. These changes were implemented in order to retrieve as much information from the interviewees as possible.

3.2 Data collection and empirical documentation

Together with the theoretical foundation, the physical data collection is the most important part of the case study. The quality of this data collection is closely connected to the researcher's ability to be conscious of the documentation sources and of three fundamental principles for securing the construction validity of the data collection. The current section focuses on the documentation sources or sources of evidence and the next and last section in this appendix (3.3) focuses on the three fundamental principles for data collection.

Yin (1989) outlines six different documentation sources of evidence and argues for the researcher to have detailed knowledge of them and of how the data collection techniques work for each of them. The six sources of evidence are; documents, archival records, interviews, direct observations, participant-observation and physical artefacts. The following will provide a brief description of each: Documents assume a variety of different forms, among them are: Letters, memoranda, agendas for different purposes, different kinds of written reports, administrative documents, more formal studies and articles prepared for the mass media etc. These types of documents are secondary sources to the case study evidence, the purpose of which is to confirm information gained from other sources (Yin 1989).

The archival records consist of organisational charts, budgets, geographical charts, list of relevant names, service records and personal records in terms of diaries, calendars etc. As with the documents, the archival records are secondary documentation data and should be treated as such, cf. above.

The third documentation form is the primary source of documentation, namely the interview. It is a very important source of evidence in case studies in general and an ideal strategy for studying human behaviour (Yin 1989) entailing that it is the most appropriate documentation form for the current study as well. Zaner has pronounced the scope for qualitative social science research on the following terms; *"To seek to understand the social world as it is for those people whose social world it is is possible only if one practices the art of listening to them in their own terms and attends to the social world they construct for themselves"*. In my opinion, this is most expediently accomplished by way of the interview, or to be more specific, the research interview, which Kvale (1999) calls a production place for knowledge. It is important to be aware that the behaviour which is accounted for in the interview is interpreted by the interviewer (researcher) for which reason the interviewer must be fully theoretically versed in the research topic (Yin 1989). The interview may take one of three basic forms; one is the open-ended form *"in which an investigator can ask key respondents for the facts of a matter as well as for the respondents' opinions about events"* (Yin 1989). The open-ended form is the most commonly used in case studies (Yin 1989) and also the form applied in this research project. Another type of interview is the focused interview which is characterised in that the interviewer pursues a certain area by asking more specific questions; often as part of a second round of interviews which aim at confirming or disproving an explicit area/question which the first interview left unclarified (Yin 1989). The third type of interview presented by Yin is the very structured interview analogous to a formal survey, which is tantamount to each interview question being delivered exactly in relation to the protocol and no latitude is left to go beyond these questions (Yin 1989).

The fourth documentation form is direct observations for which reason it cannot be used on historical events, however, as soon as the researcher visits a physical site, it shows its worth and *"assuming that the phenomena of interest have not been purely historical, some relevant behaviours or environmental conditions will be available for observation"* (Yin 1989: 91). In the current case study, each interview is conducted on site and is further supplemented by a tour of the

plant or company. Without exception, these direct observations have produced relevant information and supplemented several of the protocol questions.

The fifth documentation form is the participant-observation approach. Here, the researcher is an active part of the documentation which provides her/him with an opportunity to perceive the case from “inside”; however, this role implies the risk of biased results.

The last documentation form is physical artefacts, that is, things which are essential to the case, e.g. a tool, an instrument, a sign or even a piece of art. This documentation form is mostly used in anthropological studies.

In the current case study, the first four documentation forms are all employed in relation to every single case and interview. The information provided by the first two mentioned forms (documents and archival records), which are secondary sources, varies in quantity among the five case companies. Throughout the interviews, the open-ended and semi-structured forms were applied in agreement with the protocol.

3.3 The three basic principles for data collection

Three superior principles which aim at strengthening construction validity and reliability engage the six documentation forms mentioned above. These are:

- Using multiple sources of evidence
- Creating a case study data base
- Maintaining a chain of evidence

The first one (using multiple sources of evidence) relates directly to the six documentation forms presented above. By using several of these six forms, both primary and secondary, the intention is to strengthen the validity and thus the conclusions of the study.

