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The Mobility of People, Ideas and Knowledge in the Entrepreneurial Society

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Abstract

As radical innovations facilitate communication, create new industries and make others obsolete, the established ways of organising society are being questioned. Over the last few decades, a theoretical framework and a worldview labelled the *entrepreneurial society*, has emerged. The entrepreneurial society is based on theoretical models, empirical observations and a belief in the importance of new businesses.

The core of the entrepreneurial society is the claim that valuable ideas have to be commercialised in order to contribute to economic growth and prosperity. Unfortunately, valuable ideas remain dormant due to a number of barriers. Labour mobility, informal networks and entrepreneurship are mechanisms with the potential of overcoming these barriers.

This thesis aims to increase our understanding of how ideas diffuse between and get applied within organisations. The thesis relates its findings to the entrepreneurial society and identifies and critically assesses basic assumptions and biases underlying the framework.

The thesis presents and discusses six studies, each published as an article in a scientific journal, a chapter in an edited book, or as a conference paper at an international academic conference. Taken together, the findings in this thesis emphasise that the mobility of ideas is intertwined with the mobility of people and knowledge. More specifically, the findings indicate that employees in large R&D-driven projects not only attain knowledge from external sources, but also that the use of external knowledge sources is positively related to new ideas connected to the projects.

In addition, this thesis reinforces the argument that the mobility of knowledge workers is particularly beneficial to the diffusion of knowledge and ideas between organisations; the results show that employees in knowledge-intensive positions perceive greater opportunities to generate, share and develop ideas in organisations, as compared to employees in less knowledge-intensive positions.

This thesis suggests that new employees tend to have an entrepreneurial potential in the form of a greater drive for change and less habituation with current practices. Nevertheless, such potential is often curbed by resistant routines. However, the thesis also finds that much entrepreneurship literature and the discourse of policy makers are biased towards overly optimistic views of entrepreneurship.

The literature on the entrepreneurial society emphasises the diffusion and application of new R&D-related knowledge and ideas. This thesis also emphasises the diffusion and application of already widespread and established knowledge, ideas and innovations.

Keywords: absorptive capacity, entrepreneurial society, entrepreneurship, ideas, innovation, knowledge, labour mobility, mutagen, routine

Sammanfattning

I takt med att radikala innovationer underlättar kommunikation, skapar nya branscher och gör andra obsoleta, ifrågasätts etablerade sätt att organisera samhället. De senaste årtiondena har ett teoretiskt ramverk och en världsåskådning, under benämningen det *entreprenöriella samhället*, vuxit fram. Det entreprenöriella samhället baseras på teoretiska modeller, empiriska observationer och en tro på vikten av nya företag.

Kärnan i det entreprenöriella samhället är tesen att värdefulla idéer måste kommersialiseras för att bidra till ekonomisk tillväxt och välfärd. Olyckligtvis förblir många idéer outnyttjade på grund av en mängd barriärer. Arbetskraftsrörlighet, informella nätverk och entreprenörskap är mekanismer med potential att övervinna dessa barriärer.

Syftet med denna avhandling är att öka vår förståelse av hur idéer sprids mellan, och tillämpas inom, organisationer. Avhandlingen relaterar resultaten till det entreprenöriella samhället, samt identifierar och granskar ramverkets underliggande antaganden och blinda fläckar.

Avhandlingen presenterar och diskuterar sex studier, var och en publicerad som en artikel i en vetenskaplig tidskrift, som ett kapitel i en akademisk antologi eller som ett bidrag till en internationell vetenskaplig konferens. Sammantaget understryker resultaten i avhandlingen att idéers rörlighet är sammanvävd med människors och kunskaps rörlighet. Resultaten tyder på att anställda i stora FoU-drivna projekt inte bara inhämtar kunskap från externa källor utan också att dessa källor är relaterade till nya idéer och lösningar på problem i projekten.

Vidare förstärker resultaten tidigare forskning som hävdar att organisationsbyten bland människor med kunskapsintensiva arbeten särskilt bidrar till att idéer och kunskap sprids mellan organisationer; resultaten visar att anställda med kunskapsintensiva arbeten upplever större möjligheter att generera, föreslå och utveckla idéer jämfört med anställda i mindre kunskapsintensiva positioner.

Avhandlingens resultat indikerar också att nyanställda har en större entreprenöriell potential än mer etablerade anställda. Detta för att nyanställda har en större förändringsbenägenhet och att de ännu inte är inskolade i etablerade arbetssätt. Denna potential hålls emellertid ofta tillbaka av motståndskraftiga organisatoriska rutiner. Dessutom hävdar avhandlingen att mycket av entreprenörskapslitteraturen och den politiska diskursen uppvisar en överoptimistisk syn på entreprenörskap.

Litteraturen bakom det entreprenöriella samhället betonar spridningen och tillämpningen av forskningsnära kunskap. Denna avhandling betonar även vidare spridning av redan spridd och etablerad kunskap, samt redan spridda och etablerade idéer och innovationer.

Foreword

As I complete my third major thesis, I realise that the completion of those written documents are important milestones. However, they are just milestones. This one – the PhD thesis – has beckoned me for a long time. Now that it is within my reach, I know there are other milestones waiting down the road, at the horizon and beyond. Yet, this is the time to stop and rest, to ponder the journey and to celebrate the achievements. Perhaps most importantly this is the time to acknowledge the support I have received from so many people. There are three people that I am particularly indebted to: my partner Isabelle Boisvert and my supervisors Magnus Klofsten and Alf Westelius.

Isabelle – your contribution reaches far beyond love and encouragement – our discussions, your advice and criticism has improved this thesis much. Magnus and Alf – you are great! You have given me the freedom to find my own paths, but have always been available when I needed your advice or feedback. I am glad that the two of you have worked so frictionlessly together, even though I chose you independently (who did the choosing can of course be discussed). I have learned much from you both.

Furthermore, my affiliation to Helix Excellence Centre has been vital to this thesis. In addition to funding, Helix has provided a stimulating work environment, a network of partner organisations, and supportive colleagues – thank you all!

Moreover, I want to thank my colleagues at Project, Innovation and Entrepreneurship. Working with you has helped me develop not only as a researcher, but also as a teacher. From you I have learned much about how academic work can be managed and facilitated through cooperation.

With encouragement from Helix I have been able to travel and spend time at other universities and meet scholars from all over the world. I have made several visits to Australia, and I particularly want to thank the Workplace Research Centre and the Faculty of Economics and Business at Sydney University and the Macquarie Graduate School of Management for providing writing facilities and knowledgeable colleagues, who in turn provided valuable input to my research.

In addition to the people already mentioned in the foreword to my Licentiate thesis, which is part of this thesis, there are some people who deserve a special mention: Mattias Nordqvist for comments on my manuscript during my final seminar – they made me sharpen my pen; Peter Auer, Erik Nilsson, Daniel Nyberg and Raymond Trau for comments on material in this thesis; Clas Wahlbin and James Sallis for counselling on statistics; Jo Rhodes, Peter Lok and Russell Lansbury for your support and encouragement; and Hans Björkman for co-authoring one of the essays with me.

Last but not least I want to thank my family: Barbro, Jacques, Louise, Anna, Stewart, Marie-Eve, Anne and Christian for your support and for accommodating me and Isabelle as we have juggled affiliations to academic institutions in three continents.

I hope that my forward journey will allow for frequent contacts with all the people and institutions I have worked with during the last few years because (in the words of a late British prime minister) “...this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning.”

Linköping, November 2010

Erik Lundmark

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PART III

1 Introduction

Ideas are seeds of change. Ideas are behind the start and transformation of organisations and therefore ideas are intertwined with organisational success and failure. Although information and communication technologies have facilitated the diffusion of ideas, there are still many obstacles between ideas and their application. Even ideas that are open and available often fail to take hold in organisations due to the lack of related knowledge required to appreciate the potential of the ideas (Cohen & Levinthal, 1990); large incumbent firms are often biased against new ideas due to vested interests in existing practices and cognitive biases (Tushman & Anderson, 1986); and organisational environments can hamper rather than support the creation and development of new ideas (Amabile et al., 1996; Ekvall, 1996). The consequence is a filter between the creation and practical application of ideas (Audretsch & Keilbach, 2008).

Overcoming this filter is paramount in the entrepreneurial society (Audretsch, 2009a,b). The entrepreneurial society refers here to a theoretical framework that has emerged over the last couple of decades, particularly influenced by the research of David B. Audretsch. It is associated with a view of contemporary society based on empirical observations (e.g. the increasing importance of new business start-ups and positive attitudes among policy makers towards entrepreneurship), and a web of theoretical underpinnings.

The theoretical framework underpinning the entrepreneurial society has clear policy implications; for example, Audretsch and Thurnik (2001, p. 269) suggested that policy makers should stimulate entrepreneurship through “deregulation, privatization and labour market flexibility”. These policy implications do not fall on deaf ears, rather policy makers around the world are “looking to entrepreneurship as an engine of economic growth, employment, and a high standard of living” (Acs et al., 2009b, p. 2); and Audretsch’s research is cited by prominent politicians (Prodi, 2002).

The core of the entrepreneurial society is the assumption that growth occurs when new ideas are commercialised; if valuable ideas are not commercialised where they are created, they should be moved to where they can be commercialised. Therefore understanding the mechanisms by which ideas diffuse between people and organisations is of particular importance to the development of the theoretical framework on which the entrepreneurial society is built. In the entrepreneurial society, labour mobility is considered to be such a mechanism. In other words, people moving between organisations facilitate the diffusion of ideas.

Viewing labour mobility as a conduit of idea flows contrasts quite starkly with more traditional views of labour mobility. More than 40 years ago Sweden was recognised for its positive views on labour mobility (Drucker, 1969), which were based on very different theoretical foundations than those underlying the entrepreneurial society. As the early post-war growth models emphasised capital and labour and viewed long-term growth as endogenous (Solow 1956; 1957), labour was considered to be an important resource that should be applied where it was most useful. This was achieved through transferring labour from sectors or regions with low potential to sectors or regions with high potential. However, mobility between organisations in high productivity sectors was discouraged since that would not only cause instability, but also stoke inflation. “That is, labor mobility was generally viewed as important because it is a mechanism for equilibrating wages in the labor market.” (Audretsch & Keilbach, 2005 p. 8).

With the increasing recognition of knowledge (Romer, 1986), and then entrepreneurship (Acs et al., 2009a) in economic models, the view of labour mobility shifted dramatically. Labour mobility, particularly the mobility of highly skilled employees such as engineers and scientists, was portrayed as a mechanism of idea and knowledge diffusion between organisations. From this perspective, labour mobility, particularly in knowledge-intensive regions and sectors, contributes to economic growth since it increases the chance that knowledge and ideas are commercialised. In the entrepreneurial society (Audretsch, 2009a;b), mobility leading to new firm start-ups has a particularly positive effect on productivity growth (Audretsch & Keilbach, 2005; Audretsch, 2007). In other words, in the entrepreneurial society, the mobility of ideas is intertwined with the mobility of people and knowledge.

In addition to labour mobility, Audretsch et al. (2005) highlighted social networks as an important mechanism for idea and knowledge diffusion. These mechanisms are not independent since labour mobility often extends social networks (Bienkowska, 2007; Power & Lundmark, 2004; Zellner and Fornahl, 2002). Additional research on these underlying mechanisms is important. In particular, research on the relation between labour mobility and the spillover of ideas and knowledge between organisations is scarce (Audretsch & Keilbach, 2005). Furthermore, Bienkowska (2007) points out that the organisational reception of new employees is likely to influence the occurrence of knowledge flows associated with labour mobility; however, there is little research on how new employees perceive their work environment in relation to its conduciveness to new ideas. Furthermore, there is disagreement about the importance of informal contacts as a mechanism for knowledge and idea flows (cf. Dahl & Pedersen, 2004; Schrader, 1991 with Power & Lundmark, 2004 and Oakey, 2007).

In summary, over the last couple of decades, theories underlying the entrepreneurial society have emerged and become established. At the core of the framework are the mechanisms by which ideas diffuse and get applied. This theoretical framework has

the ear of politicians and clear policy implications. Therefore, it is important and legitimate not only to spend resources on furthering our understanding of the underlying mechanisms of the framework, but also to critically assess its basic assumptions and biases.

1.1 Purpose and Research Themes

The purpose of this thesis is firstly, to increase our understanding of how ideas diffuse between and get applied within organisations; and secondly, to relate findings to the theories underpinning the entrepreneurial society and to identify and critically assess basic assumptions and biases underlying it.

There is a wide variety of academic research focusing on the spread and development of ideas that can be built on. A well-established strain of research studies how particular ideas diffuse (Rogers, 2003). Other strains of research study the flow of ideas in a broader sense, without focusing on specific ideas: for example, the absorptive capacity strain (Cohen & Levinthal, 1990; Lane et al., 2006); and the creative climate strain (Mathisen & Einarsen, 2004).

These strains of research make different assumptions about the nature of ideas. The diffusion literature aims to identify particular ideas by measurable outcomes such as behaviours or embodiments in artefacts often referred to as “innovations” (Rogers, 2003). From this perspective, ideas or innovations are seen as relatively stable units that diffuse between people and organisations. This perspective on ideas is, in this thesis, referred to as the *nominalist* perspective.

In contrast, the absorptive capacity literature generally makes little distinction between knowledge and ideas; both are seen as intangible and volatile, where their flows and development are commonly measured using proxies such as spending on research and development (R&D) or number of patents (Cohen & Levinthal, 1990; Lane et al., 2006). The creative climate strain also views ideas as intangible and volatile, but measures organisational members’ perceptions of their work environment and its conduciveness to new ideas (Mathisen & Einarsen, 2004). This thesis labels the view of ideas as intangible and volatile as the *intangible* perspective.

This thesis explores the spread of ideas from both a *nominalist* and an *intangible* perspective. That is, part of the thesis is dedicated to the view of ideas as relatively stable units that diffuse between organisations; and part of the thesis is dedicated to the view of ideas as intangible and volatile and therefore their diffusion is only traceable through proxies. Each perspective on ideas is represented by one research theme.

1.1.1 Research Theme 1

Firstly, this thesis applies a *nominalist* perspective on ideas. This perspective is commonly used in diffusion and adoption literature where ideas are seen as relatively stable units that are adopted or rejected. This requires that the idea can be perceived, measured and defined, which is difficult since ideas are abstract concepts. Therefore, diffusion literature often focuses on the measurable aspects of ideas such as their enactment or embodiment in physical objects, often referred to as “innovations” (Rogers, 2003). Using this perspective, the first research theme addresses the overarching question:

- 1) How, why and with what consequences do organisations adopt innovations?

1.1.2 Research Theme 2

Secondly, this thesis applies an *intangible* perspective on ideas. From this perspective ideas are abstract and undeveloped concepts, for example, early stages of knowledge, or early stages of innovations. Seen from this perspective, particular ideas are difficult to pinpoint, but researchers can measure proxies of their creation, diffusion and development, such as measures of creative climates (Amabile et al., 1996; Ekvall, 1996) or creative contributions to projects (Moneta et al., 2010).

As briefly outlined in the introduction, the theories underlying the entrepreneurial society (e.g. Audretsch, 2009a;b; Audretsch, 2007; Audretsch & Keilbach, 2005; Audretsch & Thurik, 2001) emphasise that the mobility of ideas is intertwined with the mobility of people and knowledge. Accordingly, research theme 2 addresses the overarching question:

- 2) How does the mobility of people, ideas and knowledge interact in organisational contexts?

1.1.3 Scope and Delimitations

As with all research, the scope and direction of the research behind this thesis are influenced by resource constraints. The first research theme is addressed through three studies of organisational adoption of innovations. The studied innovations have all been in a positive diffusion phase, which means that the innovations have been adopted by a large number of organisations during a limited timeframe. This is advantageous since it provides possibilities of comparing the experiences of multiple organisations. Furthermore, the innovations being in a positive diffusion phase contributed to an interest in the studied adoption processes outside the academic community which, in turn, contributed to making funding available.

