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NEW VENTURE CREATION IN SOFTWARE BUSINESS
A CONTEXTUALLY EMBEDDED ENTREPRENEUR’S PERSPECTIVE
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A contextually embedded entrepreneur’s perspective

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Abstract
Entrepreneurship research is a dynamic field in development. It has long ago moved past analyzing the differences between entrepreneurs and non-entrepreneurs to trying to understand the activity that an entrepreneur does. Current entrepreneurship research has identified business opportunities and their development as the main focus of entrepreneurship research field. However the creation of new business opportunities is largely not understood and theory which builds on entrepreneurship is still in its initial phases.

This study aims to understand the creation of new ventures through a holistic approach, not focusing only on the entrepreneur but also on the industry and society where the venture creation happens. Therefore this study focuses on new venture creation in a software business context. This context was chosen because the economy is moving from a production based economy to a knowledge based economy and software plays a vital role in this change. The research question set forth in this study is: How are new ventures created in the software industry?

This study identifies culture, society and entrepreneur as components and actualisation, socialisation and emergence as the processes that affect new venture creation. These components and processes are derived from existing literature of entrepreneurship. Based on these components and processes a research framework is created which is used as the study approaches venture creation through process and case study logics.

As a result of this study a model of venture creation in software business was created. The model shows how the dynamic formation of new ventures happens. The model of venture creation identifies components, processes and generative mechanisms of which the latter create the real dynamism in the model.

The study showed how entrepreneurs and the creation of new business were tightly integrated into the environment in which the entrepreneurs resided and the people with whom they interacted. The study also showed that venture creation and the development of an entrepreneurial identity do not happen overnight. Rather, they take time to develop, and happen in an evolutionary way.

Keywords: business opportunity, entrepreneurship, new venture creation, software business
Kontula, Jukka, Uuden liiketoiminnan luominen ohjelmistoteollisuudessa. Kontekstiin uppoutunut yrittäjän näkökulma
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Tiivistelmä

Tässä tutkimuksessa uusien liiketoimintojen luomista pyritään ymmärtämään kokonaisvaltainen näkemyksen kautta, huomioiden yrittäjän lisäksi teollisuudenalan ja yhteiskunnan jossa liiketoiminnan luominen tapahtuu. Sen vuoksi tutkimuksessa keskitytään uuden liiketoiminnan luomiseen ohjelmistoteollisuudessa. Tämä konteksti valittiin, koska talous on muuttumassa tuotantoperustaisesta taloudesta koti tietotaloutta ja ohjelmistoilla on merkittävä rooli tässä muutoksessa. Tutkimuksynä on: Miten uusia liiketoimintoja luodaan ohjelmistoteollisuudessa?


Tutkimuksen tulokset luodaan ohjelmistoteollisuuteen uuden liiketoiminnan luomisen malli. Malli näyttää miten dynaaminen uuden liiketoiminnan luominen tapahtuu. Millä mallissa tunnistetaan komponentit, prosessit ja generoivat mekanismit joista viimeksinä luostavat malliin todellisen dynamiikan.

Tutkimuksessa havaittiin miten yrittäjät ja uuden liiketoiminnan luominen ovat tuokasti sidoksissa yrittäjän asuinymympäristöön sekä sosiaalisiiin suhteisiin. Tutkimuksessa havaittiin että uuden liiketoiminnan luominen ja yrittäjämäisen identiteetin kehittyminen vaativat aikaa kehitettyään.

Asiainmat: liiketoimintamahdollisuus, ohjelmistoliiketoiminta, uuden liiketoiminnan luominen, yrittäjyy
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1 Introduction

There is a growing interest in entrepreneurship in society. The Finnish government sees new firms as a way to transform the production-based economy into a knowledge-based economy. Entrepreneurship can also be seen as a way for companies to transform their existing businesses and create new ones (Hallitusohjelma 2007: 47–50, Himanen 2007, Työ- ja elinkeinoministeriö 2009).

In everyday decision making, the amount of information is constantly increasing due to the digitalisation and globalisation of information. This increasing amount of information is creating environmental dynamism for companies. This dynamic environment means that companies have a large number of business opportunities available if they are able to recognise the opportunities and act on them before others can. The business environment is moving from the management of stable organisations to the creation of new organisations acting on business opportunities.

This change towards dynamic business environments is in part due to technological changes. Software plays an important part in this process of technological change, and hence entrepreneurship, especially in the software business, can be seen as one of the driving forces of today’s economy. Software is present in many industries today and hence business opportunities in software business are widely available. However the creation of new business opportunities is largely not understood and theory which builds on entrepreneurship is still in its initial phases (Shane & Venkataraman 2000 and Short et al. 2010).

Schumpeter’s thoughts can be regarded as one of the starting points of modern entrepreneurship research (Schumpeter 1934). Schumpeter proposed that the sources of innovation are in new goods, new markets, new methods of production, new sources of supply, or industrial reorganisation, and coined the term “creative destruction” in economics. Early entrepreneurship research was largely focused on problems regarding establishing, owning and managing a small business. Therefore research was also interested in differences between entrepreneurs and non-entrepreneurs (e.g. Gartner 1988). However, current research recognises that entrepreneurial activity can also happen inside an existing organisation (Amit et al. 1993).

Current entrepreneurship research has identified business opportunities and their development as the main focus of entrepreneurship research field (Kirzner 1973, Venkataraman 1997, Shane 2000, Alvarez & Barney 2008, and Short et al. 2010).
Business opportunities have been seen as moving along a path of opportunity recognition, opportunity evaluation and opportunity exploitation/execution (Venkataraman 1997). While the intensity and duration of the different phases varies in each venture, every phase can be recognised in each venture, to some degree (Venkataraman 1997, Davidsson 2003). As the venturing process moves through these stages the entrepreneur’s understanding and conception of the venture is expected to change as a consequence.

Much research has been conducted about each of the phases (opportunity recognition, evaluation and execution) but only little has been done about the whole process (e.g. Lichtenthaler 2005, Short et al. 2010). Holistic empirical qualitative studies about the entrepreneurial opportunity development process are also few in number compared to the number of studies throughout the whole entrepreneurship research field (Park 2005, and Alvarez & Barney 2010) and there is a need for this type of research in order to develop understanding of the process.

Entrepreneurship research initiatives should focus more on taking into account the environment and context in which the entrepreneurial activity takes place (Bruyat & Julien 2000, Busenitz et al. 2003, Eckhardt & Shane 2003, Park 2005, Sarason et al. 2006). This would provide an understanding of why certain activities take place the way they do. Currently, most entrepreneurship research considers industrial contexts merely as a limitation to the research scope, without rigorously considering how the context shapes the venture creation process.

However, software business combines characteristics of information and high tech business in a way that makes it an interesting field of research. There are also several categories within “software business”, most notably software product business, software project business and professional services (Hoch et al. 2000) and market segments systems and application software (Messerschmitt & Szyperski 2003), each of which has their specific business models and characteristics. Although most researchers seem to agree that the environment and context affects the entrepreneurial activity, they pay little attention to the special characteristics that the environment brings to the entrepreneurial activity.

While there is an interest in software start-ups in society, and software business research is an up-and-coming topic of research, there is little academic work published. Most research and business books have focused on characteristics that separate software business from other types of information goods businesses (Shapiro & Varian 1999) and on business models or management issues in software business (Hoch et al. 2000, Messerschmitt &
Most academic research and business books also focus on the management rather than the entrepreneurial issues of software companies. While there are some commonalities between entrepreneurship and management they can be seen as different sides of the same coin. Entrepreneurship is more focused on the creation of something new whereas management is about organising something that already exists. Hence most research focuses on the later stages of software companies rather than on the entrepreneurial first steps. Studies have also been done on the development of software business in industrial companies, i.e. on the typical customers of software firms (Väyrynen 2009).

1.1 Research problem and research question

Current entrepreneurship research has taken an entrepreneur-centric approach to opportunity discovery and creation (Alvarez & Barney 2010). Most studies are focused only on the entrepreneur. This puts less emphasis on the socially embedded nature of venture creation, creating an impression that the entrepreneur is in control of the situation. Current studies also widely disregard how the context – i.e. time, ways of doing business in an industry, history of individuals, etc. – shapes the venture creation process. Venture creation is arguably not the same in different contexts and research should focus on acknowledging these differences (Bouchikhi 1993, Low and Abrahamson 1997, Hjorth et al. 2008).

The current entrepreneurship research can benefit from a holistic view of new venture creation in different contexts.

This research takes a multidisciplinary view, combining entrepreneurship, and more specifically new venture creation, and software business research. The process of new venture creation as it is depicted in the theoretical part of the thesis is the unit of analysis and I will look at this process from the level of the entrepreneurs that create these new ventures. Software business is the contextual environment in which the entrepreneurial activity takes place. The research makes a novel contribution by rigorously applying the characteristics of the software business context to the new venture creation process. This research provides a valuable insight into factors that cannot be recognised when only looking at a single phase of venture creation.

This study makes a novel contribution to the field of entrepreneurship by contextualising the venture creation process in the software business domain. The research is done by looking at new venture creation activities from a systems perspective used to analyse creativity. The research aims to bring an
understanding of how entrepreneurs create new software business. The research
question that this research is seeking to answer is: How are new ventures created
in the software industry?

1.2 Research scope and limitations

Often studies on entrepreneurship start defining the scope of the study by
highlighting its temporal limits. The starting point for a study like this is usually
the point at which the entrepreneur first has a rough venture idea that is related to
the business that is started later on. This study does not take this approach. In this
study the temporal limits are not based on the firm’s age, the phase of the venture
creation process, or any other time-based measure. Because of the holistic nature
of the study, I believe that if we want to understand the venture creation process,
we need also to understand the individual behind the venture and how he has
come to the socio-temporal space where he has decided to engage in venture
creation. I aim to find out when the individual started to get experience about the
industry related to the business opportunity, and how the first seeds of
entrepreneurial thinking were planted. This entails a rather vague starting point
for the study in terms of temporal limits, but I believe this challenging limitation
must be made in order to gain insight into the phenomenon.

The end point for the venture creation process is also difficult to define. The
new venture creation process is often considered to end when the activities
creating the new business end and the process moves more towards being a
managerial process and small business management (Davidsson 2003). This
distinction is said to be the differentiating factor between entrepreneurship and
management fields of study. Entrepreneurship research is the study of a
phenomenon that happens before there is anything to manage or to lead. Temporal
constraints are sometimes defined as the fourth year after the establishment. After
this point it is generally considered that a company has reached beyond its valley
As with the temporal limits at the start, this study aims to set only vague temporal
limits in terms of the end point of the venture creation process. The end of the
venture creation process is considered to be the point at which the opportunity
within a company has reached a certain point of stability where it no longer
changes and development of the opportunity is limited compared to the earlier
situation. Data gathering in this study will be done in a way that allows analysis
over the time when stability is reached and the venture becomes “a stable company”.

The research design is also such that it is not limited to the first opportunity upon which the company is based. I will look at how the firm has been established but also how it has changed over time. The purpose is not to look at the organisation or its transformation per se. The focus is on the new ventures that organisations create during their life-cycle.

In terms of industry scope and context this research is limited to analysing software businesses. Software business itself can be divided into several segments, most notably packaged mass-market software and professional services (Hoch et al. 2000). Two notable differences between these two industries are the number of units sold and the degree of customisation. Packaged mass-market software is usually sold in the millions and is not customised to any specific customer. Professional services are highly customised solutions for specific customers and can be sold only to a single customer.