Creating a case study data base is relevant in order to control and the actual data and to secure it for potential reuse in other studies. Such a data base contains both the raw data and the validated and reflected data prepared for the thesis. These two sources of data are kept separately but are clearly

linked to each other (Yin 1989). The specific type of data and information in the data base is a reflection of the used documentation form. Therefore, the actual data base is a combination of the recorded interviews, the transcribed interviews, direct observations and secondary documents and archival records.

Maintaining a chain of evidence is crucial for enabling other persons to draw their own conclusions on the basis of the case study data. In order to create a chain of evidence, the researcher has to adduce a suitable amount of quotations from the interviews so that anyone can check the link between the quotations and the data base. The next link in the chain of evidence is to structure the data base in such a manner that other people can follow the process of data collection. The last two links in the chain are, one; consistent agreement between how the data is collected and the guidelines and questions to do so listed in the protocol and two; a solid link between the overall research question and the content of the protocol (Yin 1989).

Within the frameworks of the theoretical foundation (chapters 3) and the methodology considerations (in appendixes A, B and C), the actual case study is conducted. The results from the case study are, without any processing, stored in the data base. Then, the data base will form the foundation for structuring and testing the empirical data used in this PhD project.

Appendix D

1. Validity criteria within the research project

Validity criteria related to the research project mark the closing of the research process. In this appendix, I will relate the validity criteria (generalisation approach for qualitative research) mentioned in appendix C to this PhD project and its research process. I will relate to four main areas (1) external validity (section 1.1) internal validity (section 1.2), constructions validity (section 1.3) and reliability (section 1.4)

1.1 External validity

For Yin (1989) external validity is a question of to what extent the results achieved can be generalised in a broader perspective; that is, outside the five case companies. The question is; can (and to what extent) the problem based transformation model explain how other SMEs transform from non-innovative to innovative positions?

As replication is mentioned by both Yin and Brinberg and McGrath as important ways to secure external validity but in two different senses, I will start by making a distinction between the two. Yin's interpretation of replication is related to testing the same variables in several different case studies (see appendix C) whereas Brinberg and McGrath's way of understanding replication is more related to a triangulation of more than one method in terms of different research techniques or different research strategies (see appendix A). These replication validity criteria are not used in this research due to limited amount of resources and time.

But external validity can be supported and increased through the following aspects which are the focal points of this research.

First of all, the external validity is supported by the replication of the questions from the study protocol as the same questions have been replicated to all respondents representing the five different case companies. Furthermore, the research subject has been in an ongoing interaction with the making of the interviews and thereby, a too predetermined and rigid understanding of the research area has been avoided.

Secondly, the fundamental concept of using a pre-produced theoretical structure (the theoretical transformation model and its ten propositions) as a basis for relating and understanding the empirical results (data from the five case companies) is indeed an important part, if not the most important part of the external validity. As the theories and the theoretical transformation model have been developed in the first part of this research, this construction has been pointing out relevant variables and acted as a steering element for subdividing the collected data into relevant and irrelevant parts. That made it possible to leave out irrelevant data and information.

Thirdly, the case study design in itself supported the external validity as it demonstrated a solid and well-proven process for conducting qualitative social science. The research area and research question together with Yin's (1989) suggestions for how to design a case study supported the selection of relevant cases which also strengthen the external validity.

Fourthly, it is important to exercise caution in relation to the empirical data (Brinberg and McGrath 1985) because:

- The quotes can be interpreted in different ways
- The context knowledge which is important for understanding the quotes does not appear from the quote
- The quotes cover only partly the comments given
- The interpretation is made on semi-structured questions

Through the work with the data in chapter 4, I have aimed at only using quotes which were clear and unambiguous in relation to the area they were addressing. Moreover, I exercised caution and made use of the contextual knowledge I had in relation to the data treatment and interpretation.

These efforts are directed toward being able to precisely specify the research process and are aiming at avoiding the insecurity that follows from a less specified research processes. The idea behind generalising validity is to collect the largest possible amount of relevant data (through the research process) and to relate that data to the research question in consideration of the available amount of resources. Therefore, I will argue that the precautionary measures taken unambiguously support the focus on conditions which must be stated to be important.