The studied innovations are the quality management system standard ISO 9000, information and communications technologies and a technology-based administrative

tool in the Swedish Sports Confederation's system Swedish Sports Online. These innovations are studied in some detail, focusing on how organisational members perceive the organisational effects of adoption and the level of implementation and reasons for adopting (or rejecting) the innovations. Such studies are important in their own right, since they can improve organisational decision-making both regarding whether, and how, to adopt specific innovations (Abrahamson, 1996; Rogers, 2003). The studies are compared and the adoption processes are analysed at an aggregate level in order to extract more general contributions.

Some of the findings in the three studies mentioned above relate also to research theme 2. However, I have conducted additional studies, specifically addressing research theme 2, using the intangible perspective on ideas. They have been enabled by my affiliation to the HELIX VINN Excellence Center (Helix), which is a multidisciplinary research and innovation centre at Linköping University.

The central concepts of research theme 2, the mobility of people, ideas and knowledge, are the main topics of research at Helix. Through Helix, I have been provided with the resources to pursue three additional studies.

The first of these engages the debate about the importance of informal contacts as a mechanism for idea and knowledge diffusion between organisations (cf. Dahl & Pedersen, 2004 with Power & Lundmark, 2004). The study assesses the importance of different knowledge sources utilised by participants in two high-tech, R&D-driven product development projects in large corporations, and how this in turn is related to the creative contributions of the participants to the projects. Thus, the study addresses the relation between the mobility of knowledge and of ideas.

The second study makes the assumption that new employees are likely to have ideas that are non-redundant in organisations (March, 1991; Audretsch & Keilbach, 2005). The extent to which organisations are open to new knowledge and ideas brought in by new employees will influence the efficiency of knowledge and idea diffusion through labour mobility (Bienkowska, 2007). The extent to which the organisational environment allows and encourages employees to generate, share and develop ideas is referred to as the organisational "creative climate" (Mathisen & Einarsen, 2004). The study assesses how new, as compared to more established employees, perceive their organisational creative climates, which relates the mobility of people to the mobility of ideas.

The last study in this thesis critically assesses a core concept in the entrepreneurial society: entrepreneurship. The study assesses the role entrepreneurship plays in society by exploring metaphors for entrepreneurship. Thus, the study identifies and critically assesses basic assumptions and biases underlying the entrepreneurial society.

The six studies in this thesis are finally revisited and discussed in order to assess how they inform us with regards to the purpose of the thesis.

1.2 Structure of the Thesis

The thesis addresses two research themes. The thesis is likewise divided into two books: the first book is my Licentiate thesis, *Organisational adoptions of innovations – management practices and IT*, and the second book, *The mobility of people, ideas and knowledge in the entrepreneurial society*, is the book you are reading now. These books are referred to as Book I and Book II respectively. Each book contains an introductory part and three essays, (see Figure 1). In accordance, Essays I, II and III are found in Book I, and IV, V and VI in Book II.

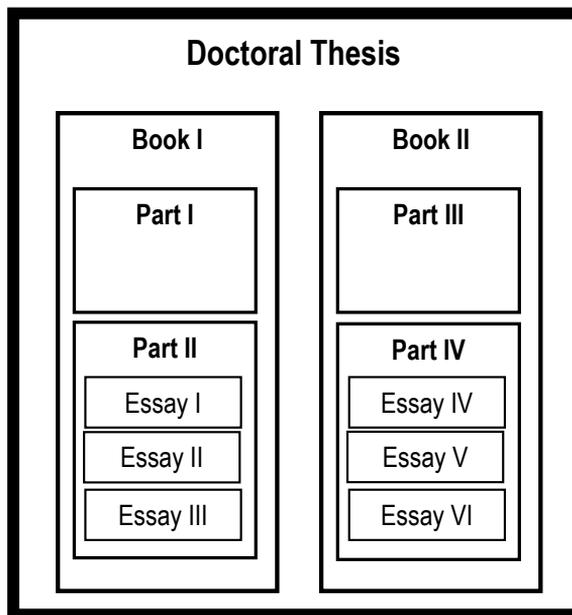


Figure 1. Structure of the doctoral thesis

The first research theme is addressed using the material presented in Book I. Three innovations are studied, the quality management system standard ISO 9000 (Essay I), information and communications technologies (Essay II), and a technology-based administrative tool in the Swedish Sports Confederation's system, Swedish Sports Online (Essay III). The studies are compared and the adoption processes are analysed at an aggregate level in order to extract more general contributions in Book I. The

contributions in Book I are revisited in this book in order to explore how they can contribute to research theme 1 and the overarching purpose of this thesis.

The second research theme is addressed in this book, Book II, through two new essays and by revisiting Book I. The findings in the essays and in Book I are discussed in order to extract more aggregated conclusions. Essays IV and V are focused on elucidating the mechanisms of idea diffusion between organisations, mechanisms central to the theoretical framework underpinning the entrepreneurial society (Audretsch et al., 2005). The last essay in this thesis, Essay VI, takes a critical stance regarding entrepreneurship and its function in society, offering a counterbalance to the overly optimistic views held by many policy makers and academics.

Book I, Part I, contains an introduction and discussion of the three essays presented in Part II. Although not explicitly referred to by numbers in Book I, the essays in Part II are here referred to as Essays I, II and III, according to their order of appearance in Part II. Essays I-III have all been published in a peer-reviewed journal or as a peer-reviewed chapter in an edited book. Essay III was published as an article in the *International Journal of Public Information Systems*, after Book I was printed. The published article is slightly modified from the version in Book I and is therefore presented anew in appendix A of this book. Book I contains separate reading guidelines (Book I, p. 1).

Book II is likewise separated into two parts, Part III and Part IV. The function of Part III is threefold: firstly, to introduce the purpose and theoretical foundations of the doctoral thesis; secondly, to present the research process and my own and others' contributions; and thirdly, to revisit all the essays in this thesis (Book I & II) in order to assess and present how they inform us with regards to the purpose of the thesis.

Part IV contains three essays: *Informal contacts in R&D-driven organisations*; *New Job – New Ideas: The Relationship between Tenure and Perceived Creative Climate*; and *Entrepreneurship as Elixir and Mutagen*. These are referred to as Essays IV, V and VI respectively. Each of these essays has been presented at an international academic conference and submitted to an international academic journal. Information about where each essay has been presented is given as an introduction to each essay in Part IV.

Each essay has a reference to where they start in the table of contents. Each essay contains a reference list covering the references used in the specific essay. The list of references at the end of this book contains all the references used in Part III.

1.2.1 Reading Guidelines

Approaching this work as a complete doctoral thesis should be done in the following order:

- 1) Book II, chapters 1-3;
- 2) Essays I-VI;
- 3) Book I, Part I;
- 4) Book II, chapters 4-5.

Note that reading Book I, as a part of the doctoral thesis, will render the purpose and research questions there (Book I, pp. 2-4) obsolete. Note also that the published version of Essay III is presented in appendix A in Book II – the published version is slightly changed from the version presented in Part II, Book I. The published version takes precedence over the older version.

For readers who are short of time, the main themes of the doctoral thesis can be followed through reading Book II, chapters 1-2 and 4-5. This will, however, inevitably leave out important details of the research and the arguments.

This thesis also has a number of components that can be read separately, specifically Essays I-VI and Book I.

2 Theoretical Background

Part I defined the concepts relevant to the discussion in Book I. In this chapter some new concepts are introduced and the term “innovation” is discussed more thoroughly. Theoretical concepts that are central only to one essay in this thesis are not presented in this section, for example, creative climate literature is central only to Essay V and is thus reviewed there; whereas concepts and theories central to the overarching discussion of the thesis as a whole are presented here.

The chapter is structured as follows: firstly, central concepts are presented (labour mobility, organisational routines and entrepreneurship); furthermore, ideas are discussed, particularly focusing on how they relate to both innovations and knowledge. As a consequence ideas are discussed not only under the heading “Ideas and Innovation”, but also under the heading “Ideas and Knowledge”. Then follows a section on the concept of *absorptive capacity*, which relates to how ideas diffuse between and get applied within organisations. Thus absorptive capacity is highly related to the purpose of the thesis and to the entrepreneurial society (Acs et al., 2009c). Finally, the chapter addresses the web of theories underpinning the entrepreneurial society and how this framework relates to the mobility of people, ideas and knowledge.

2.1 Labour Mobility

This thesis adopts a general view of labour mobility as people changing employers or organisational affiliations. Other authors have used slightly different definitions, for example, Bienkowska (2007) defines labour mobility as the mobility of employees between workplaces; TemaNord (2010) suggests a number of aspects of labour related mobility, such as the mobility of people between industries, regions, occupations or in and out of unemployment. Measures of labour mobility include the frequency by which employees in a labour market change employers or workplaces; or the average tenure, which is the length of employment, in a labour market (Power & Lundmark, 2004; Auer et al., 2005). Generally speaking, the frequency by which people change employers and the average tenure are adversely related. In other words, the more frequently people change employers, the lower the average tenure in a labour market, *ceteris paribus*.

2.2 Organisational Routines

This thesis, particularly Essay VI, refers to organisational routines. The use of the term in this thesis is primarily inspired by the seminal work of Nelson and Winter (1982).

They use the term “routine” to describe regular and predictable behavioural patterns of organisations. This includes a wide variety of organisational behaviours ranging from:

well-specified technical routines for producing things, through procedures for hiring and firing, ordering new inventory, or stepping up production of items in high demand, to policies regarding investment, research and development (R&D), or advertising and business strategies about product diversification and overseas investment. (Nelson and Winter, 1982, p. 14)

For Nelson and Winter, “these routines play the role that genes play in biological evolutionary theory.” (1982, p. 14).

Nelson and Winter (1982) suggested other metaphors for routines, for example, they suggested that routines can be seen as organisational memory, in the sense that organisations “remember by doing” (p. 99) and by keeping equipment, structures, manuals and computer memories in some degree of order. Furthermore, routines are seen as organisational *skills*. By “skill” Nelson and Winter (1982, p. 3) meant “a capability for a smooth sequence of coordinated behaviour that is ordinarily effective relative to its objectives, given the context in which it normally occurs.” They also suggested that routines can be seen as organisational *truces*, where the actual enacted routines represent a compromise between various organisational interests. They acknowledge that organisations primarily involved in change, like R&D laboratories and consultancy firms, fit the routine model less well. However, they also maintained that:

even the sophisticated problem-solving efforts of an organization fall into quasi-routine patterns, whose general outlines can be anticipated on the basis of experience with previous problem-solving efforts of that organization. (Nelson & Winter, 1982, p. 136)

However, it should be noted that more recent scholarly works differ in their view of what constitutes routines. Whereas some scholars emphasise that routines are manifested in behavioural regularities, others view them as manifested in cognitive regularities (see Becker, 2004 for a review). Hodgeson and Knudsen (2004) combined these two perspectives, by claiming that routines are dispositions rather than behaviours. They view routines as the organisational counterpart to individual habits. Hodgeson and Knudsen (2004, p. 290) define routines as “organizational dispositions to energise conditional patterns of behaviour within an organized group of individuals, involving sequential responses to cues.” These dispositions involve memory, knowledge, habits and organisational structures. This thesis adopts the ontological clarifications made by Hodgeson and Knudsen (2004); however, this view is still in accordance with metaphors such as “skill”, “truce” or “memory”, as suggested by Nelson and Winter (1982).

Hodgeson and Knudsen's (2004) view of routines emphasises their ability to replicate, for example, through the imitation of successful organisations. Therefore, new organisations are also influenced by existing routines. In fact, most new organisations adopt the routines of the populations they join (Aldrich & Martinez, 2001).

2.3 Entrepreneurship

As entrepreneurship has matured as a field of research, scholars have made attempts at clarifying and consolidating the definition of the concept (Gartner, 1990; Sharma & Chrisman, 1999). As with most concepts in the social sciences, the term "entrepreneurship" has been used with numerous meanings (cf. Sharma & Chrisman, 1999, Baumol, 1990; Drucker, 1985; Gartner, 1988; Gartner, 1990).

A common definition of an entrepreneur is someone who starts a business (Baumol et al., 2007). Entrepreneurship consequently becomes the process of starting a business (Gartner, 1988). However, this definition clearly weakens the relation between entrepreneurship and innovation, since many start-ups just replicate what others are already doing, for example, opening another pizzeria or hairdressing salon (Aldrich & Martinez, 2001; Baumol et al., 2007). By including innovation in the definition the relation is guaranteed, as Drucker, for example, does (1985 p. 27): "Entrepreneurs innovate. Innovation is the specific instrument of entrepreneurship".

This thesis argues that it makes sense to view entrepreneurship as the process of organising or re-organising (Johannisson, 2002), of breaking habits and norms. Using the framework and terminology of Nelson and Winter (1982), entrepreneurship is about breaking and creating routines. However, routines are the antithesis of entrepreneurship and consequently entrepreneurship is about creating its own opposite, like Yin and Yang. Essay VI elaborates on this view of entrepreneurship.

Although many scholars agree that it is fruitful to acknowledge that entrepreneurship can take place in existing organisations (Sharma & Chrisman, 1999), the literature in this chapter generally refers to entrepreneurship as the starting of new businesses or is not explicit about the exact definition. To emphasise that entrepreneurship refers to the starting of a business, the term "independent entrepreneur" is occasionally used (as opposed to an "intrapreneur" or "corporate entrepreneur", which is someone instigating an entrepreneurial venture inside an already existing organisation).

2.4 Ideas and Innovation

In my Licentiate thesis (Book I), I studied three *specific* innovations from an adoption perspective. Since all three of them are clearly of the kind commonly studied within the innovation adoption field, there was little need for lengthy definitions or motivations of why these specific study objects qualified as innovations (cf. Nelson et al., 2004). An innovation was briefly defined as, "something that is novel to the

potential adopters and possible to use” (Book I, p. 11.). This definition is in line with established definitions of innovations in the diffusion literature, for example, Rogers (2003, p.12) defined an innovation as “an idea, practice or object that is perceived as new by an individual or other unit of adoption.” In this book, ideas as well as innovations are discussed. Therefore, further discussion of the concepts could prevent misunderstandings; particularly since, as seen in Rogers’ definition, ideas and innovations are highly related.

The definition in Book I is related to Roberts’ (1988/2007, p. 36) definition of innovation: “Innovation = Invention + Exploitation”. Roberts (1988/2007) makes no distinction between an invention and an idea. In other words, innovations are exploited ideas. An innovation is something that has progressed from an idea to something that can be applied and used. From this perspective innovation as a noun is an outcome of an innovative process, which is innovation as a verb: to innovate. According to Roberts (1988/2007), the process of innovation includes all stages from the creation of ideas, knowledge, and prototypes; through entrepreneurial stages of advocating ideas; to commercialisation and dissemination. The outcome can be embodied in both processes and (material) artefacts.

Based on Roberts (1988/2007) distinction, ideas refer to conceptual models that are undeveloped, whereas innovations are developed ideas that are instrumental and put to use. Consequently, innovations are based on, and contain, ideas. However, this is also true for ideas – ideas are based on, and contain, ideas. Ideas are never without roots, neither are they fixed entities waiting to be discovered. What is usually referred to as an idea can be broken down into sub-ideas; for example, the idea behind IKEA – selling furniture inexpensively in flat boxes that the customer assembles – requires an idea about “selling”, “customer”, “furniture” and “assembly”, among other ideas.