Software firms have been selected as the research target for this research for several reasons. First of all, the use of software is changing the world as we speak. The dominant firms are getting crushed by new, young and flexible companies that use software-based solutions to change industries. This makes software business a dynamic domain in which new opportunities are created virtually every day. Secondly, software business is nationally very important for Finland. The easy scalability of software products means that it can offer significant revenues if companies succeed in building successful software product businesses. This furthermore creates new jobs and enhances economic stability. Finally, from the perspective of research methods it makes sense to focus on a single industry. Csikszentmihalyi’s (1999) systems view is based on a contextually embedded research paradigm. By focusing on a single industry, the research can embed itself in the context and fully understand the venture creating processes in that industry. No further selection in terms of the industry segments will be done because this makes it possible to see how the differences in the software market will affect the venture creation process and will provide richer results on the whole process.

Like any research, this too has its limitations. The research data can be thought of to be biased in few ways. First, all of the case study firms have gone through a new venture creation process that has resulted in a new firm. Hence, new venture creation that happens inside an existing organisation and results in a new business unit are not considered. Second, all of the firms can be considered
to have been successful as they have survived for more than four years in the market. The results might be different if the empirical analysis also covered entrepreneurial processes that have resulted in a no-go decision in the evaluation phase or that have failed in the execution phase. Although the results would be much richer, obtaining this kind of data would be too difficult to get considering the research schedule and scope. Finally, because all of the case firms operate in the software industry, the results have limitations when applied to other industries. The overall holistic results will most probably be applicable to a wider range of industries. With the software business contextualisation the results are probably fully applicable only to industries related closely to software.

The methodological choices also bring their own limitations to the results. A common limitation related to retrospective research is that interviewees can play down or disregard the significance of some thoughts, discussions or actions (Huber & Power 1985). However, retrospective research will allow the interviewees to put their choices and activities in a different perspective and allow them to evaluate their actions in an in-depth manner. This limitation will be eliminated in part by also analysing documented material from the case companies.

1.3 Research design and methods

The research will first focus on the relevant issues in current entrepreneurship research and software business research. The first phase in the research is the analysis of previous software business research, which is carried out using Kitchenham’s (2004) method for performing systematic reviews. The method has been derived from the research traditions in medicine but as it has been applied to information systems sciences it is safe to use it in this context too. This offers a rigorous method for discovering the state of the present research. This research implements a lighter version of the research method as suggested by Kitchenham (2004). This lighter implementation follows the general guidelines of the original method for gathering the literature but carries out a lighter analysis of the findings with the purpose of saving some time in the research process. The purpose of the literature research phase is to find out the current state of research on new venture creation within the software business research field. Currently no in-depth reviews have been carried out in this field. In opportunity recognition and entrepreneurship there are some literature studies (e.g. Busenitz et al. 2003, Short et al. 2010) but these are often general and do not focus specifically on some
context. Special attention is given to software business research that relates to entrepreneurial issues in software business. The result of this review is a synthesis of the current state of software business research. Kitchenham’s method includes the definition of the following phases:

- Defining the research questions that the review is intended to answer
- Defining the search strategy
- Setting the study selection criteria and procedures
- Implementing the study quality assessment checklists and procedures
- Defining the data extraction strategy
- Synthesising the extracted data
- Defining the project timetable

The empirical part of the study is conducted using case and process study methods for data gathering and analysis. Data was gathered during 2006 in two research and development projects, Creadis and CreaTOL. Both of the projects were focused on studying and developing ICT companies, Creadis in the Southern Oulu region and CreaTOL in the Kainuu region. In total, 18 ICT firms were interviewed during the two projects by multiple interviewers, creating a dataset consisting of 52 interviews. This study includes a sub-set of the interviews that were carried out, focusing on the most software-intensive of those 18 ICT firms.

Data gathering was carried out in parallel with the literature review. However, the majority of the interviews were carried out during the early period of the literature review; hence the literature review had little impact on the interviews during the process. Because the interviews were semi-structured theme interviews with a wide range of topics, they could be conducted before the literature review was fully completed.

Before the interview data was analysed, an a priori model was created based on existing literature. The a priori model identifies the entities and processes that are present in venture creation. This model is used as a basis for coding and analysis. Some see such a model as limiting the ability to find interesting phenomena but I believe that it helps the researcher in identifying relevant concepts from the data. The a priori model in this study is such that it identifies the concepts but does not determine their contents.
1.4 Significance of the study

This research has important implications for both academics and practitioners. For academics this research gives valuable results for both the entrepreneurship and software business fields of research. Entrepreneurship researchers will see how a specific context affects the entrepreneurial process and how to examine entrepreneurship in a specific context. Software business researchers will see what goes on during the early stages of a software start-up. This research will further discussion on software entrepreneurship and new venture creation in software business. (As an example of a contextually rich study, see Ojala 2008.)

Business incubators, policy makers and entrepreneurs will benefit from this research equally. Previous research has shown that the business incubator’s role is not necessarily significant in the entrepreneurial process and it should be developed further (Davidsson & Honig 2003). As this research provides an understanding of the new venture creation process, it will also help incubators to develop their functions to better support the new venture creation processes in software and in general in high tech business. Policy makers will also be able to see what activities should be developed to support entrepreneurs and new-found firms. Through the results entrepreneurs can better understand what they actually go through in the venture creation process.

1.5 Definition of the main concepts

The new venture creation process is considered in this study to be the process though which business opportunities are transformed into businesses. This process is commonly considered to consist of the phases of business opportunity recognition, evaluation and execution (Venkataraman 1997). Some studies also give the whole process the title of the “opportunity recognition process”. In this study it is important to distinguish the recognition phase from the other phases. The venture creation process is considered to be a path, with the business opportunity moving through the different phases. This conceptual path is used to clarify the different phases in the business opportunity development path, even though the different phases might not be clearly recognisable in real life situations. In reality this is also a continuous process that has several loop-backs; e.g. opportunities are evaluated in the execution phase and through this evaluation the opportunities are developed further (Ardichvili et al. 2003).
At this point of the study the term software business should also be defined briefly. A further discussion of the definition can be found in Chapter 4. At this stage, “software business” can be broadly divided into two categories: tailored software solutions and packaged software solutions (Hoch et al. 2000). In the study I will look at venture creation in both business types. The type of device that is used to operate the software does not matter from this study’s point of view, i.e. the device can be a PC, a mobile phone or any other device. Devices *per se* that require software in order to run – such as mobile phones as sold to consumers – are excluded from this study. In this study a software company is defined as only a primary software company, i.e. their business is the production and sale of the software. This definition does not make any comments regarding the industry that the companies producing the software are in. A company producing and selling software for the health care industry can be considered to be part of the software business environment as well as the health care industry. This is actually quite often the case in software business. Secondary software businesses (companies building software to support their primary product) are excluded from this study (for a definition of secondary software companies see Väyrynen 2009).

### 1.6 Outline of the study

Chapters 2, 3 and 4 describe the theoretical background of this study. Chapter 2 serves as a general introduction to the literature on entrepreneurship, highlights the importance of this study and places this study within the existing research. It introduces the systems model that will be used in creating the *a priori* model. Chapter 3 focuses on new venture creation studies. This chapter differs from the preceding one in that it focuses more on the results of current studies on venture creation, whereas Chapter 2 focuses on the overall picture of entrepreneurship. Chapter 4 focuses on introducing the context of software business to the reader. It describes how the industry has developed and what the business fundamentals are. These three chapters create a continuum that is completed and contextualised as the thesis progresses.

Chapter 5 introduces the tentative research framework or the *a priori* model. The model is created using the concepts of entrepreneurship and software business and processes within the venture creation literature.

Chapter 6 provides a discussion about the philosophical underpinnings of the study and describes the research methods in further detail.
Chapter 7 creates the empirical part of this study. It introduces the case companies and provides analysis of data. It focuses especially on the processes within the venture creation process.

Finally, discussion and conclusions are offered in Chapter 8. This chapter highlights the main contributions of the study and the limitations on applying them, and makes suggestions for further research.
2 A research viewpoint on entrepreneurship

“Opportunity is missed by most people because it comes dressed in overalls and looks like work.” – Thomas Edison

This chapter is based on the scientific literature on entrepreneurship. It goes through the definitions and development of the entrepreneurship research paradigm and lays the theoretical foundations for this study. The chapter presents the overall research framework that is used to construct the rest of the study and argues in favour of a new kind of thinking in entrepreneurship. In short, this chapter is about what entrepreneurship is and how it should be studied.

Traditionally, entrepreneurs have been seen as the owner-managers that have established a company, own it and manage its daily activities (Carland et al. 1984, Shane & Venkataraman 2000). Major institutions in Finland also define entrepreneurs as those individuals that own at least 50% of the company shares (Suomen Yrittäjät 2010). When entrepreneurs and entrepreneurship are defined in this way, a range of actors and activities are excluded from the definition of entrepreneurship, even though they correspond with “entrepreneurial” acts of creating new things. Examples of entrepreneurial actors and activities outside the traditional realm of entrepreneurship include researchers who conduct novel research that changes our behaviour or artists who create new art that redefines what is considered aesthetically pleasing or entertaining.

Previous studies on entrepreneurship have focused on a rather wide range of topics. For example, the differences between entrepreneurs and non-entrepreneurs (e.g. Gartner 1985), entrepreneurship as an economic behaviour (e.g. Schumpeter 1934, Kirzner 1973), entrepreneurial finance (e.g. Denis 2004, McBain & Krause 1989), the psychology of entrepreneurs (e.g. Busenitz & Barney 1997) and reasons for entrepreneurial success (e.g. Gundry & Welsch 2001) have all been the subject of various studies. The study of entrepreneurship is also closely linked to other fields within business studies, such as organisational behaviour, strategy, and marketing, and to other sciences, such as psychology and sociology. It has been said that for a field of study to be useful and accepted, it should distinguish itself from other fields of science. It should do this by seeking answers to questions that other fields do not address, and it should contain a common understanding about the phenomena under study (Shane & Venkataraman 2000, Bruyat & Julien 2000). On the other hand, it has been said that one of the risks in future entrepreneurship research is that it focuses too closely on citing its own
publications and starts to lack connections to other sciences (Busenitz et al. 2003). This study aims to develop further the theoretical work on venture creation by seeing how ventures are created in software business. The aim is to advance the field of entrepreneurship studies by linking the study to the software field.

In addition to the entrepreneur there is usually an organisation present in the study of entrepreneurship. The organisation focused upon has usually been a young company that has already been established, and studies have analysed how the companies have come into existence or how they do business thereafter, i.e. these studies focus on small and medium-sized enterprises (SMEs). If we want to develop a full picture of how and why new companies and organisations emerge, we should focus also on pre-organisations (Gartner 1988). At this point, the research focus is on the creation of a new venture and on the efforts that either result in a new organisation or do not. The outcome of the process is not important per se. The interest lies in the efforts that are undertaken to create a new organisation.

Gartner (1988) proposes that the study of entrepreneurship should not be about entrepreneurs and non-entrepreneurs but rather about individuals, environments, organisations and processes. Entrepreneurship does not always require the establishment of a new organisation (Amit et al. 1993); opportunities can be developed inside an existing organisation or they can be transferred to another entrepreneur (Shane & Venkataraman 2000). Problems are encountered in research which focuses only on the entrepreneur or on processes that have led to the establishment of a new organisation. By focusing only on processes where ventures are created, we get a limited picture of the phenomenon. A fuller picture could be achieved by also studying processes that have resulted in a no-go decision.