1.2 Internal validity

Internal validity is important in all kinds of research as it addresses the validity between the dependent and the independent variables and the relation between theory and data. A precondition is of course that the information provided by the respondent is correct and that the data have been handled properly through the research process.

Through this explanatory and explorative case study, the two most important methods for securing a high internal validity have been addressing pattern-matching and explanatory building. Pattern-matching is the basic relation between the ten theoretical propositions and the empirical data, whereas explanatory building is more of an iterative interaction process between the propositions and the empirical data. Through the explanatory building process, the internal validity will increase as the process continuously develops toward a closer and closer link between theory and data. In appendix C, I explained the explanatory building process in the PhD project in the following way:

I started out with the theoretical propositions (step 1), then I related them to the first case studies (step 2 (pilot study)), then I revised the propositions (step 3), then I compared to other details e.g. discussions with my supervisor and other business managers (step 4), then I revised the propositions once more (step 5), then I related these propositions to the embedded multiple case study (step 6). Due to restricted resources, I refrained from following step 7 recommending replicating the case study more than once.

Pattern-matching and explanatory building are both separately and together the largest contributors to creating something which is as close to causal connections as possible. The reason is that both methods take as their points of departure well-known and well-established theory and try to create the best possible link to the empirical evidence.

Another way to support the internal validity is to increase the amount of case companies and respondents within the companies. The last thing I will mention which supports the internal validity is to distance oneself from the results of the research as to look at the relations and the results from a logical point of view.

By using pattern–matching, explanatory building, five case companies with 20 respondents and by making logical evaluations of the relations and results from a distance, I will argue that the internal validity is high and that it is the right relations which have been analysed.

1.3 Construction validity

Construction validity addresses two things; one is to define how to understand the subject of the research and the other is to set up some concepts to test the original objectives of the study. Starting with how to understand the subject of the research, I used most of chapter 1 and 2 to define and argue for the problem arisen from the research question and to define all relevant paradigms and theories. I also argued why the four theoretical areas were the most relevant in this study (chapter 2). Several well-reputed researchers and sources have been used to support building up the theoretical construction in general and thereby support the development of the ten propositions.

Similarly, Brinberg and McGrath's (1985) Validity Network Schema was a way to secure high construction validity by “constructing” a solid relation between the theories, the propositions, the methodology, the data generation and data treatment. Together, these efforts have created a high construction validity of the research setup.

In addition, three data related elements supported the construction validity and that is (1) multiple sources of evidence supplementing the interviews with sources like home pages, national statistics, information from relevant stakeholders regarding the case companies and some general information from the local business council. Next, I lined up (2) a chain of evidence; that is, I recorded the interview which created the raw data, then I made a transcription of these data, then I coded the data in relation to the relevant concepts and themes, then I used the data/quotes for different kinds of analyses and extrapolations (see chapter 4 and 5) and then the data became the foundation for the contribution and conclusion. The last thing I did to support the construction validity was that I (3) asked a few of the interviewees to comment on the transcript material from their interview, without notable impact though.

1.4 Reliability

The aim of reliability is to describe everything in the research process so carefully that another researcher would be able to replicate the research without mistakes or prejudices. As mentioned, in

social science, full reliability is not possible due to the endless number of variables influencing the research.

Due to the 10 propositions from the theoretical construction and the description of the whole research process (see appendices A to E), another researcher would be able to replicate the research and thus, I will argue that the reliability is high seen from the perspective of social science research.

1.5 Concluding remarks on validity criteria

I have outlined the arguments for the validity of this research both regarding external validity, internal validity, construction validity and the reliability. These arguments allow me to claim that this research project is valid and to argue that the results of the research can be considered valid and useful.

Appendix E

Study protocol

Type of questions

Yin (1989) discusses the importance of pointing out the right type of questions in relation to the concrete study. In qualitative field studies, it is vital to use “why” and “how” questions supporting the pursuit of finding explorative and explanatory based information.

Interview guide for the case studies

The following letter was used to introduce the research project to the interviewees:

Thank you for your commitment to participating in an interview. Each interview will last about 1½ hour and it will focus on the company’s transformation process from less innovative to more innovative oriented. Besides yourself, four other people will be interviewed in the company.

The objective of this research study is to gain knowledge and understanding about the main research question which is:

“How to manage SMEs through the transformation from non-innovative to innovative?”