Thus, what are commonly referred to as ideas are in fact systems of ideas. When we talk about a new idea, it is just a part of that system that is added or exchanged for something else, which means that ideas change as they are combined with other ideas – they mutate and evolve (cf. Dawkins, 1976 concept of memes). This is particularly true for the early stages of venture ideas (Klofsten, 2005), but it is also true for ideas in existing organisations (Westelius, 2006). As ideas get established, for example, by being ingrained in organisational routines, documentation and other artefacts, they also become more stable and less volatile (cf. Westelius, 2006; Klofsten, 2005). Consequently, what could appear as a purely ontological dichotomy between research themes 1 and 2 (ideas as stable and identifiable units versus ideas as intangible and volatile), is in part also a focus on different types of ideas.

Book I focuses on organisational adoption of innovations. That is, I was studying how organisations put an innovation, developed elsewhere, to use. The innovations studied

are bundled ideas, embodied in documents and other artefacts and, as the implementation proceeds, in organisational routines. It is clear, at least in two of the instances discussed in Book I, that there was quite some room for reinvention, while still nominally having adopted the “same” innovation (cf. Book I, p. 22). Essay I and II are examples of what Nelson et al. (2004) would call amorphous innovations: “implementation differs significantly from case to case” (p. 683). Thus, this thesis acknowledges that the innovations are not perfectly stable ideas.

However, the changes that occur during the reinvention processes are not the obvious starting point for the next organisation adopting the innovation. For example, even if organisation A adopts ISO 9000 and then puts pressure on their suppliers (company B) to implement the standard, it does not follow that company B will use company A’s version of ISO 9000 as a template. In fact it is more probable that consultants, certification agents and the standard itself will limit the influence reinvention by company A has on company B. This is not to say that there could be no influence; but the model of a defined innovation spreading in a population of organisations, where each organisation adapts the “same” innovation to its idiosyncratic conditions, is a meaningful approximation.

Book II, particularly Essay IV, studies innovation processes and how ideas make their way into these processes. The studied projects in Essay IV are the kind of processes Roberts (1988/2007) discussed. More specifically, it is an innovation process where the intended outcome is an innovation “understood here as the design and construction of human-made, functional systems shaped as tangible and useful artifacts and technologies” (Moodysson et al., 2008, p. 1044). In Essay IV ideas are seen as input into these complex processes.

Essay V studies perceptions of social environments in organisations and the extent to which these environments allow and encourage employees to share and develop ideas. This thesis refers to these environments as “creative climates” (CC) (Amabile et al., 1996; Cummings, 1965; Ekvall, 1996). In Essay VI, ideas are indirectly studied, since it focuses on entrepreneurship as the change of organisational routines, where ideas are the seeds of these changes. Viewing ideas as the seeds of action, creation or change, distances the concept (idea) from innovation, since innovation signifies something developed and formalised. Ideas as seeds of change mean that ideas are antecedents of behaviour, and vice versa.

2.4.1 Sources of Innovations

The section above distinguishes ideas from innovations and the innovation process from its outcome and suggests that ideas are input in innovative processes. If so, who bundles and recombines ideas and develops them into innovations? Theories of sources of innovation are heavily influenced by the work of Joseph A. Schumpeter.

Schumpeter had two different views of the driving forces behind innovation, termed Mark I and Mark II (Michie & Sheehan, 2003; Nelson & Winter, 2002). Mark I focuses on Schumpeter's (1935/2008) earlier work and places the emphasis on the independent entrepreneur starting new businesses that introduce "new combinations". Mark II, on the other hand, emphasises the role of research and development (R&D) in large corporations that have managed to "routinise" innovation (Schumpeter, 1942/2008).

During the post-World War II era, the importance of technological progress and innovation got increasing recognition, but it was initially seen as exogenous (Solow 1956; 1957). When economists started re-introducing Schumpeterian views, they predominantly focused on Mark II (Nelson & Winter, 1982; 2002). However, lately scholars have started shifting back towards Mark I, which means acknowledging the importance of new business start-ups in introducing innovations (Nelson & Winter, 2002). It has also been suggested that large corporations and independent entrepreneurs introduce different kinds of innovations.

2.4.2 Competence-Enhancing and Competence-Destroying Innovations

In discussing the sources of innovation, Tushman & Anderson (1986) make a distinction between competence-enhancing and competence-destroying innovations, that is, whether they enhance the current dominant technology/design or whether they render knowledge in existing practices obsolete. These concepts have their roots in Schumpeter's (1934/2008) distinction between incremental and radical innovation, where radical innovations refer to innovations that disrupt the market through "creative destruction", that is, through rendering old products or production methods obsolete. Incremental innovations are improvements but not revolutionary.

Tushman and Anderson (1986) found that competence-enhancing innovations are more likely to come from incumbents, whereas competence-destroying innovations are more likely to come from new entrants to the market. A somewhat different view is that competence-destroying innovations most commonly stem from independent entrepreneurs, but are brought to market by large established firms:

the most successful economies are those that have a mix of innovative entrepreneurs and larger, more established firms (often two or more generations removed from their entrepreneurial founding) that refine and mass-produce the innovations that entrepreneurs (and, on occasion, the large firms themselves) bring to market. (Baumol et al., 2007 p. 4)

Nevertheless there is no consensus on whether start-ups are the sources of competence-destroying (radical) innovations. In fact, there has been considerable debate regarding the relative importance of incumbents and start-ups in producing

competence-destroying innovations, and the results are mixed (cf. Chandy & Tellis, 2000). Nevertheless, the theoretical claims that there is a difference between competence-enhancing and competence-destroying innovations and that large incumbent firms and independent entrepreneurs tend to play different roles in their commercialisation are central to the theories underlying the entrepreneurial society (Acs et al., 2009a).

2.5 Ideas and Knowledge

Another distinction that is not always made explicit, particularly within innovation and entrepreneurship literature, is the one between ideas and knowledge. From a pragmatic point of view, knowledge includes skills, expertise, understanding and familiarity gained through experience or training, whereas ideas (as mentioned above) refer to conceptual models of more undeveloped character. One might have an idea that X solves Y, but it is only when it has been tried or practiced, when one by induction infers that X solves Y, that the idea turns into knowledge. This distinction is undeniably fuzzy, but nevertheless gives some guidelines for the distinction between the two concepts.

The transfer of knowledge is usually a more laborious process than the transfer of ideas. However, the spread of ideas is intertwined with the spread of knowledge, since an idea makes sense only to people who have certain knowledge (Cohen & Levinthal, 1990; Essay III). For example, spreading the idea/innovation of boiling water to make it safe to drink¹, is facilitated if the adopter has knowledge of how germs and parasites affect us and how they fare when subjected to high temperatures² (cf. Rogers, 2003).

However, knowledge is in itself a multifaceted concept (see Essay IV for a review). Commonly, the literature separates tacit and explicit knowledge (Polanyi, 1966). Tacit knowledge denotes knowledge that cannot easily be externalised (e.g. verbalised, written down or otherwise codified). Tacit knowledge is transferred between people mainly through face-to-face interaction (Nonaka & Toyama, 2003). Explicit knowledge is codified knowledge, sometimes referred to as information (e.g. Zellner & Fornahl, 2002). Explicit knowledge can be internalised through experimentation and reflection (Nonaka & Toyama, 2003). This process is heavily dependent on the tacit knowledge of the learner; therefore, “all knowledge is either tacit or rooted in tacit

¹ The idea of boiling water could be seen as an innovation because it is instrumental (with the purpose of avoiding disease) and developed (e.g. there is evidence that the process solves the problem); and lastly, the idea is presumably new to the adopter in this case.

² Although in the specific case described by Rogers (2003, pp. 1-5), he suggested that focusing on key attitudes and opinion leaders is more efficient than trying to teach the underlying theory to potential adopters.

knowledge” (Polanyi, 1966, p. 7). It also follows from this definition that tacit knowledge is difficult to transfer whereas explicit knowledge can easily be transferred, particularly using modern information and communication technology (although internalisation is a laborious process).

Both knowledge and ideas are non-rival in nature, which means that use by one agent does not exclude use by another. The non-rival nature of knowledge and the difficulties involved in valuing knowledge, make barter a suitable mechanism for knowledge exchange (Carter, 1989). In such bartering processes, employees tend to be mindful of the economic interest of their employers (Schrader, 1991). Schrader (1991) suggested three parameters that influence decisions as to whether or not to supply information to employees in other firms: (1) the level of competition between the firms (high competition lowers the likelihood of sharing knowledge); (2) alternative ways of obtaining the information (increases the likelihood of sharing knowledge); and (3) whether the information relates to areas in which the firms compete (if it does, that decreases the likelihood of sharing knowledge).

Since generating new knowledge (e.g. through research) can be costly, organisations doing so often have strategies for internalising the gains of the new knowledge, for example, through secrecy or patenting. Nevertheless, other agents could get access to such knowledge without any compensation (e.g. through informal contacts between employees in different firms), which is commonly referred to as “knowledge spillovers”. A knowledge spillover refers to a knowledge externality, which is knowledge resulting from one agent’s investment being exploited by another agent without compensation (cf. Audretsch, 2007). However, not all knowledge flows between agents are spillovers, for example, one firm might licence patents to other firms, which then grants the originator market-based compensation. There is some disagreement about what kind of knowledge flows constitute spillovers (cf. Breschi & Lissoni, 2001a;b), for example, Breschi and Lissoni (2001a) claim that not even informal knowledge flows between employees in different firms necessarily constitute knowledge spillovers, since they are often bound by reciprocity obligations (i.e. compensation).

Because knowledge spillover is such a contested and value-laden term, this thesis typically use the terms “knowledge flow” or “knowledge diffusion”, which are more general terms. All knowledge spillovers are knowledge flows; not all knowledge flows are spillovers.

2.6 Absorptive Capacity

As illustrated by the knowledge spillover discussion, a firm investing in knowledge creation, (e.g. through R&D), is not always capable of preventing others from exploiting this knowledge. When the possibility of appropriating knowledge

investments, for example, through patents, secrecy, and/or first-mover advantages, is low, theory suggests that investment in knowledge creation should likewise be low (Nelson, 1959).

However, Cohen and Levinthal (1990) illustrated how the concept of absorptive capacity can explain why, in some circumstances, low appropriability leads to increased spending on R&D. Absorptive capacity refers to “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990, p. 128).

The logic is that knowledge creation often builds absorptive capacity. That is, when an organisation has high knowledge in an area, it is more likely to be able to recognise and utilise related knowledge and ideas, originating outside the organisation. Therefore, when there is much (valuable) external knowledge available, for example, through public sector research or spillovers from competitors, an organisation can invest in R&D in order to increase its absorptive capacity and thus be able to exploit this external knowledge. Cohen and Levinthal (1990) particularly emphasise the importance of *existing*, *internal*, and *related knowledge* in recognising, assimilating and applying new external knowledge.

The concept of absorptive capacity has become one of the most pervasive in management literature (Calero-Medina & Noyons, 2008). Cohen and Levinthal (1990) is cited thousands of times and was named as the most cited management article published in the top five academic general management journals³ between 1990 and 2007 (Segalla, 2009). Despite, or perhaps because of, this popularity, the concept seems to have been reified where, “Reification is the outcome of the process by which we forget the authorship of ideas and theories, objectify them (turn them into things), and then forget that we have done so” (Lane et al., 2006, p. 835). Many scholars use the concept as a brief reference and do not extend or modify the original construct; despite the concept being abstract, scholars use it as if it were measurable through, for example, R&D spending or patenting (Lane et al., 2006).

In one of the relatively few re-conceptualisations of the construct, Zahra and Georg (2002) identify four sub-dimensions: acquisition, assimilation, transformation, and exploitation; where the first two constitute the potential absorptive capacity of the firm, and the other two the realised absorptive capacity. The ratio between potential and realised absorptive capacity is an efficiency measure. Zahra and Georg’s (2002) re-conceptualisation shifts the focus from ability towards a process-oriented view focusing on knowledge flows.

³ Academy of Management Review, Academy of Management Journal, Administrative Science Quarterly, Organization Science and Strategic Management Journal.

Building on an explicit process view Lane et al. (2006) develop a model of absorptive capacity containing three sub-processes: recognising and understanding new knowledge (exploratory learning); assimilating new knowledge (integrating new and existing knowledge); and applying new knowledge (exploitative learning).

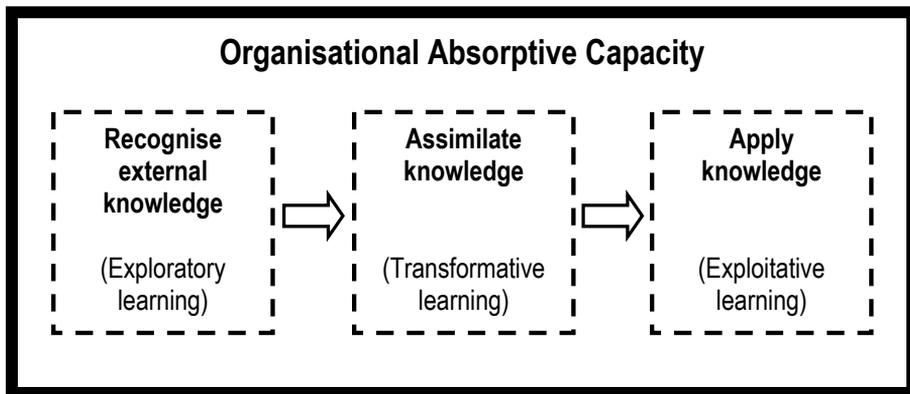


Figure 2. Absorptive capacity model based on Lane et al. (2006)

Furthermore, Lane et al. (2006) identified a number of underlying assumptions that limit the progress of research on absorptive capacity. First and foremost they lament that much of the research has ignored non-R&D contexts. This limiting assumption is likely due to Cohen and Levinthal's focus on the R&D context in their initial papers.

As a result, few have examined the role of absorptive capacity in the acquisition, assimilation, and commercial application of other types of business-related knowledge, including managerial techniques, marketing expertise, and manufacturing know-how. (Lane et al., 2006, p. 852)

Cohen & Levinthal (1990) suggested other areas where the concept could bear relevance, for example, it relates to the diffusion and adoption of innovations; where previous knowledge in an area and the "user friendliness" of innovations facilitate adoption. Furthermore, Lane et al. (2006, p. 854) argued that the roles of individuals in absorptive capacity have been neglected:

it is the firm's individual members who add the creativity needed to help the firm uniquely create value from new knowledge. [...] A firm's absorptive capacity is not just a function of industry and corporate characteristics. It also is a function of the personal absorptive capacity of its members, as well as the structures and processes of the organizational subunits to which they belong. Understanding these relationships and

interactions can shed new light on how a firm develops and uses its absorptive capacity.

The concept of absorptive capacity facilitates understanding of how ideas make their way into organisations. It emphasises not only the influence of mental models of organisational members but also the organisational structures and routines that enable recognition, assimilation and application of external knowledge and ideas. The mechanisms by which existing organisations and start-ups absorb knowledge and ideas are central to the entrepreneurial society (Acs et al., 2009c).

2.7 The Entrepreneurial Society

The term *entrepreneurial society* has been used by many scholars and in various contexts. Here it refers to the theoretical framework that has emerged over the last couple of decades, particularly influenced by the research of David B Audretsch⁴. The framework is well established, which is reflected by the frequent citation of Audretsch's work academically and his acceptance of the *International Award for Entrepreneurship and Small Business Research*, the predecessor to the prestigious *Global Award for Entrepreneurship Research*. Audretsch's research has influenced not only academics but also policy makers, for example, when Romano Prodi (2002) was the president of the European Commission, he mentioned the work of Audretsch as being important to our understanding of entrepreneurship and its role in society. This is particularly interesting since the framework is associated with normative policy suggestions, for example, Audretsch and Thurnik suggested that policy makers should stimulate entrepreneurship through "deregulation, privatization and labour market flexibility" (2001, p. 269). To summarise, the framework built around the entrepreneurial society is established academically and has the ear of policy makers, which justifies both further development, testing and critical assessment.