Therefore entrepreneurship should be seen as a tool for use towards achieving certain goals. These goals can be abstract, such as “improving communication between people”, or concrete, such as “producing a piece of software that uses a certain communications protocol”. Therefore, entrepreneurship can be seen as a vehicle for making these aspirations into reality. Carroll & Mosakowski (1987) propose that entrepreneurship or self-employment is episodic, like being a student or being unemployed. At times people choose to do entrepreneurial things to reach certain goals. Sometimes this can become a lifestyle and people stay on as managers of a company they have established. However, these individuals should not necessarily be considered entrepreneurs (Gartner 1988) unless they also establish several other ventures and become serial or portfolio entrepreneurs.
As we can see from this short introduction, entrepreneurship is a dynamic field of research in development. The very purpose of all sciences is inherently to have discussions about the latest achievements in the field and how these will move the field forward. In the science of entrepreneurship these discussions are also often focused on the boundaries of the science, as seen before. In other fields, these types of discussion seldom arise. This indicates that entrepreneurship is a field of science that is still seeking its essential methods and focus areas. Past focus areas of entrepreneurship research have included at least the following:

- The entrepreneur
- Management of organisations
- Sources of opportunities
- Emerging organisations

The following section will focus on the previously mentioned topics and acts as a summary of the interest areas in entrepreneurship.

2.1 Recent developments in entrepreneurship as a research paradigm

This section goes through the development of entrepreneurship research and recent propositions about what should be the focus of entrepreneurship research. Although there has been debate in the scientific forum about what entrepreneurship research actually is, this does not take away the fact that entrepreneurs, opportunities and new venture creation all existed prior to the rise of scientific discussion on the topic. People have been engaging in trading, creating value and establishing companies, and new innovations have been making old innovations obsolete long before anyone thought of carrying out a survey on the topic. Unlike some other fields such as nano- or biotechnology, the phenomenon can hardly be regarded as new, even though the study of it might still be in its infancy.

Entrepreneur as actor

Venkataraman (1997) has noted that one of the problems in entrepreneurship research is that it has focused mainly on the enterprising individual. Instead of focusing only on the individual, entrepreneurship research should focus also on the nexus of individuals and business opportunities. Bruyat & Julien (2000)
propose that entrepreneurship research should focus on the dialogue between the entrepreneur and value creation. This value creation should be studied in relation to the environment, the project and the individual, all of which have specific characteristics. The value creation process should be studied as a process moving forwards in time and being capable of creating, learning from and influencing the environment.

While there has been discussion about taking a wider perspective on venture creation, the individual has remained a central actor in the process. Entrepreneurship scholars have been keen to understand who becomes an entrepreneur and how the entrepreneurial mindset forms. This is contrary to accounting or management scholars, who do not focus on understanding why someone becomes an accountant or manager. Instead of focusing on why someone becomes an entrepreneur, Sarasvathy (2004a) proposes that scholars should focus on: a) understanding why some individuals do not become entrepreneurs, i.e. focusing on the barriers to entrepreneurship, and b) helping those that have chosen to become entrepreneurial to design better firms, markets and economies.

Busenitz et al. (2003), on the other hand, propose that scholars should focus on studying the nexus of individuals, opportunities, modes of organisation and the environment. To study these constructs alone is not interesting, and a large number of studies focusing on the individual components have already been carried out. What is interesting is what happens at the nexus of these constructs. The study of the individual, for instance, should be focused on individual differences and cognitive processes and how they affect opportunity creation. The study of opportunities should not focus on the opportunity alone but on how the environment and/or individual affect the creation of these opportunities. Modes of organisation are about the management practices and resources, and the development of systems, strategies and structures that allow the creation of opportunities to take place.

Eckhardt & Shane (2003) note that previous studies on the enterprising individual have more or less assumed that the entrepreneur is a static entity whose capabilities, motives and personality remain stable and unchanging over time. This would mean that one could carry out a cross-sectional study and try to determine who will become an entrepreneur and who will not. Also inherent in this thinking is the assumption that markets are in a state of equilibrium. However, we know that when changes in our lives happen, we can change our motives for doing certain things, and our capabilities accumulate as we learn and
experience new things. Instead, Eckhardt & Shane (2003) propose that scholars should view markets as being in disequilibrium, where opportunities are exploited to create new businesses. This means that opportunities and new ventures are formed as a result of entrepreneurial creativity instead of optimisation decisions. Entrepreneurs should be studied as individuals changing over time. This would provide a better understanding of entrepreneurship.

The success and failure of new ventures

Most (if not all) companies are established with the aim of providing some income for the founder and with a high probability of success. However, company failure is a widely recognised fact. Companies go bankrupt, close and get taken over on a daily basis. In fact most firms do not make it past their fifth birthday (Audretsch 1991, Phillips & Kirchhoff 1989), and all firms, arguably, cease to exist at some point. However, company failure is commonly conflated with the failure of entrepreneurs: an “equals” sign is put between the types of failure. While it may be true in most cases, the entrepreneur’s failure or success does not have to equate to the firm’s failure or success. In many cases, company failure is determined only in financial terms. An entrepreneurial failure or success can arguably be judged using a wider range of criteria. An entrepreneur can establish a firm as a learning vehicle that is meant to be used only temporarily as a source of market information or as source of income. Once it has served its purpose, it is closed down. On the other hand, the entrepreneur’s goals for the firm might be higher than the firm manages to achieve, even though the firm stays alive. This can mean that the entrepreneur sees the firm as a failure while statistics see it as a success. Furthermore, the failure of a firm does not necessarily result from the failure of the entrepreneur, nor does the success of a firm necessarily result from the success of the entrepreneur. Because of these problems, along with mergers and firm buy-outs muddying the statistics on company failure, Sarasvathy & Menon (2002) propose that the study of the entrepreneur should focus more on understanding successes and failures from the entrepreneur’s point of view, rather than relying on the traditional interpretation of company failure (Sarasvathy & Menon 2002).
Business opportunities

While the individual has been the central point of focus for a large proportion of entrepreneurship studies, the concept of opportunity as the important point upon which to focus is starting to take the central role. The exploitation of business opportunities has been seen as one of the central components of entrepreneurship since as early as the 1970s (Kirzner 1973). Kirzner coined the term “entrepreneurial alertness”, which was generally interpreted as meaning that entrepreneurs had a special ability to notice business opportunities, and that this is why certain individuals became entrepreneurs. Even though Gartner (1988) later convinced the research community that the traits approach had had little success in explaining entrepreneurship, the concept of opportunities recognised by an individual has risen to a central role in the field of study: opportunity recognition is currently seen as one of central concepts in the field (Venkataraman 1997, Shane & Venkataraman 2000, Ardichvili et al. 2003). Even though the entrepreneur’s personality is currently considered to be an uninteresting research topic regarding who becomes an entrepreneur, the entrepreneur’s ability to recognise opportunities and the entrepreneur’s imagination have an effect on how and which opportunities are exploited (Ardichvili et al. 2003). Mere research of opportunities can however be short-sighted, and opportunities should be studied in relation to the individuals exploiting them, the mode of operation and the surrounding environment (Busenitz et al. 2003).

At a conceptual level, business opportunities can be divided into entrepreneurial opportunities and general business opportunities. The difference between these two types is that in entrepreneurial opportunities the entrepreneur must create new means and goals, but business opportunities are based on optimising existing means and goals (Kirzner 1997). An entrepreneurial opportunity, therefore, consists of a set of ideas, beliefs and actions that enable the creation of future goods and services in the absence of current markets for them (Venkataraman 1997). An entrepreneurial opportunity is, therefore, based on creating a new innovative business rather than on establishing an old and imitative one. By this definition, the level of novelty is primarily defined in relation to the opportunity, not to the creation process, actor or other entity.

Research on opportunities is currently biased towards supply-side opportunities (Sarasvathy 2004a). In this case the research inherently or deliberately presumes that markets exist or that they can be created. Demand-side opportunities are an area seldom studied, even though during the new venture
creation process the demand must somehow be created or found (see also Alvarez & Barney 2008). If consumers are hungry, this does not yet mean that there is a demand for hamburgers. If consumers are hungry for hamburgers, this does not mean that they are hungry for all types of hamburgers. One interesting viewpoint on opportunity creation should be how different abstract demands can be created within concrete markets (Sarasvathy 2004a).

**Opportunity – individual nexus and emerging organisations**

As mentioned previously, the entrepreneur has been a central and isolated concept in the study of entrepreneurship. Sarason *et al.* (2006) argue along the same lines as Shane & Venkataraman (2000) by saying that opportunities and entrepreneurs do not exist in isolation from each other. Sarason *et al.* (2006) note that most previous studies have focused on one or the other as individual entities. They propose structuration theory as developed by Giddens (1991) as a useful lens to be used in the analysis of entrepreneurs and business opportunities. Sarason *et al.* (2006) propose that: 1) the entrepreneur and the opportunity are inseparable and one cannot be understood if separated from the other; 2) entrepreneurs not only fill market gaps but co-evolve with social structures to create opportunities and enact ventures; and 3) certain structures are more salient than others in different phases (discovery, evaluation and exploitation) of the entrepreneurial process. Mole & Mole (2010) criticise the use of structuration theory by arguing that it has methodological contradictions that make it difficult to use in explaining and analysing opportunity enactment and and propose the use of a critical realist perspective theory (Archer 1995) instead. In their reply Sarason *et al.* (2010) note that because entrepreneurship is a complex and still unstructured social phenomenon, multiple ontological and epistemological assumptions, philosophical backgrounds and research methods should be used in understanding and explaining the phenomenon. No approach should be regarded as the best, just as different. Moreover, Sarason *et al.* (2010) point back to their original thesis. They argue that, as a dancer cannot be separated from the dance, the entrepreneur should not be separated from the opportunity. Both define each other and cease to exist if separated. The entrepreneur and opportunity enactment nexus should be studied in relation to the context in which they happen. This approach provides a more in-depth understanding of the opportunity enactment process.
Methodological issues in the study of firms

One common problem recognised with the study of firms or opportunities in retrospect is the survivorship bias. Only the firms that have survived to the point in time when a study is done get to participate. The ones that have ceased to exist are seldom the focus of interest because they do not show in the statistics. Something that has even greater effect on the results is the start-up bias. Only the opportunities that are realised and developed into a firm state get to show in the statistics at all. Gartner (1988) emphasised that entrepreneurship research should focus on the pre-firm stage of the firm, rather than on the actions after the firm has been established. Gaglio & Katz (2001) have proposed that research on opportunities should also focus on the opportunities prior to the execution phase. This would lead to richer results regarding why individuals choose to execute some opportunities and not others, why opportunities fail or succeed, and how entrepreneurs can be helped to better understand these issues.

The following sections further highlight the discussion about the development of entrepreneurship research. They will show how the field has developed from the study of the individual to the study of the venture creation process, and why this change has happened.

2.1.1 Defining entrepreneurship

One thing that shows that entrepreneurship as a field of study is still at the stage of early developments is the lack of a clear definition of the research field. Clear definitions of fields of study help in defining how the field should progress and what the central concepts of interest are (Davidsson 2004). However, when something is defined in exact terms, some things are included and others excluded. This can be harmful in the long run as it can hinder progress and prevent exploration into new territory. The thought that “this is not part of our field; we should not go down that road” can come to mind when one comes across an interesting phenomenon that seems relevant but which the status quo determines belongs outside the field’s scope. On the other hand, the lack of these tight definitions leaves entrepreneurship research open to interesting topics. However, for the purposes of a single piece of research it is often necessary to define a field in a sufficiently rigorous way. Without a clear definition, it can be hard to keep the research focused.
Previous literature has been lacking in definitions of entrepreneurship until recent years. Definitions have either been lacking or they have been mixed. As discussed earlier, the field has to a large extent been limited only to an actor and SME perspective. Who becomes an entrepreneur, and how this happens, has been the underlying interest of many studies (Venkataraman 1997, Davidsson 2004). Recent years have seen the acknowledgement of opportunity as one of the central concepts in entrepreneurship. One of the most widely recognised definitions is the one given by Venkataraman (1997), who said that entrepreneurship is about “the scholarly examination of how, by whom, and with what effects, opportunities to create future goods and services are discovered, evaluated, and exploited”. The definition includes various dimensions:

- Actions (how)
- Actor (by whom)
- Results (with what effects)
- Objective (opportunity)
- Temporality (future)
- Processuality and phases (discovery, evaluation, exploitation).