Mr. XX is the contact person at company yy and no material will be used externally without his and yours permission.

The interview is conducted by means of the following structure:

- I will explain a little more about my research project.
- I will ask a string of questions; the first one being: “What kind of barriers have been the most crucial in relation to developing the company (xx) or your department the last couple of years?”
- The following questions represent some predefined themes which serve to elaborate on and improve the understanding of the main question.
- For the sake of avoiding any kind of prejudice and to open up the first questions as much as possible, these questions will not be presented beforehand.

I am looking forward to seeing you at the interview next week.

Best regards Michael Nørager

The following protocol was used to guide the interview. It was not presented to the interviewees:

Introduction

- Presentation of myself and the project and defining innovation.

General aspects about the company (questions asked to the CEO or other relevant persons)

- What is the basic business concept? How has it developed over the last years?
- The overall change or transformation perspective – how has it evolved and what is the status?
- Reaction to these changes?
- How are the main economic figures for the last five years?
- The relation between turnover and the age of the products. For instance, how much of last year's turnover was generated by products less than one year of age? And less than two years?
- The history of the company.
- The CEO – background, focus, interests etc.
- What characterises the organisation and management?
- Interaction with customers and suppliers?
- Future challenges and essential strategic problems?

The interview

- Your background?
- Your position/role in this company?

First main section – General aspects: (how is this area related to the overall transformation process of the company?)

- How will you describe the general development of the company going 10 years back and up till now?
- What kinds of barriers have been the most crucial in relation to developing the company (xx) or your department the last couple of years?" (How and why).
- What barriers have caused the biggest trouble overcoming? (How and why).
- What have been the most effective barriers to overcome? (How and why).
- How did it develop the company?
- Are there any kinds of barriers which the company has not overcome? (Why).

Second main section – Strategy: (how is this area related to the overall transformation process of the company?)

- Does the company have a written strategy? (Why).
- How explicitly is the strategy expressed?
- Do you see any relation between your strategy/or future plans and innovation?
- Which time frame are your strategies or plans based on?
- Does the company or department have any strategies or plans for innovation or product development?
- Do you see strategy as an incremental or a more rationalistic way of planning for the future?
- How do you recognise opportunities for development (product or not)?
- Do you have a plan for exploiting strategic opportunities?
- How is the relation between current technology knowledge stage and strategy?
- How is the relation between current competency level and strategy?
- How do you see opportunity recognition in terms of preparation, incubation, insights, evaluation and elaboration?

- What is the most important focal point of your strategy? (Why).

Third main section – HRM: (how is this area related to the overall transformation process of the company?)

- How will you describe the stimulation which employees receive from management in terms of HRM activities and training? (How and why).
- Do you see any connections between HRM activities and innovation? (How and why).
- Do you have any concrete examples of firm level training being linked to innovations? (Product, service or organisational).
- Does the company execute any HRM system or bundles of HRM activities?
- What is the general attitude towards human capital strategies?
- HRM creates new knowledge – new knowledge creates new capabilities – new capabilities are often first order innovation activities. Does the company have any policies on knowledge creation and sharing?
- If the company needs specific competencies, would it be normal to try to train existing employees to cover that gap or would it be normal to recruit the missing competencies?

Fourth main section – Management: (how is this area related to the overall transformation process of the company?)

- How is the attitude towards management development and training? (Why).
- What would be the exact content of such management development and training?
- How would you describe the overall management or leadership attitude of the company? If such one exists?
- Speaking about management, leadership and self-management, how would you describe the use of these basic attitudes in this company? (When, why and how).
- How can these different management approaches be combined in practice – if they ought to be?
- Do you see any link between the management philosophy and the ability to innovate?

Fifth main section – Network and external relations: (how is this area related to the overall transformation process of the company?)

- How would you describe the company and/or your department in relation to network collaborations?
- What kinds of links are important and to whom?
- Are these links related to any kinds of innovation? Directly or indirectly?
- How strong are the relations in your network? Does innovation depend on the strength of these relations?
- Do you have any relations to other innovative active companies? Or are they less innovative based?
- Who are the players in the network?
- Is your department or the company involved in common innovation projects with other companies?
- Is the company involved with different players around an innovation project?