The entrepreneurial society refers to a society where entrepreneurship (i.e. the start of new businesses) is considered to be an important source of economic growth (Audretsch, 2009a;b), a society that "encourages people to create new ideas and to actively commercialize those ideas" (Audretsch & Thurnik, 2000, p. 24); it is built on empirical observations of the increasing importance of entrepreneurship in society (Audretsch, 2009a;b) and on theoretical models of how entrepreneurship contributes to the commercialisation of new knowledge (Acs et al., 2009a), and thus to economical growth (Audretsch, 2007).

⁴ The entrepreneurial society has also been referred to as the "entrepreneurial economy" (e.g. Audretsch & Thurik, 2001).

2.7.1 The Emergence of the Entrepreneurial Society

The period from World War II up to the 1990s is labelled by Audretsch (2009a) as the “managed economy”, which was an era of belief in the large corporations, and a distrust of the independent entrepreneurs. Small firms were considered to be lacking the resources to engage in research and development, lacking economies of scale and as a consequence, to offer only lower quality jobs. Even Schumpeter acknowledged that, “The perfectly bureaucratized giant industrial unit not only ousts the small and medium-sized firm [...] it also ousts the entrepreneur” (Schumpeter, 1942/2008, p. 134)⁵. In the United States the share of employment accounted for by small manufacturing firms decreased by 25% between 1958 and 1977 (Audretsch, 2009a). The trend was similar in many other countries; Audretsch (2009a;b) mentioned the Soviet Union, Sweden, and France as being particularly hostile to small businesses.

The contemporary theoretical growth models viewed labour and capital as the primary factors of production (Solow, 1956; 1957). The proportion of the capital controlled by the largest corporations increased, and by the end of the 1960s the largest 100 corporations in the United States controlled more than half of the country’s manufacturing assets (Audretsch, 2009a). Labour market policy was focused on supplying these large corporations with adequately skilled labour.

However, during the 1990s the belief in large corporations and distrust of independent entrepreneurs started to shift. In Audretsch’s (2009a, p. 508) words, “the great steel and automobile corporations were supplanted by emerging entrepreneurial firms such as Amazon and Google. Entirely new industries materialized out of thin air – industries inconceivable in the 1980s.” Contemporary growth theories incorporated knowledge as an input in production (Romer, 1986). Later on, the link to entrepreneurship was made explicit (Audretsch, 2007; Acs et al., 2009a). The entrepreneurial society of today is manifested in the increasing role entrepreneurship plays in our economy (Audretsch, 2007; 2009a;b) and by how policymakers openly make the encouragement of entrepreneurship a priority (Acs et al., 2009b; Audretsch, 2007).

This description of the entrepreneurial society is largely Audretsch’s *post hoc* account of the development. He attributes the origins of some of the ideas that created this worldview to a meeting in Stockholm sometime around the millennium: it was here that he first heard the term the “Swedish paradox”, which refers to the paradoxical situation whereby Sweden was leading in investments in education and research, but still bogged down with a stagnant economy (cf. Audretsch, 2009a). The solution to the problem according to Audretsch was that new knowledge and new ideas are not

⁵ This is in line with Schumpeter Mark II as described earlier.

enough – they need to be commercialised in order to contribute to growth. This is a central assumption in the theoretical framework underpinning the entrepreneurial society.

2.7.2 Theoretical Claims and Underpinnings

Theoretically the entrepreneurial society builds on a shift from Schumpeter Mark II back to Schumpeter Mark I. The theories underlying the entrepreneurial society are based on the assumption that commercialised knowledge is the foundation of growth. Knowledge is primarily created through research at universities, research institutes and corporations (Audretsch & Stephen, 1999). However, new knowledge is not automatically commercialised (i.e. turned into economic knowledge). In fact, large incumbent firms might be biased against competence-destroying innovations due to both vested interests and cognitive biases (Tushman & Anderson, 1986); but knowledge is asymmetrical, employees can see opportunities where their employers do not. If an employee in such a situation wants to pursue a perceived opportunity, s/he can either move to another firm or start his or her own firm. In this view, labour mobility in general and entrepreneurship in particular is a force that “liberates” knowledge and thus facilitates commercialisation and value creation.

Other factors are also associated with the diffusion of knowledge and ideas, for example, Acs et al. (2009a) suggested that intellectual property protection should not become too strong since that would hamper innovation and, as a consequence, economic growth. Nevertheless, even disregarding intellectual property, knowledge does not spread effortlessly from person to person, let alone from region to region. Audretsch frequently quotes⁶ Glaeser et al. (1992, p. 1127) stating that, “intellectual breakthroughs must cross hallways and streets more easily than oceans and continents.” In fact, the theories underlying the entrepreneurial society are influenced by cluster literature (Saxenian, 1990; Glaeser et al., 1992, cf. Audretsch and Thurik, 2001; Audretsch, 2007). In particular, it is the mechanisms by which knowledge spills over or the mechanisms that prevent knowledge from spilling over that are theoretically central to the entrepreneurial society (Audretsch & Keilbach, 2008; cf. Breschi & Lissoni, 2001a;b). If knowledge is not commercialised by the originator, the only way to commercialise it is through spillovers, which in turn are dependent on the *absorptive capacity* of other agents (Acs et al., 2009c). The sum of the barriers preventing the application of knowledge is referred to as the “knowledge filter” (Audretsch, 2007).

⁶ A search on Google Scholar for articles where Audretsch is the author and the quote is incorporated generated 33 papers 2010-09-07.

The starting of new businesses is seen as an important mechanism for penetrating the knowledge filter (Audretsch, 2007). The starting of new businesses is facilitated by what Audretsch refers to as “entrepreneurship capital”. Entrepreneurship capital is defined as a region’s capacity to generate new firms. It involves the institutional, cultural and historical context in which entrepreneurial activity takes place.

Entrepreneurship capital refers to the capacity for the geographically relevant special units of observation to generate the startup of new enterprises. [...] The entrepreneurship capital of an economy or a society refers to the institutions, culture, and historical context that is conducive to the creation of new firms. This involves a number of aspects such as social acceptance of entrepreneurial behavior but of course also individuals who are willing to deal with the risk of creating new firms and the activity of bankers and venture capital agents that are willing to share risks and benefits involved. Hence entrepreneurship capital reflects a number of different legal, institutional and social factors and forces. Taken together, these factors and forces constitute the entrepreneurship capital of an economy. (Audretsch 2009b, p. 252)

Entrepreneurship capital is not exclusively associated with the start up of new firms; Audretsch & Keilbach (2005) also suggest that entrepreneurship capital should facilitate the mobility of economic agents, which in turn facilitates knowledge diffusion. However, Audretsch & Keilbach (2005) stated that what exactly constitutes such entrepreneurship capital needs to be established by future research. This is related to the central issue in this book, the mobility of people, ideas and knowledge.

2.7.3 The Mobility of People, Ideas and Knowledge

As becomes clear from the previous discussion, mobility is a central concept in the entrepreneurial society. This involves a new perspective on labour mobility, from being seen as a mechanism of equilibrating wages in the labour market, to being a mechanism for knowledge spillovers (Audretsch & Keilbach, 2005). This implies that the mobility of people is intertwined with the mobility of ideas and knowledge.

However, whereas a person cannot be in two places at the same time, knowledge and ideas can⁷. Therefore one could argue that ideas do not move (unless embodied in a moving person or object) but rather spread or diffuse from person to person. Asking the reader to bear this difference in mind, this thesis uses the terms “idea mobility” and “idea diffusion” interchangeably, and accordingly, “knowledge mobility” and “knowledge diffusion” interchangeably.

⁷ This follows from the fact that ideas and knowledge are non-rival.

That knowledge spills over means that it is applied by another entity than the entity that funded the creation of the knowledge. This could happen, for example, through employees leaving an organisation to start a new business to exploit knowledge created at the previous employer; or through employees revealing knowledge to employees in other organisations, which then exploit the knowledge. Thus, knowledge spillovers refers to more than knowledge diffusion, it refers to the diffusion and application of knowledge. That is when economic agents other than the originator capture and apply knowledge without compensation. In other words, for knowledge to spill over, another agent must recognise, assimilate and apply the knowledge. Consequently, that other agent must have the adequate absorptive capacity (Cohen & Levinthal, 1990). Nevertheless, the first step in the spillover process is the diffusion of knowledge and ideas between people and organisations.

The increasing recognition of the importance of the flows of knowledge and ideas is not exclusive to economists and entrepreneurship scholars. Several other streams of research addressed the creation and diffusion of ideas and knowledge with increasing strength from the late 1980s; for example, research focused on organisational creative climates (Ekvall, 1996; Amabile et al., 1996), knowledge management (Nonaka, 1991), and absorptive capacity (Cohen & Levinthal, 1990).

Interestingly, the view on labour mobility is less enthusiastic in these streams of research. For example, Amabile & Conti (1999) emphasised the importance of team stability for creativity; knowledge management initiatives are often focused on decreasing vulnerability to employees leaving with non-redundant knowledge (e.g. Westelius & Mårtensson, 2004); and Cohen & Levinthal (1990) were sceptical about the possibility of increasing absorptive capacity through hiring new employees or consultants.

Similarly, practitioners are rather sceptical about the effects of labour mobility, particularly with regards to their own firm; for example, Bienkowska (2007) found that organisational managers (in the IT and telecom clusters in Kista and Mjärdevi, Sweden) considered knowledge flows relating to the mobility of employees as rather minor; although they recognised that labour mobility could lead to knowledge flows they preferred low mobility among their own employees. Therefore most organisations took action to decrease mobility; however, one major organisation in the sample actually actively tried to increase mobility among certain groups of employees (Bienkowska, 2007). In addition, research at a national level suggests that average employee tenure has an inverted U-shaped relationship to national productivity, with a peak at 13.6 years (Auer et al., 2005).

However, labour mobility is not necessary for the mobility of knowledge and ideas. For example, Audretsch & Keilbach (2005) argued that the dissemination of

information (externalised knowledge) has been facilitated by the communications revolution. Identifying relevant information has been facilitated by search engines like Google and Yahoo; popularising ideas is facilitated by film clips hosted by websites like Youtube.com or TED.com, for example; the idea that the internet facilitates idea diffusion has been popularised by Hårén (2007).

Interestingly, from a managerial point of view, extended social networks were perceived as a more important aspect of labour mobility than direct knowledge gains or losses (Bienkowska, 2007). These extended networks were associated with both new employees and employees leaving (Bienkowska, 2007). Keeping informal contacts despite long distances is arguably also facilitated by the communications revolution, for example, services like Skype, Facebook, and LinkedIn would serve such purposes.

Consequently, social networks constitute an infrastructure for the flows of knowledge and ideas. Several scholars have identified informal contacts between people in different organisations as an important mechanism for diffusing knowledge (Dahl & Pedersen, 2004; Von Hippel, 1987; Schrader, 1991; Audretsch et al., 2005). However, other scholars claim that such knowledge flows are at best marginal (Oakey, 2007; Power & Lundmark, 2004).

In summary, the diffusion and application of knowledge and ideas are central to the entrepreneurial society. Labour mobility and informal contacts between people in different organisations are two mechanisms with the potential to diffuse knowledge and ideas between organisations. However there are disagreements about their importance as mechanisms for idea and knowledge diffusion.

3 The Research Process and Instruments

Each empirical essay (Essays I-V) contains a specific section where the methods are accounted for. Essay VI is conceptual, although it uses simulations for illustrative purposes. This chapter describes the research process in a more general manner addressing my own and others' contributions. This section should be read as a complement to the methodology sections in the essays, not as a substitute.

The chapter starts with an overview of the projects on which this thesis is based. The projects have included more material than are accounted for in this thesis. This chapter focuses on the material included in the thesis, with occasional references to other material. The chapter then gives an account of how I have worked on gaining an understanding of the studied phenomena and how the quantitative instruments have been developed and applied. Lastly, the chapter addresses some of the sources of error in the research and measures I have taken to avoid or minimise errors.

3.1 The Research Process

The research process leading up to this thesis consisted of two major research phases: firstly, the research resulting in the Licentiate thesis (Book I), and secondly, the research resulting in Book II. However, the first phase was not a smooth process with a clearly defined purpose. Rather, it was three separate projects, each funded separately, which all focused on the adoption of innovations in organisations. When the Swedish Sports Confederation (SSC) approved funding for the research proposal behind Essay III, I enrolled as a PhD student at Linköping University and as a fellow at the national research school, Management and IT (MIT). Consequently, the studies in the Licentiate thesis were designed and executed separately, and then put in the framework in Book I.

After the Licentiate thesis, I accepted a position as a PhD candidate at Project Innovation and Entrepreneurship at Linköping University and as a fellow at Helix Excellence centre. With several years of funding, I could plan more long term processes. Therefore, a major difference between phase one and two is that I worked on all of the three essays and this introductory part in parallel⁸. Even so, the three essays are clearly based on three separate projects. During phase two, Magnus Klofsten has been involved as my primary supervisor and Alf Westelius as my secondary supervisor. They have both been involved in discussions about my research throughout the process.

⁸ Completing my own PhD-level coursework, and managing and teaching the course "Leadership for Engineers" were also conducted in parallel.

The research behind Essays I-IV follows a similar process: a mostly qualitative exploratory phase in the beginning followed by a mainly quantitative middle phase and finished by a combined analysis and quality assurance phase.

The exploratory phases have included literature reviews, interviews, analysis of statistical records and investigations of available quantitative methods. The middle phases have included development and use of a quantitative instrument (e.g. telephone interviews or questionnaires). This has been carried out with the help of experts (e.g. academics, consultants and managers), literature and pilot samples from the target groups. All the quantitative instruments used have been pretested and interviews with respondents conducted to verify how questions are interpreted. Finally, results from the exploratory studies and the middle phases have been compared and interpretations have been made and verified through conversations with people from the target group and experts/key people.

Essay I is based on the dataset developed during my master's thesis. The thesis was co-authored with Robin Jerabek, and supervised by Alf Westelius. The research was carried out with support from CANEA Consulting Group. The support from CANEA included frequent meetings with consultants working with ISO 9000 implementation at CANEA. In order to increase our understanding of quality assurance in accordance with ISO 9000 I completed the course "Quality management in practice ISO 9000:2000", given by CANEA. Furthermore, quality managers, academics and auditors were involved in developing our quantitative instrument. The data was collected during the spring of 2003 by Robin Jerabek and myself. At a later stage the dataset was reassessed by Alf Westelius and myself. We also conducted further literature reviews to better integrate the paper with contemporary literature. In the writing-up phase, I took a leading role, but Alf Westelius wrote substantial parts of the text. The writing phase was interactive and we both discussed and edited the text jointly. The resulting paper was published in *Total Quality Management and Business Excellence* in 2006.

Essay II is based on the dataset gathered during the study "IT-use within sports", financed by the Swedish Sports Confederation (SSC). During this time I was working in an office at the SSC, which gave me a good understanding of the organisation. This also facilitated access to databases, documents and other resources. The lion's share of telephone interviews in this project were conducted by me; Carl Larsson (MSc) conducted 10 of the interviews. The project lasted from the autumn of 2003 to the spring of 2004. In addition to Essay II, this project is also documented in Lundmark and Westelius (2004). The analysis was conducted by me with comments from Alf Westelius. In the writing-up phase of this article, I took a leading role. Alf Westelius contributed through discussions and comments on drafts of the paper, but also through

re-writing and clarifying some arguments. The resulting paper was published in the Handbook of Research in Global Diffusion of Broadband Data Transmission in 2008.