Davidsson (2004) offers a wide perspective on the problem of definition, and discusses in detail how to define entrepreneurship. Davidsson (2004) examines thoroughly the issues faced by researchers when defining entrepreneurship, and synthesises recent developments in the area. He offers one of the most complete analyses of the definition of entrepreneurship, and therefore I feel it is safe to use this as a starting point. I share his views on many of the issues presented, but also disagree with a few. I will not go through the whole definition process here. I will build my definition of entrepreneurship as used in this research by presenting here the most important definitions offered by Davidsson (2004), my disagreements with some of his definitions, and the implications that they have for this research.

Two dimensions of entrepreneurship

To start off with, Davidsson (2004) identifies two different definitions of entrepreneurship that describe two distinct social phenomena. The first definition of entrepreneurship focuses on owner-managers or (often small) independent firms. Entrepreneurship is therefore seen as an alternative to working for someone else, with a different risk and reward structure. Research on this phenomenon focuses on understanding why people choose entrepreneurship, what kind of
issues small business management faces when growing the company, family business issues, and issues of sharing time between leisure and work.

The second phenomenon focuses on understanding the change in any society, economy or organisation that is created by micro-level actors. Davidsson (2004) makes a note that research should focus on these individuals because it is always the individual actor that makes change happen. This change process often requires initiative and persistence to make it happen. Organisations themselves do not create change, although they might facilitate or hinder it. Davidsson (2004) builds his definition of entrepreneurship on the second phenomenon.

**Entrepreneurship as a market-changing behaviour**

Davidsson (2004) starts by joining Kirzner (1973) in his definition stating that entrepreneurship is about the competitive behaviours that drive the market process. This defines entrepreneurship as the behaviours a micro-level actor engages in that lead to certain market outcomes. This means that merely thinking about new ideas or introducing fatally flawed ones does not fall under “entrepreneurship”. Change needs to occur for entrepreneurship to exist. Secondly, the market context puts the supplier in the driver’s seat; it is not customers, legislators or natural forces that change the market. Davidsson (2004) introduces the notion that a first mover does not have to change the market and make a profit. It is more important that there is a market process that is driven by someone.

Davidsson (2004) continues by defining entrepreneurship as the introduction of new economic activity, and divides this behaviour into six types within the following four categories: new offer and new competitor (new to market, new to firm), geographical market expansion (new to market, old to firm), organisational change (old to market, new to firm) and finally business as usual and non-entrepreneurial growth (old to market, old to firm). Of these, the first two categories exemplify entrepreneurship and the latter two do not. The first type (new offer) is the most clear of these, consisting of new product being introduced to new markets. The second type (new competitor) is quite clear when one is talking about a start-up with an innovative idea and venture capital, but Davidsson (2004) also includes imitative ventures like hairdressers, corner stores and pizza places within this. However low their level of innovativeness is, they too change market behaviour. They are arguably always in a different place, they have a different selection of products or skills, or they have some other factor
which distinguishes them from previous ventures. The third type (geographical market expansion) has been regarded by some authors as merely imitative and simple repetition of past success and, it is argued, should not therefore be regarded as entrepreneurship. This would, however, lead to interesting conflicts, as Davidsson (2004) points out. If a company that is already doing successful business somewhere decides to copy that business in a new location, this would not count as entrepreneurship. However, when a new entrant did the same in the same way, it would account as entrepreneurship. This is hardly what we are aiming for. The fourth type of economic activity (organisational and ownership change) is something that Davidsson (2004) does not include in the definition of entrepreneurship because these have limited market effects. They can lead to such effects, but the changes themselves do not create the effects. Finally, the fifth and sixth types of economic activity (business as usual and non-entrepreneurial growth) are excluded. These are conditions where there are known products for known customers or the company is passively and reactively growing with the market.

Finally, Davidsson (2004) concludes that the degrees of entrepreneurship can be defined with regard to impact (direct and indirect) on the economic system, novelty to the market and finally novelty to the actor. Staying true to the original definition of these, only the degree of impact on the economic system serves as a useful criterion when defining entrepreneurship. The other two have two undesirable consequences. Firstly, a large number of novel innovations have been introduced to the market that have had no economic impact whatsoever (other than that of the entrepreneurs and their close associates losing resources). Secondly, if an actor has previously been passive, activity could be regarded as entrepreneurial (whereas previously active actors would not be regarded as entrepreneurial as they would not be changing their degree of activity).

**Definition of entrepreneurship in this study**

This research focuses mainly on the phenomenon of entrepreneurship as a market-changing process. The study is mostly interested in how new venture creation proceeds (or does not proceed) at the process level and what effects the market and other actors have in this. All this is examined at the process level, also taking into account the focal network, rather than at the actor level alone. This is a much more interesting approach because the new venture creation process involves actors other than the actor(s) initiating the process. Davidsson (2004)
also makes the note that the two phenomena (entrepreneurship as a small business management process vs. entrepreneurship as a market-driving process) are interrelated and hard to define as separate entities. They are different interpretations of the same real-life phenomenon. This is also true in this research. However, even though most of the research subjects are owner-managers of their ventures, this research is more interested in how the ventures emerge than in how the decision to engage in entrepreneurial activity comes about or has changed the owner-managers.

With regard to novelty and change, the study includes both as separate criteria for entrepreneurship. Contrary to Davidsson’s (2004) definition, novelty to the market should be regarded as entrepreneurship because it always has some impact on the society and the individuals involved in the process. Novelty is not needed for change to occur. Although change takes a longer time to have an effect and be noticed it serves as a clear criterion. As with Davidsson’s (2004) definition, the change should be targeted to the market context. However, it should also be noted that similar processes do occur in other contexts as well. Non-profit, governmental and arts contexts are the most notable contexts in which similar processes occur. While these should not necessarily be regarded as entrepreneurship, the processes that occur in these contexts should be kept in mind because they resemble entrepreneurship in such a clear way.

This raises an interesting question about the relationship between entrepreneurship and creativity. When we define entrepreneurship as being about changing a market through the introduction of novelty, we are close to definitions of creativity. Creativity is about introducing novelty in all fields of society, not only in the market, as Csikszentmihalyi (1999) argues. This raises the questions of whether entrepreneurship is merely creativity in a market context, and whether entrepreneurship researchers should focus more on research on creativity. There is much to gain by combining these two fields of study. Both are social sciences, at first glance both have an individual as a central actor, and both activities aim to change the current state of things.

2.1.2 Discovery and creation of business opportunities

As discussed above, entrepreneurship can be seen as a market-changing phenomenon. The basis of this change is business opportunities. The opportunities allow the market to be changed and novelty to be introduced to society. The study of business opportunities has been one of the central concepts
in current entrepreneurship studies. Discussion of opportunities is usually traced back to Schumpeter (1934) and Kirzner (1973, 1997), who were the first ones to connect entrepreneurship and opportunities. Schumpeter (1934) explained that entrepreneurship and innovation can happen through:

- The introduction of new goods
- The introduction of new methods of production
- The opening of new markets
- The opening of new sources of supply
- Industrial reorganisation

Through these innovations the entrepreneur creates creative destruction, disturbing the equilibrium that the markets are in. The idea of creative destruction relates also to cycles in the economy.

**Schumpeterian and Kirznerian approaches to business opportunities**

Schumpeter (1934) therefore had a bigger picture in mind when talking about opportunities, rather than merely the individual and his recognition of opportunities. Kirzner (1973) coined the term entrepreneurial alertness, which has been widely understood as a passive recognition process. This entrepreneurial alertness allows certain individuals to recognise opportunities in the markets that others do not see (Kirzner 1973). Entrepreneurial alertness is based on previous knowledge about what could be a viable opportunity, therefore allowing the individual to evaluate information, even when it is surprising (Kirzner 1997). The Schumpeterian and Kirznerian approaches have been widely seen as conflicting approaches to opportunity recognition theory. The Schumpeterian approach has been seen as an active and creative process in which the entrepreneur constructs the opportunities. On the other hand, the Kirznerian approach has been seen as proposing entrepreneurial alertness as a trait of an individual. Differences between entrepreneurs and non-entrepreneurs have been explained with reference to traits that entrepreneurs have and others do not (Khilstom & Laffont 1979). This makes the assumption that everyone can see the same opportunities and whether or not someone becomes an entrepreneur is solely dependent on whether they have the traits to act on the opportunity (Shane 2000). Recently, Kirzner (2009) made a comment on the discussion in which he highlights that he did not mean the processes to be conflicting but rather complementary. Both are needed, and they are different phases of the same process.
Types of opportunity recognition

Like opportunities, opportunity recognition can also be categorised into different types. Alsos & Kaikkonen (2004) divide opportunity discovery into four categories depending on the discovery method for the opportunity, or how the opportunities are perceived to exist. Opportunity discovery can be thought to be either a lucky coincidence or the result of active search (Gaglio & Katz 2001). Furthermore, opportunities can be thought to exist objectively in the environment regardless of the entrepreneur (Shane & Venkataraman 2000), or they can be thought to be subjectively created by the entrepreneur (Ardichvili et al. 2003). If opportunities are considered to be in the environment as objective facts, discovering them is mostly dependent on who has enough information, networks and other resources to discover them (Shane & Venkataraman 2000). If, on the other hand, opportunities are considered to be the result of active creation, the daily activities of an entrepreneur will cause the opportunities to emerge (Ardichvili et al. 2003). Through this taxonomy, four categories of opportunity discovery can be introduced as follows:

- Opportunity occurrence: Opportunities are *subjective* creations of the individual that are *passively* discovered.
- Opportunity creation: Opportunities are *subjective* creations of the individual that are *actively* discovered.
- Opportunity discovery: Opportunities are *objective* facts in the environment that are *passively* discovered.
- Opportunity search: Opportunities are *objective* facts in the environment that are *actively* discovered.

In their study on farm-based entrepreneurs, Alsos & Kaikkonen (2004) saw that opportunities that were based on search or discovery were more imitative and included a smaller growth potential. Opportunities that were based on creation and especially on occurrence were more innovative and if exploited “correctly” had a greater growth potential. This notion of the level of innovativeness is contrary to Saemundsson & Dahlstrand (2005), whose studies on technology-based firms came to the conclusion that too much market or technological innovation can limit growth. Saemundsson & Dahlstrand (2005) discovered that opportunities that were based on new market knowledge tended to grow slower than opportunities based on existing market knowledge. They also found that opportunities based on new market knowledge grew slower than opportunities
based on new technological innovation. Hence, the type of innovation (mainly in terms of whether it is market or technological innovation) also has an effect on the growth potential. The differences in the results of Alsos & Kaikkonen (2004) could be because farm-based innovations probably tend to be limited in terms of new market knowledge, as the agricultural market is more mature. Hence markets are more institutionalised and focused on productivity-enhancing innovations, whereas the technology-based market is still in its infancy, changing and being shaped, with new markets frequently being created.

Ardichvili et al. (2003) point out that opportunity discovery is affected by entrepreneurial alertness, previous knowledge, social capital, the entrepreneur’s motivation and creativity, and the type of opportunity. Sarasvathy et al. (2002) categorise opportunity discovery and creation processes into opportunities based on resource allocation processes, those based on market discovery processes, and those based on market creation processes. This categorisation is based on studies on dispersion of market knowledge and financial uncertainties (Hayek 1945, Knight 1921, Buchanan & Vanberg 1991). Hayek (1945) divides knowledge into scientific and dispersed knowledge. Scientific knowledge is relatively stable and known by the professionals in the field. Dispersed knowledge is woven into certain places and times and its significance can be judged only by certain individuals who are connected to that context. Of these two types, dispersed knowledge is considered to be the source of financial uncertainties and therefore the source of entrepreneurial opportunities and of the existence of entrepreneurs (Venkataraman 1997, Shane 2000).