- Do you have any internal organisational activities supporting the network relations?
- Is there e.g. a link between internal HRM activities and the network activities?

As the interviews are semi-structured, the theory governs the area to start in and from there, I have in each interview tried to use how and why to open up for more specific data. At the end of each section (of questions), I added in more theory when and if it was necessary.

Appendix F

Danish abstract

Denne afhandling er indgivet til ph.d. bedømmelse under forskerskolen Viden og Ledelse ved Institut for Ledelse, Politik og Filosofi på Copenhagen Business School.

Afhandlingen tager udgangspunkt i danske små og mellemstore virksomheders udfordringer i at tilpasse sig omverdenens uophørlige forandringer. En aktuel udfordring og måde at overleve på for disse virksomheder er at være innovative. Undersøgelser i 2004 pegede på, at cirka 50% af alle danske små og mellemstore virksomheder ikke var innovative. Præcis der udkrystalliserede mit forskningsspørgsmål sig, som er: Hvordan leder man små og mellemstore virksomheder fra at være ikke-innovative til at blive innovative?

Organisationsteorien er leveringsdygtig i mange bud på en løsning til dette problem. Gennem litteraturstudier og målrettede udvælgelseskriterier valgte jeg at analysere problemstillingen ud fra 4 organisationsteoretiske perspektiver, nemlig ledelse, HRM, strategi og netværksrelationer.

Den forskningsbaserede empiriske undersøgelse af 5 casevirksomheder viste, at en succesfuld transformation handler om at udvikle en ledelse, der skaber gode rammer for at medarbejderne kan lede og udvikle sig selv gennem arbejde med viden og ny indsigt. Det bør støttes af en stram styring på de mål og ressourcer, der er afsat. Det er ligeledes vigtigt, at HRM perspektivet tager udgangspunkt i at se medarbejderne, som nogen der indeholder et stort potentiale som de gerne benytter til at udvikle virksomheden, hvis de bliver motiveret og udfordret. Disse HRM aktiviteter bør ses i tæt sammenhæng med virksomhedens strategi. En strategi, der i øvrigt bør være nedskrevet, fokuseret på innovative tiltag og tydelig kommunikeret ud i organisationen. Endelig bør små og mellemstore virksomheder, der ønsker at transformere sig til en innovativ position være aktive i netværksrelationer med alle typer af relevante interessenter.

Mine analyser af de data der relaterer sig forskningsprojektet viste, at 2 af virksomhederne have gennemgået en transformationsproces, der bragte dem fuldbyrdet ind i en ny ligevægtsposition baseret på innovation. 2 virksomheder var tydeligt i gang med en transformation, men var ikke nået

til en ny ligevægtssituation i forhold til at innovative. Den sidste virksomhed var opdelt på den måde, at virksomheden var langt fra transformeret i retning af det innovative, hvorimod virksomhedens produktudviklingsafdeling bar tydelig præg af en sådan ligevægt i forhold til den innovative position. I en længere periode anså jeg disse resultater for være noget spredte i den forstand, at der faktisk var en 50-50 fordeling mellem virksomheder der bekræftede mine antagelser, og virksomheder der ikke bekræftede mine antagelser.

Jeg var faktisk begyndt at skrive konklusionen, da jeg pludselig så problemstillingen og mine data forene sig på en ny måde. Det var endda en måde, der let og entydigt forklarede situationen i alle 5 casevirksomheder, og som bidrager til ny viden på feltet. Det, der styrer små og mellemstore virksomheders transformation generelt (ikke kun mod innovation), er det som ledelsen og medarbejderne adresserer som virksomhedens hovedproblem. Hvis ledere og medarbejdere anser det at udvikle produkter eller processer som det vigtigste problem, vil det få stor indflydelse på ledelse, HRM, strategi og netværksrelationer, og disse områder vil tilpasse sig og støtte op om skabelsen af en innovativ ligevægtssituation. Hvis ledere og medarbejdere anser optimering af produktionen eller administrationen som det vigtigste problem, så vil det ligeledes få stor indflydelse på ledelse, HRM, strategi og netværksrelationer, som i dette tilfælde vil udvikle sig mod en ikke-innovativ ligevægtssituation.

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