Essay III is based on the study “Economic incentives in non-profit organisations”. It was funded by a research grant from the SSC. This project was conducted on a part-time basis from the autumn of 2005 to the spring of 2007. In addition to Essay III, this project is also documented in Lundmark and Westelius (2007). The project included a number of empirical sources, database analysis, telephone interviews, postal and e-mail questionnaires. Essay III is primarily based on the postal and e-mail questionnaires. During the project, Daniel Saraste (MSc) was involved in discussing the design of the study. He also took part in the administration of the questionnaires. The analysis was conducted by me with comments from Alf Westelius. In the writing-up phase I took a leading role. Alf Westelius contributed through discussions and comments on drafts of the paper, but also with re-writing and clarifying some arguments. Daniel Saraste contributed with comments on drafts of the paper. The resulting paper was published in the *International Journal of Public Information Systems* in 2008.

Essay IV is based on data gathered during the project “Mobility as a Source of Corporate Entrepreneurship?”. During this project an interactive approach was applied. A group of 8 people were involved in the design process: myself; my primary supervisor, Magnus Klofsten; and representatives for 5 Helix partnership organisations⁹ with a specific interest in our research topic. In addition, Clas Wahlbin¹⁰ was involved as a methodology expert advisor, both in the design phase and in the analysis of the results. Clas Wahlbin was an external advisor and did not participate in the workshops.

The interactive group had two half-day workshops during the design phase. Documents providing a short background and questions to discuss with colleagues in their organisations, were sent to the participants before the workshops.

After the first workshop four projects in the participating organisations were chosen as focal projects of our study. The project managers for each of these projects were interviewed by me in sessions that lasted 30 to 60 minutes. Two of the projects fitted the criterion of “High-technology R&D-based non-incremental product development in large organisations” and are the focal projects in Essay IV. The other two projects were collaborative initiatives within the public sector. These projects were not

⁹ One of the organisations was represented by two people. The organisations are kept anonymous on request.

¹⁰ Clas Wahlbin is Professor Emeritus of Industrial Marketing at Jönköping International Business School. He has authored and co-authored textbooks on data analysis and marketing research.

incorporated in the essay since their focus and context were too different from the two projects included in Essay IV. However, the excluded projects may well form the empirical base for future papers.

The second workshop was focused on creating the research instrument, a questionnaire. After the second workshop, a preliminary draft of the questionnaire was tested on people in the participating organisations (but not in the focal projects); these tests led to changes in the ordering of the questions, alterations in the phrasing of questions and changes in the response alternatives. While finalising the questionnaire, I was also in contact with the members of the interactive group individually. The questionnaire was sent to the participants in the projects during May 2009, through e-mail.

The research was presented at the Babson conference, 3-6 June 2009 at Babson College, Massachusetts, USA; and later in a more focused version at the HTFS conference (NIKOS), 27-28 May 2010, in Twente, The Netherlands¹¹. The statistical analysis was exclusively performed by me; however, Clas Wahlbin has supported me with advice during the process. As with the other essays, I took the lead in writing the paper. Magnus Klofsten participated through discussions, comments on drafts of the paper and occasional clarifications of the text. After the presentation at the HTSF conference, the paper went through minor changes to its present form.

Essay V is based on a pre-existing database, built on Unionen's (Sweden's largest white-collar trade union) large creativity survey during the autumn of 2007. This creativity survey was designed by Hans Björkman¹², Annika Zika-Viktorsson¹³ and Anna Lövgren¹⁴. The survey instrument was a web-based questionnaire based on the Creative Climate Questionnaire (CCQ) (Ekvall, 1996), with some additional items regarding the respondents' background and two questions assessing the respondents' commitment towards idea generation and development. The reason the CCQ was not used in its entirety was that limiting the number of items was deemed necessary in order to achieve an acceptable response rate. The questionnaire was distributed by e-mail and administered by the research firm Ipsos Eureka. The results were presented in *Dagens Nyheter* (Krantz, 2008).

¹¹ For both these conferences, the paper was accepted after a peer-review of executive summaries.

¹² Hans Björkman is responsible for innovation policy at Unionen and an expert on work-related creativity. He holds a PhD from the Stockholm School of Economics.

¹³ Annika Zika-Viktorsson is presently head of the department for Organisation and Management, at the division Manufacturing and Working Life, at VINNOVA. She holds a PhD from the Royal Institute of Technology.

¹⁴ Anna Lövgren is a statistician at Unionen. She holds a Bachelor's degree from Uppsala Universitet.

I gained access to this database because Unionen is a Helix partner organisation. My primary contact at Unionen and co-author of the essay is Hans Björkman. I met Hans Björkman during a Helix partnership gathering in the early stages of phase two of my research, just after getting affiliated to Helix. We got involved in discussions regarding the effects of tenure on the perceptions of creative climate in organisations. We realised that the dataset that Unionen had gathered during their creativity survey, under his lead, could be used to answer some of the questions we had discussed. The questions were clearly relevant to the main objectives of my thesis and very much in line with the Helix research agenda.

However, Hans Björkman was involved in a number of projects and would have limited possibilities of working on the article. It was thus decided that I would take the lead in writing the article and he would assist me in the literature review, since he has extensive knowledge about creativity research. The analysis was predominantly performed by me; Hans Björkman and Anna Lövgren were helpful in explaining how items in the questionnaire had been coded in the dataset. During the writing-up phase, Hans Björkman contributed with comments and some clarifications of the text. The resulting paper was accepted to the 7th AGSE International Entrepreneurship Research Exchange, 2-5 February 2010, at the University of the Sunshine Coast, Queensland, Australia, after double blind peer-review of the full paper by two reviewers. After the presentation at the conference, the paper went through some revisions into its present form.

The ideas underlying Essay VI stem from the early stages of phase two, when I read a large amount of entrepreneurship literature. Previously, I had read a lot of innovation and information systems literature. In trying to make sense of the literature on entrepreneurship, the metaphor of mutagen came to mind. During discussions with my secondary supervisor, Alf Westelius, he challenged me to write down an executive summary for the 2009 NFF Conference “Business as Usual”, in Turku/Åbo, Finland.

In working on the summary, I was surprised to see how the pieces fell in place easily. However, I was still concerned with finding ways of pedagogically illustrating the effects of varying levels of mutagen on an evolutionary process. I remembered Richard Dawkins’ “Methinks it is like a weasel“-algorithm and was pleased to find the Populus software to simulate this process with varying mutation rates.

The paper was accepted at the NFF conference based on a review of an executive summary, and later presented there by Alf Westelius. I presented the paper at a seminar at the Macquarie Graduate School of Management (MGSM) in Sydney. After comments from colleagues during these presentations the paper was reworked to its present shape. Also here I took a clear lead role in writing the paper. Alf Westelius contributed with comments, but also with re-writing and clarifying some arguments.

In summary, the research behind this thesis includes a wide array of research instruments including: face-to-face and telephone interviews; document and database analysis; postal, e-mail and web-based questionnaires; and computer simulations. It also includes developing and validating research ideas and conclusions in interaction with a range of academics and practitioners in private discussions and exchanges as well as in workshops, seminars and at conferences. This is further described in the next section.

3.2 Gaining an Understanding of the Phenomena

All projects in this thesis started with a phase that focused on gaining an understanding of the phenomena, through assessing previous research and conducting formal and informal interviews with experts, academics, consultants and practitioners.

Previous research was attained through searches in databases and journals supplied by the University of Linköping, Macquarie University and Sydney University. Generally the literature searches included three phases. Firstly, open search phases, where keywords were used and as many titles as possible were included. During these phases general web content was also screened using Google. Then followed a skimming phase where titles were excluded. The last part consisted of following links provided by the reference lists of the best sources. Discussions with senior academics, peers and practitioners also provided suggestions of relevant literature. Although the search for literature was most intensive during the initial phases of each project, it took place throughout the projects and usually intensified somewhat during the writing-up phase.

Interviews have been used in all the studies in this thesis to gain a better understanding of the studied phenomena. Informal conversations have also been of great importance. These interactions have not followed predefined guides and have only occasionally been documented. People with whom such conversations have taken place are experts in the form of academics, consultants, quality managers and certification auditors (Essay I); academics, SSC managers, IT-staff, clerks and sport association members and managers (Essays II and III); academics, managers and employees, and importantly, the interactive group (Essay IV); academics, workplace researchers and practitioners (Essay V); and lastly, academics and business founders (Essay VI). These conversations have mostly taken place during face-to-face meetings but some of them occurred via telephone and, by way of exception, via e-mail.

The purpose of these conversations has been social, to create a trustful relationship and/or to develop an understanding of the studied phenomena and their contexts. Furthermore, informal conversations have served as quality assurance, in the sense that results and facts have been double-checked and alternative interpretations proposed.

Workshops or formalised group meetings with a specific topic or expected outcomes have been held in several of the projects including: groups of consultants (Essay I); managers and staff (Essays II and III); the interactive workshops (Essay IV). These workshops were imperative in gaining an understanding of the studied phenomena and their contexts, and in interpreting quantitative results.

Structured interviews, also referred to as qualitative interviews, are characterised by the interviewer using a checklist of topics and questions rather than having a set list of questions. The interviewer asks open questions and tries to steer the answers as little as possible (Krag Jacobsen, 1993). This type of interviews were held with several key people including the former secretary general of the SSC, the top managers for several Special Sport Federations and top managers within the SSC and N3sport, and project managers in the focal projects in Essay IV. The main objective has been to gain an understanding of the organisational context in which the studies have taken place.

3.3 The Quantitative Instruments

In the empirically based essays two types of quantitative instruments have been used, telephone interviews and questionnaires¹⁵. The main instruments in Essay I and in the pilot study in the third study (Essay III) followed what Krag Jacobsen (1993) refers to as “standardised interviews”. Standardised interviews are based on carefully formulated questions that are put in a certain order. The respondent can choose between predefined answers or give short open answers. We conducted these interviews via telephone. The main benefit of this type of interview is that you can conduct a large number of interviews in a relatively short period of time. Furthermore, the results are well suited for statistical analysis.

A limitation to this type of interview is that it is difficult to capture unanticipated information (Krag Jacobsen, 1993). To create the opportunity for unforeseen answers we left a few questions open and allowed the respondents to talk freely when they had the time to do so. However, the bulk of the questions were closed, which means that the answers were limited to a number of predefined categories, since open questions tend to make the interviews longer and to decrease willingness to participate (Groves, 1990). A few of the questions were categorised by the interviewer after assessing the respondent’s account of the focal organisational practices. In Essay II, a similar approach was used. However, sport association representatives had considerably more time to spare, in comparison with quality managers and marketing managers.

¹⁵ Other quantitative sources were assessed, for example, the SSC databases regarding number of page views in “The Club Online” (Lundmark & Westelius, 2004; 2007). However, since the sources were not drawn upon in this thesis, we do not elaborate on them here.

Consequently, there were more digressions from the route prescribed by the template, and more room for unanticipated information.

Postal questionnaires were used in Essays II and III. Web-based questionnaires with e-mail invitations were used in Essays III, IV and V. The main difference between a questionnaire and standardised interview is that in the questionnaire, there are few possibilities of catching social cues (e.g. tone of voice). Furthermore, once a questionnaire is sent there are limited possibilities of actually controlling how questions are interpreted and what is meant by the answers. Thus the development of the questionnaire, particularly the wording of questions and answer alternatives, the ordering of the questions and the wording of the introductory part are especially important. Consequently, we spent considerable energy pre-testing the questionnaires.

3.4 Sources of Error in Interviews and Questionnaires

The most important quality assurance measure regarding items in our research instruments was the formulation process. During this process, we contacted both experts and people from the target group (but not in the sample). In creating the research we have tried to use language that is easily understood, unambiguous and relevant. This was assured through pre-testing the instruments. In Study I we tested the instrument on 10 managers in our population (but not in the survey sample); in the second study 20 associations were involved in the pilot study focussing on developing and validating the instrument; in the study underlying Essay III, we used telephone interviews to test the questionnaire. In Essay IV the questionnaire was tested by sending it to respondents in the focal organisations (not involved in the focal projects), specifically asking for feedback on the questions. Some of the respondents were also contacted by telephone for interviews focusing on how questions were interpreted and perceived.

Furthermore, considerable time has been spent on ordering the instrument items. Some items were set in a similar fashion with a common explanatory introduction, and thus they were placed in the same part of the questionnaire/interview. Other questions were about the same topic and were thus placed next to each other to make them easier to understand. Some of the questions we wanted to ask were leading and thus had to be placed carefully (cf. priming effects, Podsakoff et al., 2003). One example of this was that we wanted to assess what signals the sport associations got from the central administration regarding the choice of YAF-application methods; we wanted to assess which channel the respondent thought was the most efficient for the central administration; and we wanted to assess what the respondents thought about a financial incentive to promote online applications. The latter question implies that the online application is more efficient, thus we placed it after the two other questions. Moreover, we tried to make the implication hypothetical by phrasing it, "If it is more

costly to process a paper-based application...” Nevertheless, it is possible that this question might have had an effect on later questions or, probably less likely, that the respondent changed the answer to the previous questions after seeing this question.

Another aspect that needed consideration was the possible answers. Scales ranging from “No effect” to “Positive effect” would likely get different results than a questionnaire ranging from “Negative effect” to “Positive effect”. Thus we used neutral scales ranging from negative to positive even when we strongly expected positive effects, or alternatively statements with responses ranging from “Strongly disagree” to “Strongly agree”.

For the telephone interviews we developed a special battery with standardised explanations that we used when the respondent asked questions or when we suspected that the respondent had misunderstood questions. The lack of interactivity in the postal and e-mail questionnaires increases the risks of misunderstandings both regarding questions and answers. The measures taken to decrease these risks have been the pre-testing of the instruments as described above.

Regarding the telephone interviews, there are risks that the interviewer will influence the respondent in a way that is difficult to detect for someone not present during the interviews. Questions might be rephrased or comments made to indicate what answers are expected. To avoid this we used more than one interviewer when systematic interviews were carried out with a large number of respondents. The interviewers conducted a few interviews, each supervised by the other, in order to ensure that the same standards were used and that questions and explanations conformed to the template.

Another important quality aspect of the research is the response rate. In order to increase response rates we tried to limit the amount of time required to answer the questions. In the introduction to the interview/questionnaire we emphasised that the research was done by independent researchers and that the results would not be presented so that answers could be traced back to specific firms/associations or persons. Using the names of respected authorities has been found to increase response rates (Groves, 1990). Therefore we emphasised that the research was conducted in cooperation with Linköping University (Essays I and IV) and that the research was funded by the SSC (Essays II and III).

The response rates in the studies were all high or very high, with two exceptions. The questionnaire used in the study underlying Essay IV had a 26% response rate. However, for this study we had detailed information about the underlying population and we could thus perform an in-depth response analysis. This analysis showed a good correspondence between the sample and the underlying population. The response rate in project B in Essay IV also had a low response rate (32%). However, here we

triangulated our results with the results from project A, with a response rate of 83%. The similarity between the results increases the confidence in the findings.

Although the response rate was relatively high for both postal and e-mail questionnaires in Essay III, the topic channels used for the YAF-application makes the questionnaire medium a potential influence on the proportion of channel users among the respondents. Thus as expected, we found that the characteristics of the respondents differ somewhat between the e-mail questionnaire and the postal questionnaire. Furthermore, the discrepancy between the known frequency of YAF-module users in the population and in the sample varies between federations as well as between the used instruments. However, by combining the different types of questionnaires we get a fairly representative sample. The differences in response rates and characteristics between the e-mail questionnaire and the postal questionnaire are also much smaller than has been found in similar settings (Cole, 2005).

There are yet another few areas that could have affected our results:

Stressed respondents. Respondents can be short of time, particularly in a workplace environment. This was evidently a factor influencing marketing managers during the first study, and to a lesser extent quality managers in the same study. The interviews with sport association managers showed relatively few expressions of stress.

Stressed respondents more frequently gave “No opinion” or “Don’t know” responses. In the questionnaires we also discovered a number of answers that were obviously wrong as they contained contradictions. The contradictions were logically impossible combinations of answers like the respondent stating that s/he had never used the YAF-module in the Club Online and still stating that s/he had used it for three applications in a later question. This might have been the result of stress leading to misunderstood or wrongly interpreted questions. We tried to eliminate these types of responses by checking for the most conspicuous and significant errors.