**Uncertainties as a source of opportunities**

Where, then, do these opportunities come from? One answer lies in the uncertainties that are in the markets. Uncertainty is experienced in many situations, and one common source of these uncertainties is a lack of relevant information (Knight 1921, Shane 2000).

Knight (1921) proposed that uncertainties can be classified into three types. *First*, all possible outcomes and the probability of each outcome can both be known. In this situation investing and entrepreneurship are all about calculating odds and betting on the most likely outcomes. A metaphorical example of this situation would be one in which there are five red balls in a bowl, each of which wins 10 Euros, and three green balls that win nothing. *Second*, the outcomes can be known but their probability unknown. In this case the probabilities must be
sought out through a series of tests. The example here is a case where the colours and winnings of the balls in a bowl are known, but the number of balls is not. The third type of uncertainty is true uncertainty (Knightian uncertainty), where both the outcomes and the probabilities are unknown. The bowl could be full of green or red balls, it could be empty, or it could be full of something previously unthinkable (such as blue cubes).

Based on Knight (1921) and Hayek (1945), Buchanan & Vanberg (1991) propose that in true uncertainty entrepreneurs have to use creativity and imagination to create ventures. This changes the way in which entrepreneurship is conceived, as it was previously considered to be more about resource allocation and market discovery. Sarasvathy (2001a) finds support for this market creation, creativity and imagination perspective. She proposes that this is an opposing view to the traditional view of predicting the markets. She finds that in a situation when there are no ready-made markets for a new product, experienced entrepreneurs use creativity and create the markets. Resource allocation and market discovery are based on thinking that “to the extent you can predict the future, you can control it”, but market creation or the logic of effectuation is based on thinking that “to the extent that you can control the future, you do not need to predict it” (Sarasvathy 2001a). This logic enables survival in the face of Knightian uncertainty.

Types of uncertainty

Based on the above, Sarasvathy et al. (2002) propose three views of entrepreneurial opportunities that are similar to the ones Ardichvili et al. (2003) propose. It is not a question of which of these views is more right or wrong but rather which is more applicable in different conditions of uncertainty. Sarasvathy et al. (2002) propose that opportunity discovery can be represented as:

- Opportunity recognition: Both supply and demand exist; opportunity is based on recognising the demand and offering a known solution.
- Opportunity discovery: Either supply or demand is unknown; the unknown side has to be “discovered” (e.g. through R&D work or market creation).
- Opportunity creation: Neither supply nor demand exists in an obvious manner; both have to be created, typically involving several other inventions (marketing, technical, financing etc.).
Quite often entrepreneurs come up with opportunities that lack a clear demand and even the product is unclear. The initial market is based on innovators that account for only a fraction of the total market. These innovators are keen to try new things but building a market based solely on them is often difficult because they are a rather small user group (Rogers 1962, Moore 1991). After a few years, once the market has developed a sustaining ecosystem, follow-up products manage to achieve greater growth. In this type of environment there is Knightian uncertainty present (Knight 1921). In this type of environment, traditional management methods based on demand functions, market research and causation-based thinking in general do not work (Sarasvathy 2001b). There is no demand to be evaluated and no markets to be studied. In this situation the entrepreneur must “boldly go where no one has gone before” and start doing things that enable the creation of opportunity.

Coping with uncertainty to create new ventures

Opportunity creation in a situation that lacks supply and demand is a largely unexamined topic in entrepreneurship studies. Studies presuming supply and demand are more common. Sarasvathy (2001b) proposes that action-based effectuation behaviour is used to create opportunities. The theory of effectuation is based on entrepreneurs’ doing things through their own experiences, knowledge and resources, using relationships to gain commitments to the opportunity. This theory provides a view opposite to that of causation- or goal-based thinking, where the goal is set and activities are performed to achieve that specific goal (the discovery of opportunities). In effectuation a set of available methods is selected through activities which are performed. Initially, the outcome or goal of the activities is neither important nor clear, and it can change during the process, based on the results of the activities.

This can be exemplified by a case of two chefs preparing a dinner. The first chef is given a menu, after which he goes to gather the ingredients and then makes the dinner. This is traditional causation-based thinking, with a predetermined goal and activities aimed at achieving that goal. If something unplanned happens, it causes stress because the unplanned event often takes away from the goal. Instead of seeing the unplanned event as an opportunity to change the menu, the chef tries to minimise the effects of the event and get back on track in terms of creating the initial menu. This first chef is always bound by the menu (the goal) in his work. The second chef is given the task of preparing a dinner, but
no menu. This chef has to use his knowledge, skills and tools, and the ingredients in the cupboard, to prepare the dinner. Burning the bread is not harmful unless there is too little time left to do something else. Taken to the extreme, the chef has only the task of creating entertainment for the dinner guests. It is up to him how to solve the problem. Unplanned events are still unplanned events, but because the goal is not fixed, any events which occur might change the intended course but never take it away from it. Effectuation is most applicable in the case of expert entrepreneurs, because they have a more knowledge and a larger network that they can use to create the opportunities (Sarasvathy 2001b).

The process of effectuation is based on the entrepreneur him/herself. This gives the entrepreneur a pool of resources that can be used and things that can be done. Through interaction with others the entrepreneur gains commitments that enable the creation of new means and new goals that eventually lead to the generation of new social artefacts, which can include new firms. The process is based on building a bigger pie rather than worrying who will get the biggest piece of it. (Sarasvathy 2004b.)

Effectuation is based on the following principles (Sarasvathy 2001b):

- Affordable loss rather than expected returns: Select means that in the event of failure result only in affordable losses. Aim at creating means for the future rather than profits today.
- Strategic alliances rather than competitive analysis: Uncertainties are reduced through precommitments and partnerships.
- Exploitation of contingencies rather than exploitation of pre-existing knowledge: In rapidly changing environments it is better to explore than to rely on current knowledge.
- Controlling an unpredictable future rather than predicting an uncertain one: This is contrary to causation-based logic, which aims at predicting the future.

Effectuation and entrepreneurship theory

Effectuation is not a totally new way of doing things. It is something that people and entrepreneurs do naturally and in part automatically. Even though effectuation can present itself as an ad-hoc process, it is not. The actor and activities determine the way the process proceeds. Luck and randomness has its part in the process, as in life in general, but the main driver of the process is the actor who determines where the process moves (Dew & Sarasvathy 2002). The theory provides
explanations for situations where entrepreneurs and managers create opportunities using imagination and creativity in a situation where demand and supply have to be created (Sarasvathy 2001b).

Effectuation-based thinking provides a solution to decision making under Knightian uncertainty presented by Knight (1921), March (1976) and Weick (1979) where the actor has to make decisions under conditions of uncertainty and based on incomplete information. In Knightian uncertainty, the future outcomes and their probabilities are unknown to the decision maker. March (1976) questions the current thinking on predefined goals. His thesis is that actors have to make decisions even though their perspective on possible future goals is unclear. Weick’s (1979) thesis is that actors make decisions with irrational perceptions of the environment. The Knightian-Marchian-Weickian decision making space can be called the suicide quadrant (Dew & Sarasvathy 2002). In the situation both the market and the product are new to the actor. This is a common situation in technology markets, where the products and markets are unclear and have a high novelty value. It is difficult to derive examples from previous situations because the situations differ extensively (Dew & Sarasvathy 2002).

**Discovery and creation paradigms as conflicting and complementary views on entrepreneurship**

Within the previously presented entrepreneurship discussion there are two theories: Discovery Theory and Creation Theory. Alvarez & Barney (2008, 2010) have carried out a review of the two theories and their implications on the study of entrepreneurship, which is worthy of a closer look. Of the two paradigms, Discovery Theory is the older and more widely discussed in the literature. The Discovery Theory sees opportunities as exogenous and the entrepreneur as playing a passive and reactive role to these opportunities. The opportunities exist independently of the entrepreneur, and the role of the entrepreneur is to search for these opportunities. Creation Theory sees opportunities as not necessarily evolving from pre-existing industries, and the entrepreneur as the essential source of these opportunities. Opportunities do not exist independently of actions taken by entrepreneurs, and searching for opportunities has little or no meaning. After a firm has been created it can be easy to identify an industry and an opportunity, but prior to the emergence of opportunities this is impossible.

The two paradigms can be seen as both conflicting and complementary approaches to entrepreneurship. The conflict arises when we look at how the
theories see the phenomena. Discovery Theory is focused on the search for an opportunity and for all the information related to that opportunity, and gathering resources to execute an opportunity. The success of an entrepreneur depends upon whether he or she can find all the information related to an opportunity. Creation Theory, in contrast, suggests that success is achieved through an iterative and incremental process which is flexible. Resources are gathered as the process moves forward (Alvarez & Barney 2008). It could be argued that Discovery Theory spends much of the resources at the start, while the Creation Theory starts off small and raises resource commitment and use as the opportunity becomes clearer. The paradigms can be seen as complementary because they create the boundaries within which each theory is most suitable. In risky conditions, where possible outcomes and their probabilities are known, Discovery Theory is more likely to lead to a positive outcome. Similarly, under uncertain conditions where neither the outcomes nor the probabilities are known, Creation Theory is more likely to lead to a positive outcome.

The important notion that Alvarez & Barney (2008) introduce is that a venture can change from following Discovery Theory to following Creation Theory and from Creation Theory to Discovery Theory. As Alvarez & Barney (2008) note, Discovery Theory is more focused on imitative ventures where resource allocation is the primary focus. Creation Theory, on the other hand, is focused on innovative ventures where convincing others is the primary focus. Every venture arguably goes through these different modes several times during the venture creation process.

**Discovery and creation in other sciences**

The discussion concerning the two paradigms has its roots in a wider philosophical discussion. The discovery and creation paradigms have also been identified in software engineering work, where Blum (1996) has called for a paradigm shift away from discovery- and science-based thinking towards creation- and design-based thinking. Without going into too much detail, this discussion greatly resembles the discussion that has been raised in entrepreneurship. Both disciplines see the discovery-based paradigm as coming from the logical positivist and objectivist school of thought and the creation paradigm as coming from the social constructivist and subjectivist school of thought (Blum 1996).
While the phenomena of entrepreneurship and software engineering are quite different, they have some commonalities. Both are human-centric (as opposed to nature- or hard science-centric), the aim is to change human behaviour through novelty (creating ventures or creating software) and both have similar “end products” (firms in entrepreneurship and software in software engineering) that are designed rather than discovered through a scientific process. The main implication of these commonalities is that researchers should focus more thought on the philosophical connections their studies have and the effects that these connections have on the research questions, methods and implications.

**Differences in discovery and creation**

Alvarez & Barney (2008) propose that when we start looking at entrepreneurship from a creation perspective, different questions start to arise. The traditional questions about where opportunities come from and the differences between entrepreneurs and non-entrepreneurs are replaced by questions about how entrepreneurs create opportunities and how the incremental and iterative opportunity creation process changes decision making. Blum (1996) similarly proposes a different focus in software engineering. In the case of software the paradigm change shifts focus from the stability of software and predetermined specifications to the adaptability of software and changing specifications, from objective to subjective, from reduction, decomposition and generalisation to holistic thinking and contextualisation, and from explaining the world to changing the world. These fundamental paradigm shifts not only affect research of the phenomenon, they also affect practice of it. Whether we as researchers want to help build better organisations or better software, we should shape our questions to better target the phenomena under study and the problems identified within the practice. The distinction between the two paradigms can be represented by thinking of the discovery paradigm as focusing on the “What is the right answer?” question and the design paradigm on the “What is the right question?” question. A more thorough philosophical discussion concerning the two paradigms is introduced in Chapter 6, Research design.

While the debate about whether opportunities are discovered or created is interesting and necessary for the field to move forward, I believe that it is partly fruitless. I believe that when we discuss discovery and creation, we are discussing two different phenomena (see also Alvarez & Barney 2010). The question should not be that of whether opportunities are discovered or created. They are both.
Entrepreneurs initially discover spaces for opportunities in the marketplace. They do not discover or see opportunities per se. After that they make the opportunities into reality, making them visible through organisations, trade and other forms of business with others. What we as researchers should be interested in is how these phenomena work, what the interplay between discovery and creation is, and how we can help entrepreneurs in these processes. When looking at the processes in retrospect, one can easily come to the conclusion that there was a space in the market that has now been filled, when in fact the space in the marketplace was created. Much of the same thinking is shown in Kirzner (2009), who explains the misinterpretation of his concept of “alertness” as an opposing view to the Schumpeterian creativity perspective. Kirzner (2009) argues that alertness precedes creativity and that both are needed to create disequilibrium.

**Summary**

Through the previous discussion we can see two views on venture creation: the discovery paradigm and the creation paradigm. Because of the differences in business opportunities, opportunities also develop differently. The study of venture creation therefore sees a different type of venture creation pattern that emerges. Some opportunities seem to be discovered through search or occurrence; others are painstakingly created. Probably in part because of these differences, the two different paradigms for venture creation have been established.

One way to differentiate opportunities is through the uncertainties they and their entrepreneurs experience. The amount of uncertainty affects the conversion of opportunities into ventures and eventually into viable businesses. The greater the uncertainty the entrepreneur experiences, the more likely it is that the creation will happen through the creation paradigm, e.g. through effectuation, slowly gaining commitments from others and changing goals as the venture emerges.

The opportunity creation perspective lays the groundwork for developing new types of approaches to the study of entrepreneurship. If opportunities are created through social interaction, they must also be seen to be embedded in a wider social context. In the next section, I will focus on the contextually embedded nature of entrepreneurship and what this could mean for the study of venture creation.
2.1.3 Entrepreneurship as a contextually embedded activity

This section focuses on understanding why venture creation studies should care about context, what is actually meant when we talk about context, and how contextual conditions could be embedded in software business studies and in organisation studies as a whole.

While many discussions on entrepreneurship and opportunity creation have noted that entrepreneurship is not about entrepreneurial traits or about the entrepreneur per se, the discussion remains entrepreneur-centric (see Short et al. 2010). Studies are primarily interested in the capabilities, resources, networks or similar entrepreneur centric issues. This is still true, even now proposals for future directions in entrepreneurship studies have emphasised the role of surrounding context, opportunity, processuality and other non-entrepreneur-related issues in venture creation.

A stream of current entrepreneurship research is focusing on understanding the emergence and growth of new ventures. Many research proposals have highlighted the importance of environment and context in researching new venture creation processes (e.g. Gartner 1985, Busenitz et al. 2003, Park 2005, and Baker, Gedajlovic and Lubatkin 2005). These contextual conditions make venture creation processes different in different industries and contexts.

Recently, there has been a debate about whether opportunities are recognised or created (Alvarez & Barney 2008), and how these two viewpoints differ. If we view opportunities as being created rather than recognised by actors, we need to understand the history of the actor, the industry, the region, the institutions – in other words, the context in which creation is happening. Opportunity creation in Silicon Valley is different from opportunity creation in Helsinki. What might be considered as an ambitious growth venture in Helsinki might not get the same attention in Silicon Valley. Similarly, the processes for opportunity creation are arguably different in Silicon Valley from those in Helsinki. Understanding the context will help us to understand better why ventures are created the way they are.

Context in entrepreneurship

If entrepreneurship scholars want to understand the process of venture emergence, we need to understand the context in which the opportunity emergence takes place. One example of a problem arising from neglecting the context is the role of
patents, which is very different in the software industry from, say, biotech. While a software company is not usually founded on a business opportunity based on patents, in biotech this is usually the case (Zahra & Bogner 2000, Smith & Mann 2004). Measuring the number of patents as a precursor of venture growth, without taking into account their relevance in the context, can easily lead to false conclusions about what leads to growth.

Context can affect research into a phenomenon in various ways. For example, in organisation studies, context can be defined as focusing on the salience of situational features, situational strength, as a cross-level effect, as a configuration or bundle of stimuli, as an event, as a shaper of meaning or as a constant (Johns 2006). These can be seen as national-level, regional-level, industrial, social, historical, personal, between individuals, or in many other similar terms that in some way separate or connect different phenomena. In broad terms, context can be defined by the conditions surrounding a situation or activity that define it in a spatio-temporal space.

*Context in management and entrepreneurship studies*

Nelson (1991) argues, based on management and economics studies, that economic analyses should recognise firm differences explicitly. Economic analyses do account for external differences such as country and industry but discretionary firm differences are often disregarded. Because of this, economic analyses fail to recognise why and how industries are changing. If discretionary differences were considered, these reasons could be more thoroughly analysed and understood. This also holds true for entrepreneurship research, but for different reasons. Firm-level differences should not be repressed if we want to build a theory of how the entrepreneurial process works. Differences in different types of processes should be acknowledged because only that way can we find the essence of the entrepreneurial process.

The recognition of industry-specific characteristics is often forgotten in business research and by business researchers. One example might be Torres & Murray (2003), who both have a business background, in their study of the role of networks among Irish software firms. When describing their research methodology and sample, they give little description of what type of firms within the software domain were selected. The types of firms researched could represent project-based software firms building application platforms for other software companies, or they could be software firms building web-enabled applications for
consumers. Clearly the types of networks required in these settings are quite different.

Recent developments in entrepreneurship research have put emphasis on the research of the context in which the entrepreneurial activity is taking place. The Scandinavian Journal of Management (Volume 24, Issue 2, 2008) published a special issue on recontextualising entrepreneurship. The editorial (Hjorth et al. 2008) raised concerns about current entrepreneurship studies being too conservative, too “normal” and decontextualised to the extreme in the desire to look for generalisations. Much innovation in research comes from combining new methods, theories and views on the research topic. This development has been fairly limited among entrepreneurship scholars. Hjorth et al. (2008) propose that entrepreneurship research should focus on creativity and contextuality in order to understand the entrepreneurial processes. Moreover, by “entrepreneurial processes” they do not only mean starting a business, but also the arts, and other processes of social life that change our socio-cultural context.

Similarly, Sundin & Tillmar (2008) show how entrepreneurial processes can be seen in Swedish public sector organisations. As part of their theoretical discussion, they open up discussion around the Swedish welfare state, the role of public sector organisations and the specific institutions and how these affect the enterprising individual inside the organisations. The focus is on the middle and lower hierarchical levels of the organisation in which the research subjects (a nurse and a civil servant) are working. The interplay between the entrepreneur and the context is emphasised, and conclusions are drawn from it. Entrepreneurial processes that are found are embedded within the specific organisations, and motives for the activities are better understood. This gives a more accurate and in-depth view of the entrepreneurial activity than mere variance-based methods that aim for generalisation and decontextualisation.

Recently, Johns (2001, 2006) and Grant & Wall (2009) have commented on the relevance of context in organisational research. Context should not be a mere description of the organisation, industry, society or phenomenon. This does not really show how the context affects the phenomena under study. Instead the contextual factors should be understood by the researcher(s) and their effects described in the study. This often requires accepting a humble and cooperative attitude when working with the management and employees. Furthermore, it most probably requires that the researcher has some experience regarding the organisation, industry or phenomena under study. Neither should the contextual
considerations focus only on what makes the organisation like no other, but also on what makes all and some other organisations alike.

This is not to say that business researchers should only carry out context-specific research, but rather that when carrying out context-specific research, the context should bring some added value to the research. This should not be done merely by using variables measuring different socio-cultural aspects (Hjorth et al. 2008) but by understanding how the socio-cultural context is embedded in the entrepreneurial processes.

**Contextualising software business research**

Why then, in the case of software business, should we pay special attention to the context? And how should we do this? For some studies it may be enough to group all high-tech businesses into one and consider that group as a single entity. The software industry can be considered as part of the high-tech industry if we are comparing different industries (e.g. agriculture and high-tech industries). However, when looking specifically at a single industry, the reasons for acknowledging the context are many and quite obvious if one looks at the phenomenon in depth.

Treating all software firms as similar can also lead to problems. For example the number of employees in software product firms is not always a relevant metric for growth. The number of customers or units shipped and installed is usually a more important measure of success. For software service companies the number of employees is a much better metric for growth, while the number of projects might not give the right kind of indication. More discussion of the differences between high-tech industries and software businesses is carried out in Chapter 4, where I focus on describing the software business context.

In IS research there is a discussion about IT artefacts and their role in the research. IT is usually taken for granted and seen as an unproblematic entity (Orlikowski & Iacono 2001). Sein & Harindranath (2004) have noted that “IT has been conceptualised as a monolithic and homogeneous entity” in national development studies. Partly because of this, studies have come to contradicting results about the effects of IT on national development. They argue that the IT artefact should be examined in finer detail to fully understand its effect on national development.
Contextualising software business research – the role of technology

The role of patents is different in different high-tech industries (Zahra & Bogner 2000). For example, the number of patents is much more relevant for biotech firms than for software companies. Biotech ventures base their patent portfolio on years of R&D, and their business opportunity is based on that portfolio. For software product businesses, ventures are seldom based on patents because patenting is simply more difficult for software innovations.

Park (2005) highlights the role of technology in opportunity creation. He proposes that in high-tech start-ups, venture creation processes are mainly determined by the entrepreneur, the technology, and previous knowledge and experiences. The relationships and interaction among these concepts should be studied in a holistic way, rather than individually, which has been the trend thus far. This way the interplay between the concepts with regard to new venture creation would be better understood, allowing more rigorous theory development. Park (2005) has identified the fact that in current entrepreneurship literature the relationship between technology and the entrepreneur in particular is a widely disregarded relationship. This is a result of the underlying assumption that technology is commoditised and is known to all and available for use by everyone. In reality, technological exploitation requires a great deal of previous knowledge about how to apply a particular technology.

Autio (1997) went through the development patterns of spin-offs derived from projects at Stanford University and noticed that traditional growth and innovation models do not work when it comes to new technology-based firms. Traditional growth models have suggested an evolutionary and linear mode of development for these new ventures. Traditional innovation models, on the other hand, suggest that companies carry out in-house development and release their innovations to the public once they are finished. Autio (1997) noticed that the innovation processes of these companies are more systemic and iterative than previously thought. They combine internal and external resources and participate in networks to create new innovations. Autio (1997) also notices a complementary relationship rather than a competitive relationship with new and established technology firms. This notion is important in recognising that opportunity creation is a systemic process in which new opportunities are socially constructed by multiple organisations.
Contextualising software business research – social embeddedness

Spilling (1996) recognises the entrepreneurial system as consisting of business structure, socio-cultural structure, economic cycle, entrepreneurial climate, actors, opportunities and entrepreneurial events. He looks at how the 1994 Winter Olympics in Lillehammer affected the entrepreneurial climate in the region, resulting in entrepreneurial activity through the creation of opportunities by a wide range of actors. The Winter Olympics enabled a learning process that arguably changed the business structure and cultural structure, creating a different kind of entrepreneurial climate from the one existing before the process. Entrepreneurship and its various forms are rooted in the social structures of an area (Spilling 1996). Entrepreneurship is therefore also a form of community-building activity and is dependent on the acceptance of the community. Entrepreneurial activity can start from a single individual doing entrepreneurial activities, but the participation of at least a significant part of the community is required for the activity to have some effect or succeed. What is noticeable in his study is that Spilling (1996) elevates the learning process that occurred during the entrepreneurial activity to an important position in its creation of a more dynamic ecosystem in the area.