Social desirability and self image. Respondents can give answers that are not true in order to appear more socially acceptable. This can be a conscious choice in order to appear better to others; that is, lying or not disclosing the full range of one’s perceptions. In order to decrease the occurrence of lies or tailored accounts we underlined that the results would not be presented in such a way that respondents or organisations could be identified. Untruthful answers can also be an unconscious choice; that is, self deception. Social image is likely to have influenced respondents in our interviews, be it consciously or unconsciously. Some examples of signs of influence by social desirability or self image include quality managers, who can be expected to experience a greater responsibility for ISO 9000 implementation, expressed more positive attitudes towards the implementation. Furthermore, involvement in the work with the association websites correlated with more positive

attitudes towards the effects (Lundmark & Westelius, 2004). In the questionnaire used in Essay IV, questions regarding the respondents' contributions to the project are clearly in risk of being affected by "Item social desirability" (Podsakoff et al., 2003). However, the responses were surprisingly centred on the middle alternative.

Equivocal stances. Respondents might have a vague opinion about an assessed entity but answer in an assured manner nevertheless. Many of the items used in the questionnaires explicitly involve judgement or value. These kinds of items are particularly susceptible to vague opinions, arguably adding noise to the instruments (Wikman, 2006). We addressed this problem by having "No opinion" or "Don't know" options; and by triangulating results.

Coding errors. The coding of interviews into quantitative material is associated with risks. This is also the case when transferring answers from postal questionnaires to digital form. One of the benefits with e-mail questionnaires is that this risky process is removed (Cobanoglu et al., 2001). Thus, these risks were primarily associated with the monotonous work of transferring the responses from the postal questionnaire and the telephone interviews to digital format (this was done using SPSS). Since this was done manually the risks of systematic errors are small. The consequences of a mistake would be graver for the telephone interview where the sample was smaller. Thus, the coding for these instruments were double-checked. In all cases plots were performed to find deviant response patterns. Finally, random questionnaires were chosen and checked again.

Errors in digital data processing. The e-mail questionnaires were extensively tested in order to ensure the correct coding of questions into SPSS, not only through filling in several test questionnaires, but also through double-checking the coding of the questionnaires as they were exported for statistical analysis.

4 Revisiting the Essays

This chapter revisits the essays in this thesis and the studies underlying them, in order to specify how they link to the purpose and research themes of this thesis; additional contributions are also addressed. To facilitate an overview of the essays, the presentation includes a note on the utilised method and a summary for each essay.

For Essays I-III, some additional comments are included in the presentation. The additional comments address aspects of the studies I found more relevant revisiting them than I did at the time of writing the essays. Essay IV-VI are so recent that there is no need to incorporate additional comments.

4.1 Essay I

Effects of Quality Management According to ISO 9000: A Swedish Study of the Transit to ISO 9000:2000

Published as:

Lundmark, E. & Westelius, A. (2006). Effects of Quality Management According to ISO 9000: A Swedish Study of the Transit to ISO 9000:2000. *Total Quality Management and Business Excellence*, 17(8), 1021 - 1042.

Contribution to purpose and themes

This essay focuses on the organisational *consequences* of working in accordance with the standard system for quality management ISO 9000. Furthermore, it addresses *how* organisations worked during the re-certification from the 1994 version of the standard to the 2000 version of the standard. It does not specifically address the *why* part of research theme 1. However, previous research shows that certification is often sought for external reasons, such as pressure from customers or the status of having a certificate, rather than internal reasons, such as to improve quality or business processes (Poksinska et al., 2003); and there is consensus on internal reasons for getting certified generally being associated with better results, as compared to external reasons (Terziovski et al., 2003; Sun & Cheng, 2002; van der Wiele & Brown, 2002). Essay I is also related to research theme 2, since it addresses the implications of managerial tenure for the re-certification process.

Additional contributions

The consequences of working in accordance with ISO 9000 have attracted interest among academics and practitioners alike. This study addresses several shortcomings in previous academic research. For example, we use scales that allow for capturing negative effects as well; we interview respondents rather than using questionnaires and thus achieve much higher response rates compared to previous research; we address not only quality managers but also marketing and general managers. Furthermore, our study was, to my knowledge, the first to thoroughly assess the re-certification process. The study was presented to quality managers and consultants (and academics) during a period when many organisations were in the middle of, or about to start, their re-certification process.

Method

The study is based on telephone interviews with 113 managers in 66 Swedish small and medium sized enterprises (SMEs).

Summary

The aim of the study is to investigate the effects of quality management in accordance with the ISO 9000 as viewed by both quality managers and other managers. We also consider the way companies carried out the re-certification process to ISO 9001:2000 and what consequences different approaches brought. The study is based on Swedish SMEs with an ISO 9000:1994 who had re-certified according to the ISO 9001:2000 standard. The strongest, most obvious and most valued effects of the ISO 9000 standard are clearer and more apparent working procedures and responsibilities. The most apparent problem is bureaucracy, which according to some managers can lead to reduced flexibility. The effects of the certification vary depending on how the certification project is conducted and how consultants are used.

Additional comments

The results in Essay I show that managerial tenure was related to the scope of the re-certification process. Managers who started working for the company after the ISO 9000:1994 certification involved more people in the re-certification process; and, in our sample¹⁶, they used consultants less frequently. However, we do not know to what

¹⁶ The quality manager employed before the first certification process engaged a consultant in 56% of the cases, the quality manager employed after the first certification process did so in 36% of the cases; however, the difference is not statistically significant (Mann-Whitney sig. 0.14)

extent the managers employed before the ISO 9000:1994 certification were also responsible for the ISO 9000:1994 implementation. In other words, these results might not be related to a tenure effect *per se*; perhaps this may only signal that managers are more prone to change systems they have not implemented themselves. Nevertheless, even in more general cases, the longer a manager has been employed, the greater number of current practices he or she is responsible for.

Furthermore, there was a negative correlation between managerial tenure and the extent to which the organisation was process oriented (Spearman's rho -0.295 sig. 0.017). Process orientation is a general concept that is not only associated with ISO 9000 certified organisations. Consequently, the adoption and implementation of process orientation can be seen as a proxy for openness to new practices. Essay I thus indicates that more recently employed managers not only seem more likely to involve their co-workers in change processes, but also that they are more open to new practices and are more likely to implement them when given the opportunity.

4.2 Essay II

Internet-Based Changes in Organisational Communication

Published as:

Lundmark, E. & Westelius, A. (2008). Internet-Based Changes in Organisational Communication. In Y. K. Dwivedi, A. Papazafeiropoulou, and J. Choudrie, (Eds), *Handbook of Research in Global Diffusion of Broadband Data Transmission* (pp. 637-654). Hershey, PA, USA: IGI Global.

Contribution to purpose and themes

This essay addresses all the three elements of research theme 1: *how*, *why* and with what *consequences* do Swedish sport associations adopt information and communication technologies (ICTs)¹⁷, particularly e-mail and websites. The study is not substantially related to research theme 2, however it provides some examples of how the mobility of people is related to the mobility of knowledge.

Additional contributions

This study addresses an innovation in rapid diffusion in a context that has received scant research attention. Contrary to contemporary beliefs, the study indicates that the adoption of ICT often increases, rather than decreases, the spirit of community in

¹⁷ For a definition of ICT see Book 1 pp. 8-9.

Swedish sport associations. The study also provides examples of a few communication strategies the organisations can apply depending on the nature of ICT-maturity and information demand. This study has been used for educational purposes within the Swedish Sports Confederation.

Method

This study is based on two postal questionnaires (n=224 and 521) and telephone interviews with managers in 110 Swedish sport associations.

Summary

This essay presents a descriptive study of the use of information and communication technology (ICT) and the change in communication patterns in Swedish sport associations over the period 1994 to 2003. The change is discussed in light of Internet and broadband diffusion. Results show that new channels for communication have been adopted, primarily Web sites and e-mail, but few established channels have been dropped. While there are associations that save time and money and increase the spirit of community using ICT, many organizations experience the increased number of communication channels as a burden since maintaining them takes extra resources but the benefits are not always easy to detect or measure. Certain characteristics common among nonprofit organizations (NPOs) as well as Internet and broadband access have influenced the development of ICT use.

Additional comments

During the interviews forming the empirical base for Essay II, some problems were attributed to the mobility of members. A fairly common reason to start using a website was that a member was enthusiastic about it and thus started one. However, in some cases the enthusiast left the association, leaving no one with the knowledge or interest to maintain the website (Lundmark & Westelius, 2004). For these organisations it was a salient example of the impact of key people leaving the organisation leading to a break of organisational routines as well as the loss of non-redundant individual knowledge (cf. Nelson & Winter, 1982). Consequently, the mobility of people can lead to substantial disruptions of routines and loss of knowledge.

4.3 Essay III

Adoption of Discretionary Public Information Systems with Digital Use Patterns - Barriers and Driving Forces

Published as:

Lundmark, E., Westelius, A., & Saraste, D. (2008). Adoption of Discretionary Public Information Systems with Digital Use Patterns - Barriers and Driving Forces. *International Journal of Public Information Systems*, 2008:2, 87-130.

Contribution to purpose and themes

Essay III primarily addresses the *why* element of research theme 1. The study focuses on organisational adoption of technology, more specifically why Swedish sport associations adopt or reject an internet-based module for applying for Youth Activity Funding (YAF).

Additional contribution

The study critically assesses the well-established technology acceptance model (TAM) and identifies a number of shortcomings. It then continues to develop a model for adoption of discretionary public information systems with digital use patterns, incorporating aspects that are neglected by TAM, such as access, awareness and knowledge.

Method

The study utilises a web-based questionnaire (n=1340) and a postal questionnaire (n=237) directed at Swedish sport associations, particularly equestrian, football, and orienteering associations.

Summary

This essay presents a new model, AKAM, for analysing adoption of discretionary, public information systems (PIS) with digital use patterns (such as use or non-use, as opposed to frequency of use, or degree of engaged or compliant use). The model is based on Rogers' innovation diffusion theory (IDT) and Nilsson's user centred access model (UCAM). The model is an alternative to the general technology acceptance model (TAM). The AKAM model (Awareness, Knowledge, Access and Motivation) identifies six prerequisites for use and four management approaches and describes how these are related. To illustrate its applicability, the AKAM model is used to analyse the adoption of a specific module, the YAF-module, in the Swedish Sports Confederation's (SSC) system Swedish Sports Online. We present empirical results that indicate the frequency and importance of the barriers and driving forces as experienced by the YAF module users and the potential YAF module users.

Additional comments

Essay III demonstrates the difficulties experienced by the Swedish Sports Confederation in trying to popularise and consolidate the use of the particular routine we studied, which is the digital version of YAF-application, in an NPO context. The YAF-application process is performed infrequently (maximum every 6 months). Even so, the average respondent in Essay III had performed the task 9 times, which implies that the person was, in general, responsible for the task over many years. The change of process led, in some cases, to a new person taking over responsibility for the task. In some instances the person who had been in charge of the application did not have the necessary skills in using ICT; and consequently, when the association decided to use the online version, the person either had to learn or leave the task to someone else (cf. Lundmark & Westelius, 2007). This illustrates how new ideas can change organisational routines and render some knowledge obsolete.

4.4 Essay IV

Informal Contacts in R&D-driven Organisations

Previously presented as:

Lundmark, E. & Klofsten, M. (2010). Labour Mobility and Informal Contacts as Mechanisms of Knowledge Diffusion. Presented at HTSF conference, NIKOS, Twente, The Netherlands, 27-28 May.

Lundmark, E. & Klofsten, M. (2009). Mobility as a Trigger of Corporate Entrepreneurship: a Study of the Congruence of Different Role-Holders' Views. Presented at the 2009 Babson College Entrepreneurship Conference, 3-6 June, 2009.

Contribution to purpose and themes

The study assesses the relationship between the mobility of knowledge and the mobility of ideas (i.e. research theme 2), through assessing how participants in two large R&D-driven, product-development projects acquire knowledge and how this in turn is related to their creative contributions to these projects. The study also relates to the debate about the relative importance of informal contacts in diffusing knowledge and ideas (cf. Dahl & Pedersen, 2004 with Power & Lundmark, 2004).

Additional contributions

The essay puts earlier literature in a new light. Similarly to Dahl and Pedersen (2004) it finds that informal contacts are considered important by many respondents. In contrast to Dahl and Pedersen (2004) this essay juxtaposes informal contacts with

other knowledge sources. In doing so Essay IV found that informal contacts are generally not considered to be important knowledge sources when juxtaposed with other knowledge sources in these projects.

Method

This study is based on a web-based questionnaire (n=219), directed at participants in two large R&D-driven, product-development projects in large corporations.

Summary

This essay is positioned in the debate regarding the relative importance of informal contacts as a mechanism for knowledge diffusion between organisations. Empirically, the essay assesses the importance of different knowledge sources utilised by 219 participants in two high-tech, R&D-driven, product development projects in large corporations, located in local labour markets highly specialised in their respective industry clusters. The results show that the most important knowledge sources for the respondents are related to the workplace. Informal contacts outside the organisation, although prevalent, are rather unimportant as knowledge sources in comparison to other knowledge sources. However, external contacts are related to creative contributions in the projects regardless of whether the contributions are self-assessed or peer-assessed. There is some support for informal contacts in particular being related to creative contributions in the projects. Implications for the understanding of knowledge diffusion are discussed and directions for future research suggested.

4.5 Essay V

New Job – New Ideas: The Relationship between Tenure and Perceived Creative Climate

Previously presented as

Lundmark, E. & Björkman, H. (2010). New Job – Old Ideas: Does Mobility of White-Collar Workers Contribute to the Spread and Development of Ideas? Presented at the 7th AGSE International Entrepreneurship Research Exchange, 2-5 February, 2010. Accepted after double-blind peer-review of the full paper.

Contribution to purpose and themes

The study focuses on the relationship between the mobility of people and the mobility of ideas (i.e. research theme 2). It does so through assessing the perceived creative climates for newly employed white-collar workers as compared to established white-collar workers. This is important since perceived creative climates can influence not

only the efficiency of labour mobility as a mechanism for diffusing ideas between organisations, but also potentially employees' decision to leave their current organisation (cf. Fransson Sellgren, 2007). Furthermore, the study investigates whether the level of knowledge required for a position moderates the relationship between tenure (i.e. length of employment) and perceived creative climate, and whether the level of knowledge-intensive work in itself is related to the perceived creative climate.

Additional contributions

This is, to my knowledge, the first large scale study comparing perceptions of creative climate among new and established workers in a random sample. Furthermore, the large sample and the possibility of utilising the already available measure (ALS) of how knowledge-intensive the respondents' positions were, provided a unique opportunity to assess interaction between tenure and knowledge intensity of work on perceived creative climate, without using the same instrument for assessing both knowledge intensity and perceived creative climate.

Method

The paper is based on a database constructed by the workers union SIF, now Unionen. The database merges the results from a web-based questionnaire (n=1303), assessing the perceived creative climate among unionised white-collar workers, with register data from SIF's membership register.

Summary

Despite an increasing interest in labour mobility as a mechanism for diffusing ideas between organisations, regions, and countries, few studies have considered new employees' opportunities to share ideas in their new organisations. This essay focuses on how perceptions of creative climate (CC) is related to tenure in organisations by analysing perceived CC in a random sample of unionised Swedish white-collar workers (n=1303). It finds tenure to be negatively related to perceived CC for the first few years of employment. The level of knowledge required for a position does not moderate this relationship, but more knowledge-intensive work in itself tends to be associated with higher levels of perceived CC. Understanding the factors that influence the CC is important since CC could influence not only labour mobility's efficiency as a mechanism for diffusing ideas between organisations, but also potentially employees' decision to leave their current organisation.