The role of the socio-temporal dimension on success has also been raised in popular business literature. Gladwell (2008) explains how culture, family, time and place have affected the great success stories of various individuals and organisations, including Bill Gates and The Beatles. Bill Gates’ success is not only a result of his intelligence, business or technical skills or networks, although these have undeniably had something to do with the process. His success, like that of many other successful entrepreneurs, has also happened because he was in the right place (in Harvard where the major innovations were happening) at the right time (at a young age during the birth of the micro computer) and had gained the right skills because of the support (financial and emotional) from his family that allowed him to spend time experimenting with electronics and programming from an early age. As the child of two academically oriented professionals, he had access to computers at the age that most children learn to read. Bill Gates also had the chance to do programming with the most advanced programming languages of the time. Given these somewhat lucky and arbitrary factors, it would be safe to say that he was the only individual in the whole world who had the experience of programming from that early age and at that time. He was one of the few individuals who even had the chance of gaining that experience. These skills,
combined with the fact that his vision was not blinkered by having to work with mainframe computers, which would have prevented him from imagining the possibility of a computer at every desk, allowed him to create Microsoft. The socio-temporal spaces that support extraordinary successes are limited, and hence the phenomenal growth stories of the likes of Gates, the Rockefellers and The Beatles do not occur every year, nor even every decade. What these spaces and success stories do have in common is that the spaces are discontinuous to the current era and status quo, and that the individuals are committed and take the initiative (Gladwell 2008).

Finally, the relationship between opportunity creation and context can be seen as two-directional. While opportunity creation is dependent on the context – it changes depending on the context and takes on different forms in different contexts – opportunity creation also changes the context as it proceeds. Because entrepreneurial activity is also transforming the spatial and temporal context, more research needs to be done to understand this change process. This calls for in-depth real-time process research in order to fully capture the rich nature of the new venture creation process.

The issues raised above highlight the importance of understanding more deeply the contextual factors that affect the way new ventures are created. If entrepreneurship research simply ignores the effects of context on the process, the field will be unable to deliver results that build theory and also have significance from an industrial perspective. This requires an examination of more than simply the individual or opportunity. These must be studied in conjunction with other individuals and the society, culture and history of an industry. One way to approach the study of similar phenomena is through systems theories.

2.2 Systems theories in sociology and organisation studies

As discussed in the previous section, entrepreneurship research has developed from the study of the individual to the study of opportunities and their development. For this development to be fruitful we must also look at our methods and approaches to theory development. Next, I will turn my gaze briefly onto systems theories that seek to explain social behaviour with a “wide-angle lens”. Systems theories are essentially holistic theories about how the world works, rather than precise theories about how specific components of the world work as they do.
Recent developments in entrepreneurship studies have seen a rise in systems models for entrepreneurship. For example, Bouchikhi (1993) and Low & Abrahamson (1997) have called for a systems approach to entrepreneurship that would integrate the phenomenon of entrepreneurship with the individual, environment, chance events, prior experience and industry phases.

De Clercq & Voronov (2008) suggest that entrepreneurship is a balancing act between innovation legitimacy (being innovative or different) and institutional legitimacy (fitting in). A new venture must be innovative in order to be differentiated from other ventures, but it must also be aware of the traditions and culture that is expected of it. De Clercq & Voronov (2008) propose Bourdieu’s theory of practice (e.g. Bourdieu 1977, 1990) as a useful model for analysing the socially embedded nature of venture creation. Elam & Sardana (2008) propose Parsons’ general theory of action (Parsons 1937, 1951, Parsons & Smelser 1956) as a useful lens through which to see entrepreneurship and place it in a larger social system. Parsons positioned entrepreneurship as an integrative function for the economy, solving market inefficiencies and transforming markets to better serve the economy and society. Holt (2008) and Kauppinen & Puhakka (2009, 2010) have proposed activity theory (Engeström 1987, 2001) as a useful lens for seeing how the activity system transforms as entrepreneurs introduce new innovations into it.

Yet no systems model has been popular among entrepreneurship scholars. Many current entrepreneurship studies are still variance-based and focused on the efforts of the individual (Hjorth et al. 2008). Next, I will briefly discuss three alternative systems theories that could be applied to the study of entrepreneurship: Parsons’ general theory of action, activity theory and finally Csikszentmihalyi’s systems view of creativity. These three systems theories have been selected because they offer alternatives that have not been used in entrepreneurship studies to a great extent, and they offer a clear conceptual framework with which to begin. Other alternatives could have been, for example, structuration (Giddens 1984) or institutional theory (Scott 1995, 2004) but these have already been used in entrepreneurship studies and do not offer a clear conceptual structure from a systems perspective.

2.2.1 Parsons’ general theory of action

Talcott Parsons was a sociologist who sought to understand human activity in a society. He developed his general theory of action to theorise how individual-
level social action and system-level structures intertwine. Parsons’ theory is based around the AGIL paradigm, which can be used to analyse virtually any living system. The name “AGIL” comes from the four components of the theory, which are:

- Adaptation
- Goal gratification
- Integration
- Latent pattern maintenance and tension management.

Adaptation refers to the system’s ability to adapt to the environment. Goal attainment means that every system sets and achieves different goals. Integration refers to the ability of a system to integrate difference into itself. Finally, latent pattern maintenance and tension management refers to the system’s ability to maintain solidarity within itself. (Parsons 1937, 1951.)

Parsons used the framework to analyse economic systems in Parsons & Smelser (1956). Here, he identified entrepreneurship as one of the key economic drivers in a social system. In the AGIL framework, economy was the adaptation (A) component in society. In terms of the economy, he saw that entrepreneurs and innovations transform the society by changing markets and human behaviour. He saw the role of entrepreneurship role first and foremost as an integrator (I) within the economy.

Elam & Sardana (2008) propose that Parsons’ general theory of action should be revived and applied to modern entrepreneurship research, especially in the areas of institutional economics and economic sociology. In line with Parsons’ original thinking, they propose that entrepreneurship and innovation can be embedded into the AGIL framework. As mentioned previously, Parsons & Smelser (1956) saw the economy as part of society and entrepreneurship and innovation as part of the economy. Elam & Sardana (2008) propose that within entrepreneurship and innovation, the functions can be identified of financing of innovations (Adaptation), new combinations of factors (Goal attainment), opportunity for innovation (Integration) and resource flows (Latent pattern maintenance).

While the general theory of action could be a useful lens for analysing socially embedded venture creation, Parsons’ theory has more of a macro-level approach to the economy and entrepreneurship, as Elam & Sardana (2008) suggest. It also has roots tightly integrated with the economic equilibrium theories.
of that time (Elam & Sardana 2008). The approach sought here should be more socially embedded, as elaborated in Section 2.1.3.

2.2.2 Activity theory

Activity theory was originally developed by Vygotsky (1978), Leontjev (1977, 1981) and Luria (1979). They wanted to understand complex social phenomena from a particularly psychological point of view. They built a theoretical framework consisting of triadic relationships between subject, object (or outcome) and tools and signs. All learning and development could be explained through this framework. Learning, progression and development could only be explained by looking at past events. Identity and self is not built on internal factors but through interaction with an external society.

Activity theory has gathered large numbers of followers who have developed the theory further. One of the most notable of these is Engeström (e.g. 1987, 2001). He proposes that human activity can be understood through two intertwined layers of activity. He expands the original framework of tools, subject and object by adding three constructs that govern this activity: rules, community and division of labour. These mediate the outcome or the goal of the subject’s activity. The individual operates within a community, following or breaking its rules, using tools and signs to aim for a specific outcome. The outcome is shaped and changed by the activities of the subject, and the activities change the tools, rules and other components of the activity system. The model captures the holistic and culturally-historically embedded nature of human activity. (Engeström 1987, 2001.)

The development of the activity theory framework is depicted below in figure 1.
Activity theory has been applied in many fields, for example, by Kuutti (1996) in the IS domain, in human-computer interaction research.

**Activity theory in entrepreneurship**

Activity theory and its Engeströmian application to activity systems have been applied in entrepreneurship by, among others, Holt (2008) and Kauppinen & Puhakka (2009, 2010). Holt (2008) argues that as opportunities are recognised by entrepreneurs, they will probably be recognised by others as well – in other words, opportunities are socially embedded constructs. Therefore, to understand and theorise entrepreneurship and opportunities is to understand how entrepreneurs “integrate themselves and the ideas within established patterns of activity”. Holt (2008) uses activity theory to explain knowledge building and integration into the existing social activity. His study shows that subjectivist-oriented activity theory can be used to explain how individuals change existing systems of activity.

Kauppinen & Puhakka (2009) analyse literature on entrepreneurship through the lens of activity theory. They find that entrepreneurship studies can be categorised into four metaphorical games: train, boomerang, religion and flow flux. Out of these categories, there is a particular lack of studies from an organisational creativity perspective, which Kauppinen & Puhakka (2009) situate in the flow flux category.
Kauppinen & Puhakka (2010) use activity theory to explain the creation of entrepreneurial opportunities. The creative space consisting of subject, object and community is empty at the beginning of new venture creation. These opportunities are neutral opportunities – they do not yet have a business objective. They transform into intention-driven entrepreneurial opportunities through the completion of the business environment (rules, tools/signs and division of labour). Kauppinen & Puhakka’s (2010) approach highlights true Knightian uncertainty (Knight 1921) and the dynamic nature of today’s business environment. They see entrepreneurial opportunity creation as a dialectical phenomenon (Van de Ven & Poole 1995) between subjects and the cultural-historical context.

While activity theory seems to address the complexity of human activity, previous studies have mainly focused on the individual (Holt 2008) or have been theoretical (Kauppinen & Puhakka 2009, 2010) in their approach. For it to be more beneficial, activity theory should be applied through empirical data. Engeström (2001) has used the method and actively participated in the activities of the research subjects, influencing their lives. This would require a consultative and participative approach to venture creation which does not suit the data gathering method for my Ph.D. thesis, specifically because it would require a hands-on approach over a period of time to allow a critical analysis of the change of an activity system over time.

The previously mentioned theories – Parsons’ general theory of action and activity theory – have been used in trying to understand entrepreneurship as a systemic phenomenon. However, they do not take into account the role of the industrial context and the social system. Furthermore, their approach to the phenomenon being studied is from a higher level than is desired in this study. Therefore we must look to a third alternative: Csikszentmihalyi’s systems view of creativity.

2.2.3 Csikszentmihalyi’s systems view of creativity

One rather recent example of an application of systems theory is Csikszentmihalyi’s systems view of creativity (Csikszentmihalyi 1999). This has a large number of similarities with new venture creating activities, and shows that there is a clear connection between entrepreneurship and creativity.

Like entrepreneurship, much creativity research has focused on analysing creativity as a mental process. The literature on divergent thinking, intelligence and personality, and on the effect of these on creativity is vast (Batey & Fornham
Recently, Kéri (2009) has found a genetic link between creativity and the risk of psychosis in people with high intellectual and academic performance. However, many researchers suggest that there is more to the phenomenon.

According to Csikszentmihalyi (1999), the observations of Stein (1953, 1963) and data presented by Simonton (1988, 1990) show that economic, political and social events are also important if research wishes to explain how products are established in a culture. A previous version of the model was presented in Csikszentmihalyi (1988) and this has been tested in various settings (Csikszentmihalyi et al. 1993, Feldman et al. 1994, Csikszentmihalyi & Sawyer 1995).

Csikszentmihalyi (1999) argues that creativity can only be assessed by some form of public recognition. Creativity tests are assessed by judges who weigh up the originality of the outcome. However, the judges do not possess an external, objective standard by which to evaluate the creativity of the responses. Their judgement relies on past experience, education, cultural issues, current trends and other subjective values. Creativity is therefore constructed through an interaction between a producer and an audience. Creativity is not the product of single individuals, but of social systems making judgements about individuals’ products. Csikszentmihalyi (1999) goes as far as arguing that certain personal traits like originality or freshness of perceptions might not be important when considering the outcome of the process. It is not important whether an individual has some traits that are regarded as creative. It is more important how the social system judges the results of the individual. Based on these results, an individual is judged to be creative or non-creative. Therefore the judgement is carried out based on the products produced by an individual, not on the individual itself.