4.6 Essay VI

Entrepreneurship as Elixir and Mutagen

Previously presented as:

Lundmark, E. & Westelius, A. (2009). Entrepreneurship – Elixir of Life or Mutagen. Presented at the 20th Biannual NFF Conference “Business as Usual”, Turku/Åbo, Finland, August 19-21, 2009.

Contribution to purpose and themes

This essay critically assesses a core concept in the entrepreneurial society, namely entrepreneurship. In doing so, the essay addresses the purpose of the thesis directly by critically assessing basic assumptions and biases underlying the entrepreneurial society.

Additional contributions

The paper offers a critique of underlying assumptions and biases in entrepreneurship research and discourse. While adhering to existing definitions of entrepreneurship the paper reframes the phenomenon of entrepreneurship.

Method

The paper is conceptual. It utilises metaphors in order to critique underlying assumptions and biases in the entrepreneurship field and to facilitate reframing of the phenomenon. It also utilises computer simulations.

Summary

The establishment of entrepreneurship as a research discipline has brought research traditions and assumptions that carry the risk of screening out important aspects of the phenomena involved. This paper contrasts the describing and perceiving of entrepreneurship using an elixir metaphor with a metaphor of entrepreneurship as a mutagen. The elixir metaphor can present it as a panacea, a revitaliser, a sweet medium for bitter medicine, or a substance transmuting base metals into gold. The mutagen metaphor implies that entrepreneurship induces changes in the basic scripts of organisations and that entrepreneurial action can reasonably be modelled *ex ante* as stochastic.

5 Discussion

As described in the previous chapter, each essay makes a unique contribution to this thesis. The purpose of this chapter is to address the research themes and discuss the results at an aggregate level, focusing specifically on the findings that relate to how ideas diffuse between and get applied within organisations; furthermore, to address the implications of the findings in this thesis for the entrepreneurial society and present the conclusions.

The chapter is structured as follows: firstly, it reviews the findings related to each research theme. It then discusses the distinction between the diffusion and application of knowledge and ideas; the effects of labour mobility; how knowledge and ideas diffuse without the mobility of people; and the importance of diffusion and application of knowledge and ideas that are already widespread. The chapter then sums up and discusses implications for the entrepreneurial society. Finally, the conclusions of this thesis are presented.

5.1 How, Why and with What Consequences do Organisations Adopt Innovations?

This research theme is primarily addressed in Essays I, II, III and through the discussion in Book I. The essays in Book I show that the way in which the studied innovations were adopted affected the consequences of adoption. A number of factors influencing the perceived outcomes of organisational adoption of the studied innovations were identified in Book I. For example, Essay I indicates that process orienting the organisations and cutting down on documentation were factors influencing the level of satisfaction with the new ISO 9000 standard. Likewise, the extent to which sport associations discontinued their use of non-ICT channels influenced the effects they experienced from ICT use (Essay II). With regards to the online application module for youth activity funding (the YAF-module, studied in Essay III), the possible variations in how to adopt and possible outcomes of the adoption were narrow. Either the YAF-module was used or paper-based application was used. Interestingly, the potential adopters' beliefs about the most convenient way to apply for YAF, was not the sole factor in deciding which application form was used. Among YAF-module adopters, 89% stated they perceived their choice to be the most convenient. The corresponding proportion among the paper form users was only about 50%. The single most important factor related to rejecting the YAF-module was "old

habits". This underlines the argument that decisions to adopt or reject innovations are not always based on efficient choices¹⁸ (Abrahamson, 1991).

In fact, the studies in Book I indicate that the adoption decisions for the studied innovations were influenced by a mix of diffusion forces other than rational predictions about the effects of the innovation on the organisation. For example, some sport associations adopted ICT because other associations did; customer pressure influenced ISO 9000 adoption; and pressure from the central administration influenced the adoption of the YAF-module.

However, external pressure is not necessarily associated with low satisfaction with regards to adoption. For example, we found that SMEs that adopted ISO 9000 due to external pressure but later realised benefits were among the most satisfied with the ISO 9000 standard.

Generally, the studied innovations had both positive and negative consequences. For example, most managers experienced clearer and more apparent working procedures and responsibilities as a result of ISO 9000 implementation. However, some managers experienced reduced flexibility or burdensome documentation. Some sport associations saved time, money and increased their spirit of community using ICTs, whereas a large group experienced an increased administrative burden. The diffusion of the use of the YAF-module saved resources for the central administration and facilitated YAF application for some sports associations, whereas other sport associations perceived little benefits from the online procedure.

Thus, the discussion in Book I emphasises that innovations should not be seen as either beneficial or detrimental, since most innovations have both positive and negative consequences and organisations can reap the beneficial aspects and hamper the detrimental aspects in different ways.

5.2 How does the Mobility of People, Ideas and Knowledge Interact in Organisational Contexts?

This research theme is primarily addressed in Essays IV and V. In addition, revisiting the essays in Book I provides some additional relevant findings.

Essay V found that new employees (white-collar workers) perceive a more creative climate as compared to more established ones; in other words new employees perceive greater opportunities to generate, share and develop ideas. In addition, Essay V found that the more knowledge-intensive the employee's position, the more creative climates they tended to perceive. Essay I suggests that, given the mandate to implement

¹⁸ Efficient choice indicates that "agents rationally choose the innovation that will allow them to most efficiently produce the outputs that are useful for attaining their goals." (Abrahamson, 1991, p. 592)

changes, new managers tend to be more open to new ideas and involve more people in the change processes, as compared to more established managers.

Essay IV found that an employee's knowledge sources are related to their creative contributions in the assessed projects; external contacts in particular seem related to new ideas and solutions to problems. Nevertheless, the knowledge sources rated as the most important by the individual employees were related to the workplace (e.g. colleagues and time to experiment). In addition the studies have provided examples of how people leaving the organisation can break routines and take knowledge away with them (Essay II, Lundmark & Westelius, 2004); and how adopting new innovations can render knowledge obsolete (Essay III, Lundmark & Westelius, 2007).

Taken together the findings in this thesis emphasise that the mobility of ideas is intertwined with the mobility of people and knowledge, which is in line with the theoretical framework underpinning the entrepreneurial society. However, Audretsch and Keilbach (2005) claimed that the mobility of people should be encouraged by entrepreneurship capital; but as we have seen above, the mobility of people can have both positive and negative consequences for organisations. Therefore claiming that mobility in itself is good would be erroneous.

The core of the framework underpinning the entrepreneurial society is that new valuable knowledge and ideas have to be applied in order to achieve economic growth. Therefore, when the originator does not apply valuable knowledge and ideas, knowledge spillovers and other agents' absorptive capacity are essential for achieving innovation and growth. In other words, when valuable ideas and knowledge are dormant, they need to move and be applied elsewhere. However, moving and applying ideas are two different processes, and diffusion does not necessarily lead to the application of ideas.

5.3 Diffusion and Application of Knowledge and Ideas

The theoretical framework underpinning the entrepreneurial society claims that labour mobility can lead to knowledge and idea diffusion between organisations. In particular, the mobility of people in knowledge-intensive positions is suggested as an effective mechanism for diffusing ideas (Audretsch & Keilbach, 2005). The results in Essay V reinforce this argument since the degree to which employees perceived that they could generate, share and develop their ideas was positively related to how knowledge-intensive their positions were. In other words, not only do people in knowledge-intensive positions possess more knowledge, but they also perceive greater opportunities to generate, share and develop ideas.

However, the theoretical framework underpinning the entrepreneurial society goes further and suggests that the mobility of knowledge workers leads to knowledge

spillovers, which implies that labour mobility leads not only to the diffusion, but also to the application of ideas. Using the terminology of Lane et al. (2006), knowledge spillovers imply that ideas are not only recognised, but also assimilated and applied in the new organisation (see Figure 2).

This is in contrast to Cohen and Levinthal (1990) who argue that hiring is a poor way of increasing absorptive capacity in existing organisations because, in order to achieve high absorptive capacity, staff need to be competent in the particular field, as well as be familiar with the firm's "idiosyncratic needs, organizational procedures, routines, complementary capabilities, and extramural relationships" (Cohen & Levinthal, 1990, p. 135).

According to Lane et al.'s (2006) process model of absorptive capacity (Figure 2), labour mobility could be more efficient at bringing ideas into organisations (the recognition dimension), but less efficient in assimilation and application since, assimilating and applying ideas requires collective changes in mental models and ultimately, in organisational routines. In other words, as ideas progress from the left side towards the right side of Lane et al.'s (2006) process model, they interfere with existing routines. As discussed by Nelson and Winter (1982), routines can be seen as organisational "truces", in the sense that they constitute a behavioural pattern that is tolerated by organisational actors with different interests. Consequently, breaking routines can cause overt conflict, and manoeuvring in this context requires both knowledge about the organisation and political capital, both of which are usually rare in new employees (cf. Nelson & Winter, 1982). This thesis labels this line of thought the "resistant-routine interpretation". This interpretation indicates that the knowledge filter (Audretsch, 2007) consists of two parts, a diffusion filter and an application filter. Labour mobility could thus be an efficient means to penetrate the diffusion filter, but lack of familiarity with idiosyncratic routines and relationships can restrain the possibilities of new employees to apply ideas in their new organisations.

The resistant-routine interpretation can be applied to the findings in Essay V, which found that new employees perceive a more creative climate than more established employees. The perception of the creative climate is negatively related to tenure for the first few years of employment. According to the resistant-routine interpretation, new employees perceive that ideas are recognised, but as time passes, lack of assimilation and particularly lack of application, erodes the perception of creative climate over time (Amabile et al., 1996). In other words, managers and co-workers indicate openness to new ideas and even support them, perhaps to avoid hampering the enthusiasm that is often ascribed to new employees (Bienkowska, 2007). This support creates the illusion of a creative climate, which lasts until it becomes apparent that little actual change occurs, which arguably can take years, since change processes cannot be expected to happen overnight.

However, certain organisational structures can be more open, at least to the initial stages of the application process. In accordance with the conclusions in Essay II, the limited possibilities to direct behaviour in the studied non-profit organisations (NPOs) both facilitated and restrained the adoption of new practices. On the one hand, the limited possibilities to direct behaviour makes subgroup initiatives difficult to hold back, enabling people to start new practices, and leaving NPOs more susceptible to new initiatives from new members. On the other hand, it also makes it difficult to consolidate and standardise these new practices in the organisation. The same line of reasoning is valid for other entrepreneurial initiatives in NPOs; in other words, it is often easy to start entrepreneurial initiatives, but more difficult to make the whole organisation follow. This tension between discretion and control is arguably also present in private firms and public organisations and a concern for any manager facing entrepreneurial initiatives.

Furthermore, the resistant-routine interpretation is in line with start-ups being a potent way of commercialising new knowledge and ideas, which is highly suggested by the theoretical framework underpinning the entrepreneurial society. Specifically, existing organisations have a set of established organisational routines that are self-sustaining (Nelson & Winter, 1982; Aldrich & Auster, 1986), whereas in start-ups, routines are yet to be established. Accordingly, since new ventures are less “routinised”, that makes them more likely to act on new ideas (cf. Tushman and Anderson, 1986). Nevertheless, start-ups also face liabilities from being new and often small, for example, attracting resources and establishing routines are both difficult tasks (Aldrich & Auster, 1986). In other words, start-ups are better suited for applying ideas when the barriers to changing routines in existing organisations are stronger than the problems associated with the liabilities of start-ups.

This is in accordance with the position adopted in Essay VI where, using the framework and terminology of Nelson and Winter (1982), entrepreneurship is viewed as the breaking and creation of routines, which can take place in both start-ups and existing organisations. In existing organisations, both new and established employees can come up with and pursue the implementation of new ideas; but as argued above, new employees often face extra resistance when attempting to change routines due to, for example, lack of familiarity with the organisation’s idiosyncratic needs, procedures and relationships. This is seemingly in contrast with Nelson and Winter (1982), who mention labour mobility as a source of change to organisational routines: they claim that labour mobility can have mutagenic effects on organisational routines.

5.4 The Mutagenic Effects of Labour Mobility

Nelson and Winter (1982) elaborate on organisational routines, but pay little attention to how routines are actually changed; however, they do suggest that labour mobility can have disruptive effects on organisational routines (i.e. a mutagenic effect).

The empirical material in this thesis also indicates that labour mobility can have disruptive effects on organisational routines. For example, given the mandate to implement changes, new managers tended to be more open to new ideas and involve more people in the change processes (Essay I). Although the ideas implemented in Essay I (i.e. ideas related to ISO 9000:2000) are largely replicative, that is they replicate what other organisations have already done, the results in Essay I can still be interpreted as a greater entrepreneurial potential among new as compared to more established employees. Entrepreneurial potential means a greater drive for change and less habituation with current practices. This potential could be built on enthusiasm (Bienkowska, 2007) and new ideas (Power & Lundmark, 2004), but curbed by resistant routines. Thus, when given the mandate to conduct changes, new managers are more prone to implement new ideas and involve more people in the change processes, as compared to more established managers (Essay I).

Nevertheless, Nelson and Winter (1982) do not argue that new employees act in a more entrepreneurial manner in organisations. The difference between the mutagenic effects of labour mobility (as discussed by Nelson & Winter, 1982) and the mutagenic effects of entrepreneurship (as discussed in Essay VI), is that entrepreneurship is based on ideas and desired goals, whereas the type of effects Nelson and Winter (1982) discuss are largely accidental in the sense that a cog in the machinery is suddenly removed and replaced with another one. This type of mutagenic effects corresponds to the effects experienced by sport associations when the person responsible for their website left the organisation without training a replacement (cf. Essay II, Lundmark & Westelius, 2004).

Thus, the empirical findings in this thesis indicate that labour mobility can disrupt organisational routines not only through the entrepreneurial potential of new employees, but also through accidental changes caused by the departure of key employees, who cannot be easily replaced.

However, the mobility of people is not the only way of spreading knowledge and ideas between organisations. As we have seen in Essay IV and in previous research (Dahl & Pedersen, 2004; Schrader, 1991), people share knowledge with people in other organisations. The next section addresses mobility of ideas and knowledge without the mobility of people.

5.5 Diffusion of R&D and Non-R&D Related Knowledge and Ideas

Essay IV demonstrated that the project members studied utilised many different knowledge sources during their work in the R&D related projects. Notwithstanding that the sources generally deemed most important were associated with the workplace itself (e.g. colleagues, reflecting, and experimenting), external sources such as informal contacts and external parties (e.g. customers, suppliers and partner organisations) also played a role in some project members' knowledge acquisition. This is particularly interesting since external contacts were associated with more creative contributions to the projects both as assessed by colleagues and self-assessments. This indicates that external contacts are mechanisms for bringing new ideas into these projects.

In sharing knowledge and ideas with people in other organisations, employees are often mindful about their employers' interests (Schrader, 1991). Therefore, the uniqueness of knowledge is negatively related to sharing knowledge outside the firm (Schrader, 1991), but positively related to sharing knowledge inside the firm (Ensign and Hébert, 2010).

As a consequence, there is reason to believe that R&D related knowledge diffuses differently as compared to non-R&D related knowledge. Arguably the market value of new knowledge held only by a few is often higher than the same knowledge when it is widespread and perhaps a generation old¹⁹.

This does not mean that non-R&D related knowledge is of no use in society. In fact, widespread and old knowledge is also important to organisations (I elaborate on this under the next heading). However, colleagues in different firms are more likely to share widespread knowledge knowing that, if they do not share it, someone else probably will (and by sharing, the sender can expect reciprocation; cf. Carter, 1989 and Schrader, 1991).

This could explain why the knowledge flows through informal contacts are lower in the R&D-related context assessed in Essay IV, than what is found in other settings (e.g. Schrader, 1991). This could also explain why, in Dahl & Pedersen's (2004) study, employees in R&D were more likely to have informal contacts with people in other firms, but less likely to acquire knowledge through informal contacts as compared to employees in production.

The findings in this thesis are not refuting that R&D related knowledge diffuses through informal contacts. In fact, Essay IV indicates that informal contacts are utilised as a knowledge source in R&D settings. Rather the thesis suggests that

¹⁹ However, one can find examples of the opposite: the market value for knowledge in a particular social dance could very well be higher the more widespread the knowledge is.

knowledge, which is perceived as more exclusive and valuable, will be *less likely* to be shared through informal contacts, and R&D related knowledge is *more likely* to be perceived as exclusive and valuable.

In summary, labour mobility is likely to diffuse both R&D related knowledge and non-R&D related knowledge (Zellner & Fornahl, 2002), whereas the findings in this thesis indicate that informal contacts are not deemed important as knowledge sources, by employees in large R&D-related projects.

5.6 Diffusion and Application of Widespread Knowledge and Ideas

According to the theoretical framework underpinning the entrepreneurial society, knowledge spillovers are a source of entrepreneurial opportunities (Acs et al., 2009a). The term “spillover” is commonly restricted to new knowledge and ideas that have been created at a cost, which then gets exploited by another agent without compensation. However, much of the knowledge that benefits organisations is neither new nor exclusive; nevertheless, such knowledge does not diffuse without friction. Arguably, facilitating such knowledge flows still has the potential to increase productivity and consequently economic growth. This is in contrast with the focus on R&D related knowledge in the entrepreneurial society and in the absorptive capacity literature.

The studied innovations in this thesis (referring to Essays I, II and III) are not new and exclusive, nor are they related to the R&D departments of the adopting organisations. The innovations are developed, tested, adjusted and packaged before they reach the organisations I and my co-authors have studied. Although the innovations are new to the organisations, they are not the cutting edge of human knowledge.

Nevertheless, many organisations experienced positive consequences from the adoption of the studied innovations. For example, many SMEs highlighted that adopting ISO 9000 brought clearer and more apparent working procedures and responsibilities. Many sport associations saved time, money and increased their spirit of community using ICTs. The diffusion of the use of the YAF-module saved time for the central administration and also facilitated YAF application for many sports associations. Notwithstanding the negative consequences of these innovations, it is clear that many organisations can benefit from incremental innovations like the switching from the 1994 version to the 2000 version of the ISO 9000 standard; and that both incremental and radical innovations take time to diffuse.

There are other reasons why the diffusion of non-R&D related knowledge and ideas is important. Even radical innovations often build on, or are dependent on, previous innovations. Some radical innovations will not be ready for commercialisation until a previous innovation has reached critical mass in the general population or in certain

populations of organisations. For example, many radical innovations commercialised during the dot-com bubble failed because they were untimely.

Similarly, the critical mass required for switching from postal letters to e-mail in the sports associations assessed in Essay II was relatively high. Many associations got stuck in the middle of old and new means of communication. They were forced to maintain both old and new communication channels, leading to an increased burden of administration. Diffusion of internet connections and the use of e-mail needed to be near complete before old communication channels could be discontinued. This diffusion is to some extent associated with standardisation and homogenisation, which is in contrast with the focus on heterogeneity associated with the entrepreneurial society (cf. Audretsch & Thurik, 2001). Furthermore, innovations, which only contribute incrementally to productivity in each case of adoption, can contribute considerably as the number of adopters adds up (Essay III).

Despite being established and widespread, the knowledge and ideas associated with the studied innovations in Book I do not diffuse effortlessly. In fact many sport associations stated that lack of knowledge was an obstacle to the adoption and efficient use of ICT; SMEs hired external consultants to conduct the re-certification process; and some organisational members did not have the necessary skills for using the YAF-module. These problems are all related to a lack of knowledge among the organisational members; but there were also problems attributed to structures. For example, lack of organisational processes for making documentation available and easy to update (in the ISO 9000 case), lack of hardware for sport associations, and difficulties in forcing change in sport associations.

A problem that arose in some sport associations with varying degrees of knowledge about and access to ICT, was that a group of IT-savvy members fully understood how communication could be much more efficient, but also realised the limited abilities the organisation had to improve knowledge and access for its members (cf. Essay III). In Essay II, we give examples of a few communication strategies the organisations can apply given the nature of ICT maturity and information demand. In many cases sport associations have to settle with a much less than optimal application of innovations. In the model of absorptive capacity developed by Zahra and George (2002), this exemplifies a low efficiency factor, which is defined as high potential but low realised absorptive capacity. In other words, an organisation recognises new external knowledge, assimilates it with existing organisational knowledge and understands that it can be put to use with great benefits, but it also realises that the organisation itself lacks the resources to put it to use.

Zahra and George (2002) state that the potential capacity is always higher than the realised capacity, since “firms cannot possibly exploit knowledge without first

acquiring it” (p. 191). It is possible, however, to argue that this is exactly the problem in many failed implementation processes: many organisations attempt to exploit knowledge they have not acquired. For example many organisations lack the knowledge for efficient implementation of ISO 9000, but external pressure still leads them to adopt the innovation; and some sports association felt pressured into having a website because other associations did, and thus implemented one despite a lack of knowledge about ICT. The argument here is not that knowledge is exploited without being acquired, but rather that institutional forces often push ideas into organisations regardless of their ability to recognise ideas in the environment. For example, customer pressure is a common reason for the adoption of ISO 9000. This can explain why the perceived benefits of an innovation are not always highest among the adopters with the highest absorptive capacity. For example, the highest satisfaction with the ISO 9000 standard was found among SMEs who had limited prior knowledge about the standard but realised benefits during the implementation process (cf. the discussion in Book I, pp.23-24).

As exemplified previously, absorptive capacity can be insufficient due to the lack of other resources than knowledge. Thus, considering resource constraints and institutional pressure, the metaphor for absorptive capacity as funnel or pipeline (Lane et al., 2006), could be complemented with absorptive capacity as a filter or even a shield when institutional forces are strong.

In summary, the diffusion and application of non-R&D related knowledge, in the general population, is important. In fact, many organisations still benefit greatly from this kind of knowledge and ideas, and in some cases, reaching critical mass in the diffusion of an innovation is vital to the introduction of new and radical innovations. However, despite being widespread and established, there are still filters restraining both the diffusion and the application of ideas and knowledge in organisations.

5.7 Implications for the Entrepreneurial Society

In accordance with the theoretical framework underpinning the entrepreneurial society, the findings in this thesis emphasise that the mobility of ideas is intertwined with the mobility of people and knowledge. In particular, the findings reinforce the argument that the mobility of people in knowledge-intensive positions is a mechanism for diffusing ideas, since the degree to which employees perceived that they could generate, share and develop their ideas was positively related to how knowledge-intensive their positions were.

Furthermore, the results show that new employees (as compared to established employees) tend to perceive more creative climates in their organisations, regardless of the level of knowledge required for the position. This could be seen as empirical support for knowledge spillovers. However, according to the resistant-routine

interpretation (discussed previously), this can also indicate that new employees are encouraged to share ideas, but the lack of assimilation, and particularly the lack of application, erodes the perception of creative climate as it becomes apparent that little actual change occurs. Thus, future research is needed in order to disentangle the causal mechanisms underlying the observed patterns in Essay V.

Nevertheless, the resistant-routine interpretation does not preclude any changes to routines due to labour mobility. It only implies that labour mobility will lead to substantially more ideas being brought into organisations than what will actually be applied. In fact, labour mobility has the potential to induce changes in routines, not only through the entrepreneurial potential of new employees, but also through accidental changes to organisational routines as discussed by Nelson and Winter (1982). Thus, when appreciating the effects of labour mobility, one has to consider both the potential knowledge and idea flows and the potential disruption of organisational routines. Furthermore, alternative channels for knowledge and idea diffusion should be considered.

Not surprisingly, the type of labour market that is cherished as a role model for the entrepreneurial society (for example Silicon Valley, cf. Saxenian, 1990; Audretsch, 2007), is characterised by a large proportion of people with cutting edge knowledge and a high levels of knowledge creation. Looking at society at large, this is not the general picture.

In addition, the resistant-routine interpretation suggests that the knowledge filter (Audretsch, 2007) consists of two filters, a diffusion filter and an application filter. Labour mobility can be an efficient mechanism for penetrating the diffusion filter, but a lack of familiarity with idiosyncratic routines and relationships can curb the ability of new employees to apply ideas (Cohen & Levinthal, 1990; Nelson & Winter, 1982).

In contrast to the theoretical framework underlying the entrepreneurial society, which emphasises the diffusion of R&D-related knowledge, the findings in this thesis also emphasise the further diffusion and application of knowledge already widespread in the general population. This type of diffusion is important since many organisations benefit from it. However, despite being widespread and established there are still filters restraining both the diffusion and the application of ideas and knowledge.

Turning to the implications of Essay VI, adopting a mutagen view of entrepreneurship implies that entrepreneurial changes can be both beneficial and detrimental to organisations. Furthermore, the mutagen view of entrepreneurship downplays the possibility of predicting the viability of an entrepreneurial initiative *ex ante*. However, the mutagen view of entrepreneurship does not suggest that all entrepreneurial initiatives, let alone all types of changes to organisational routines, have the same probability of being successful. For example, accidental changes to organisational

routines due to a key employee's sudden departure are something organisations should reasonably avoid. Nevertheless, even accidental changes to organisational routines, as discussed by Nelson & Winter (1982), can occasionally bring about positive changes.

Furthermore, the mutagen view of entrepreneurship concurs with the theoretical framework underlying the entrepreneurial society in that when new knowledge extends possible ways to organise, higher rates of entrepreneurship are called for. The reason is that the further we are from the local optimum, the higher the rates of entrepreneurship that are advantageous will become (Essay VI). As new knowledge creates new possible ways to organise, local optima change and present practices are likely to be further from these new optima. Thus, higher rates of entrepreneurship are called for.

However, the mutagen view of entrepreneurship paints a pessimistic portrait for understanding the relationship between entrepreneurship and quantitative growth, since optimal levels of entrepreneurship are dependent on many elusive factors that are likely to change over time. For example, the patterns of evolution are likely to be different for different industries. We do not know how far an industry is from a local optimum and even if we did, this is likely to change over time. We also do not know when new events are going to change this optimum and by how much. As a consequence, the chances are slim that we will find an optimal level of entrepreneurship even for a given industry, and if we did find it, that rate would soon be obsolete. In accordance, empirical research does not find a consistent pattern between the level of entrepreneurship and economic growth (Audretsch & Keilbach, 2005). Since labour mobility can have mutagenic effects on organisations, these arguments apply also to the relationship between labour mobility and economic growth. This does not, however, imply that research on the association between different measures of entrepreneurship or labour mobility and quantitative growth are futile – only that they would, at best, produce crude heuristics.

Lastly, the mutagen view of entrepreneurship is in stark contrast with the view of entrepreneurship as exclusively legitimate and legal business start-ups, found in the literature associated with the entrepreneurial society. Exploring the entrepreneurship phenomenon beyond the focus on legitimate and legal business start-ups will, I believe, facilitate research progress.

5.8 Conclusion

The purpose of this thesis is to increase our understanding of how ideas diffuse between, and get applied within, organisations; and secondly, to relate findings to the theories underpinning the entrepreneurial society and to identify and critically assess basic assumptions and biases underlying it.

Both a nominalist and an intangible perspective on ideas have been adopted in approaching the purpose. The nominalist perspective views ideas as relatively stable units that diffuse between people and organisations, and identifies ideas through measurable outcomes such as behaviours or embodiments in artefacts often referred to as innovations. The intangible perspective views ideas as intangible and volatile, which implies that their diffusion is only traceable through proxies.

Taken together, the findings in this thesis emphasise that the mobility of ideas is intertwined with the mobility of people and knowledge, which is in accordance with the theoretical framework underpinning the entrepreneurial society. However, not all the ideas that make their way into organisations get applied. This thesis suggests that the knowledge filter (Audretsch, 2007) consists of two filters, a diffusion filter and an application filter. Once an idea has made its way into an organisation, there are still many potential barriers to the application of the idea. This thesis has, for example, found that existing knowledge, organisational structures, and changes in society, influence the application of ideas in organisations.

Moreover, knowledge and ideas can diffuse through various mechanisms. Audretsch et al. (2005) highlight labour mobility and informal networks as mechanisms for knowledge diffusion. The findings in this thesis indicate not only that employees in large R&D-driven projects attain knowledge from external sources, but also that the use of external knowledge sources is positively related to creative contributions to the projects. However, the individual employees tended to rate the knowledge sources related to the workplace (e.g. colleagues and time to experiment) as the most important; and in contrast to some previous research (Schrader, 1991), informal contacts with people outside the organisation were generally rated as unimportant in comparison to other knowledge sources.

Previous research suggests that the mobility of knowledge workers is particularly beneficial to the diffusion of knowledge and ideas between organisations (Audretsch & Keilbach, 2005). This thesis reinforces this argument since the results show that employees in knowledge-intensive positions perceive greater opportunities to generate, share and develop ideas in organisations, as compared to employees in less knowledge-intensive positions.

Previous research also suggests that new employees are enthusiastic (Bienkowska, 2007) and often bring new ideas into organisations (Power & Lundmark, 2004). This thesis suggests that new employees have more entrepreneurial potential than established employees. Entrepreneurial potential means a greater drive for change and less habituation with current practices. However, such potential is often curbed by resistant routines (Nelson & Winter, 1982; Cohen & Levinthal, 1990).

The literature on the entrepreneurial society emphasises the diffusion and application of new R&D-related knowledge. The findings in this thesis also emphasise the diffusion and application of already widespread and established knowledge and innovations. The studied innovations in this thesis are not new and exclusive, nor are they related to the R&D departments of the adopting organisations. Despite the innovations being based on established and widespread knowledge and ideas, the absorptive capacity of many organisations restrained the adoption of these innovations.

Previous research suggests that innovations diffuse due to a number of forces other than efficient choice (e.g. imitation and customer pressure, Abrahamson, 1991). This thesis supports this claim as none of the studied innovations were adopted or rejected solely based on rational evaluations of the innovations' efficiency.

Furthermore, this thesis finds that how and why organisations adopt innovations can affect the perceived benefits associated with the innovation. Most innovations have both positive and negative consequences and different organisations and organisational actors experience them differently. Therefore, evaluating innovations in accordance with a beneficial/ detrimental dichotomy is often misleading.

Assessing the underlying biases and assumptions in the entrepreneurial society, this thesis finds that much entrepreneurship literature and the discourse of policy makers are biased towards overly optimistic views of entrepreneurship. For example, Audretsch (2007) claimed that the wealth of regions depends on the entrepreneurial capital of their people, Wiklund (1999) that the wealth of businesses depends on their entrepreneurial orientation, and Quadrini (1999) that the wealth of individual people depends on how entrepreneurial they are. Reframing entrepreneurship as organisational mutagen highlights other aspects of the phenomenon that are not one-sidedly positive.

The implications of the findings for the entrepreneurial society have been discussed. Nevertheless, much research is still needed in order to understand the mechanisms that facilitate growth and prosperity in the entrepreneurial society.

In particular, this thesis calls for research on the opportunities of new employees to realise ideas in organisations. Specifically, the findings in this thesis suggest that new employees perceive a more creative climate than more established employees, but future research is needed to disentangle the causal mechanisms underlying the observed patterns.

In addition, future research should address not only the factors that facilitate and restrain the diffusion and application of R&D related ideas and knowledge, but also the factors that facilitate and restrain the diffusion and application of knowledge that is already widespread and established.

Lastly, my hopes are that future research will appreciate how multifaceted the phenomenon of entrepreneurship is. I believe that exploring entrepreneurship beyond the narrow focus on legitimate and legal business start-ups will facilitate research progress.