When creativity is manifested in the products rather than in the individual, the processes of creation and persuasion become interwoven. Both are necessary for products to become accepted (Simonton 1988, 1991, 1994). The problem, however, is how to separate these two from each other. If you can persuade others that you have created a novel product, how can you know whether they are accepting the creative product or have merely been persuaded to think they are accepting a novel product? Csikszentmihalyi (1999) concludes that if creativity means changing culture, it is impossible to separate persuasion from creativity.

Similar arguments can be made in entrepreneurship. The judges are the customers who evaluate the outcome of a new venture based on their past experiences and subjective values. The outcomes of a new venture creating process are more important than the traits of the individual. Novelty itself is
irrelevant. It is what is achieved with that novelty and how the audience (the customers) react to this that really matters.

Csikszentmihalyi (1999) presents a systems view of creativity consisting of three elements: the cultural dimension, consisting of interrelated domains, the social dimension, consisting of fields that have the power to change a domain, and an individual whose personal background affects his/her relationship with different domains and fields and thus with creativity. For each of these elements he proposes a set of hypotheses.

The hypotheses that Csikszentmihalyi (1999) presents have not been rigorously tested, which can be seen as a drawback of the model. However, the model is very descriptive and consistent in its explanation of novelty creation. The model shares some of the basic assumptions of activity theory (the social embeddedness of novelty creation, and novelty creation as a dialectical process), and it is fairly clear how it can be convincingly transformed into a model of venture creation. Entrepreneurship has been linked to creativity in various studies (for example Schumpeter 1934, Buchanan & Vanberg 1991, Sarasvathy 2001a, Sarasvathy 2001b, Eckhardt & Shane 2003, Ardichvili et al. 2003, Hjorth et al. 2008), so it is therefore interesting to look at creativity research and what it has to offer.

The fact that the model has not yet been applied in entrepreneurship studies also makes it an interesting one to use in this study. This systems perspective on creativity also has a great deal to offer entrepreneurship research and I will use it to develop the research framework used in this study.

2.3 Applying Csikszentmihalyi’s systems view of creativity to entrepreneurship

The histories of entrepreneurship and creativity research have a lot in common. Both fields of research seek to analyse and develop research by analysing individuals. This seems like quite a natural way to analyse both phenomena. After all, both at first seem to depend on the performance of the individual. However, Gartner (1988) shows that entrepreneurship research focused on the analysis of individual traits has had mixed results, and concludes that entrepreneurship was not dependent on the individual’s traits. Similarly, in creativity research Csikszentmihalyi (1988, 1999) proposes that creativity is not only a trait belonging to an individual. This has led to the recognition that individuals are an important part of the phenomenon but that the context and environment in which
the activity takes place should be more strongly emphasised in the development of theory.

**Introduction to the systems model**

As mentioned previously, Csikszentmihalyi’s (1999) systems view of creativity consists of three elements: the *cultural* dimension, consisting of interrelated *domains*, the *social* dimension, consisting of *fields*, and the *individual*, who has a certain *personal background*.

The *domain* is a component of creativity which contains the existing patterns which relate to that domain. These patterns include objects, rules, representations, notations and the like, in reference to which, novelty can be evaluated. The domain transmits information about its current state through oral learning, written documents, and notations, i.e. symbolic systems. Creativity occurs when an individual makes a change to the patterns of a domain and that transformation is transmitted through time. Some individuals are more likely to make these changes because of their personal capabilities or because they are better positioned in the field. Cultures consist of different individual domains and thus they change as changes occur in these individual domains. While there are many other definitions of culture, Csikszentmihalyi’s (1999) definition is not meant to be exhaustive or complete.

However, not all novel creations are transferred through time. Most fail before they are even introduced, and those that survive are often quickly forgotten. The adoption of changes is determined by some group entitled to make decisions about what should be included in and excluded from a domain. These gatekeepers are what Csikszentmihalyi (1999) calls the *field*. The field is a group of individuals who have the power to change the field. They can range from a few university professors in physics, who decide what the relevant research areas are and can understand, for example, the novelty in Einstein’s theories, to millions of software users who decide which features are needed and which are not. Society is essentially the sum of all fields that operate within a space-time framework. Each individual belongs to different fields; for example, a computer programmer helps to determine not only what the relevant changes to the domain of programming are, but also what the relevant new tastes of Coca-Cola are, and also influences many other fields.

The final component of the systems model is the *individual*. For an individual to produce novelty, he or she must have access to a domain and must learn the
rules of the domain. This requires motivation and commitment to a domain. Some form of conformity is required in order to gain access to a domain, but changing the rules of a domain requires a personality that favours rule-breaking. In addition to the ability to create novelty in a domain, an individual must also have the ability to convince the field about the novelty. The background of an individual has a large effect on the opportunities an individual has to change a specific domain. There need to be sufficient resources available for an individual and his or her family to get introduced to a field. If most of these resources are allocated to survival, there will not be enough left for the individual to learn the skills of a domain and connect with the relevant individuals of a field. (Csikszentmihalyi 1999.)

Hence, creativity is produced at the intersection of these three aspects. All three aspects must be present for creativity to be introduced. Most previous studies have tended to focus on the individual in isolation from the other components. Figure 2 below presents Csikszentmihalyi’s (1999) systems view of creativity.

Fig. 2. The systems view of creativity (edited from Csikszentmihalyi 1999).
Next, each component of the model and how these components relate to each other will be described.

**Culture and domain as affecting novelty creation**

The domain is important because novelty is always introduced with reference to what already exists. Something new can only be determined as new if something exists that can be determined as old. The symbolic system that makes a domain is shared by the professionals of a certain domain. When novelty is introduced it is compared to the relevant symbolic system.

Dawkins (1976) suggested that our culture consists of memes – cultural genes – that carry instructions for action. These memes are transmitted through time by learning and, like chromosomes, they can change over time. Memes can be transmitted through time by learning from person to person. This is the most primal mode of transmission that has been used by humans for thousands of years. Memes can also be transferred through rules, documents or devices that allow memes to be more easily stored, distributed and changed. According to Csikszentmihalyi (1999), creativity occurs only when a person makes a change in a domain that will be transmitted through time. This change in memes eventually changes the behaviour of members of the culture. Unless there is a change in how people think, feel or act there has not been a change in memes and thus no novelty has been introduced to a domain.

The time needed to change a meme can vary vastly depending on the domain and development of a culture. Our early ancestors built tools that did not change significantly for nearly a million years. Changing these memes could have resulted in starvation and death. About 50,000 years ago, humans began to develop tools other than rocks and started building tools to make tools. Quite obviously the increased number and differentiation of domains over the past thousands of years has led to a situation where a single individual cannot master all domains. Currently it is hard to master even one domain and its memes (Csikszentmihalyi 1999).

**The role of culture in novelty creation**

Csikszentmihalyi (1999) suggests that it is useful to see cultures as interrelated domains. Other fields of science will certainly not agree to this definition of culture on its own, but in terms of the systems model of creativity it is useful to
use this definition. Csikszentmihalyi (1999) presents some components of culture that affect how creativity flourishes in a given culture.

Memes can be stored in a variety of ways. When they are stored only in the mind of a human, they can only be transferred orally. In this case traditions are followed strictly, to prevent loss of information. Access to the information affects who can participate in creative processes. Priestly castes and craft guilds are prime examples of the creation of boundaries to prevent others from getting the knowledge. Even until quite recently, the knowledge systems in the West were based on knowledge of Latin and Greek, an efficient way to prevent potentially creative individuals from contributing. The availability of information also affects who can participate in creative processes. When information is stored in books that are widely available, it is more likely that individuals can contribute to the existing domain. The differentiation of domains affects how specialised the information in each domain is. The integration of culture affects how easily creativity will be accepted and how it will diffuse. The more integrated the culture is, the more difficult it will be to get creativity accepted in one domain, but once accepted, diffusion is easier. When religion was the main domain, on which most other domains relied, it was difficult to introduce novelty in any field because it was likely also to affect the foundations of religious traditions. Finally, the openness of culture and exposure to other cultures affects how creativity from other cultures is accepted. Trade centres have often been places where creativity has thrived. Today’s Silicon Valley is a great example of how exposure to other cultures and different knowledge allows novelty to arise.

For a long time in human history, culture was unified by the religious domain. Access to information was limited by the men of the Church, every cultural aspect was related to supernatural beliefs and rituals, and the transformation of memes was restricted by the priesthood in the interests of religious gains. As time has passed, independent domains have been established. Creative work and innovations take place in these individual domains.

**The role of domain in novelty creation**

Individual domains contain dimensions affecting creativity similar to the ones that cultures have. Each domain has different ways of recording information. Music, dance and mathematics each have their own ways of recording instructions and assessing performance. If the domain has less formal notations, domains can be learned through imitation. The level of integration of information in the domain
determines how easy it is to determine what is novel and what is not. Loosely integrated symbolic system makes it hard to evaluate novelty, and, conversely, a tightly integrated symbolic system will be hard to change. Both of these situations often precede great paradigm shifts, as has been the case in chemistry (loosely integrated before the introduction of the periodic table) and in physics (tightly integrated before the introduction of quantum theory). The centrality of the domain with respect to other domains determines how it will attract talented individuals. This depends in part on the development of the domain itself (domains that have limited opportunities for development in the foreseeable future are less likely to attract talent) but also on how the situation in other domains. Access to a domain determines which individuals will have the opportunity to gain knowledge of the domain. Class and caste systems are typical examples of ways that have been used to protect certain domains such as the religious domain. Finally, how autonomous the domain is of the rest of the culture also affects how creativity arises in domains. Galileo had a hard time convincing others of his views on the position of the planets because this would have affected (and finally did affect) the dominant religious domain.

Table 1 contains a summary of the concerns affecting creativity from a culture and domain perspective.

Table 1. How culture and domain affect creativity (Csikszentmihalyi 1999).

<table>
<thead>
<tr>
<th>Culture</th>
<th>Individual domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage of information</td>
<td>Recording of information</td>
</tr>
<tr>
<td>Accessibility of information</td>
<td>Integration of information in the domain</td>
</tr>
<tr>
<td>Availability of information</td>
<td>Centrality of domain to the culture</td>
</tr>
<tr>
<td>Differentiation of the culture</td>
<td>Access to the domain</td>
</tr>
<tr>
<td>Integration of culture</td>
<td>Autonomy of the domain</td>
</tr>
<tr>
<td>Openness of the culture to other cultures</td>
<td></td>
</tr>
</tbody>
</table>

Society and field as affecting novelty creation

Most novel ideas are quickly forgotten and are not adopted by a domain. The world of high technology is full of examples of innovations that were too early, too hard to use, too expensive, or had some other problem and therefore were not adopted by users. The second element of Csikszentmihalyi’s (1999) systems view is society, which consists of individuals who practise within a certain domain and have the power to change it. This is the group of gatekeepers who determine
whether something should be included in a domain or not. Csikszentmihalyi calls these individuals the field. For some novel piece of innovation to be regarded as creative, it must be somehow original. But for this original piece of innovation to be regarded as creative and not just bizarre, it must somehow relate to a domain and be accepted by the individuals in that domain. Csikszentmihalyi (1999) defines the field as the teachers, critics, journal editors, museum curators, directors and other individuals who create the social organisation of the domain. The big difference from previous interpretations of the role of social evaluation is that Csikszentmihalyi (1999) does not separate the product and the reaction of society to the product, stating that, “As long as the idea or product has not been validated, we might have originality, but not creativity”. Van Gogh’s paintings were changed from being seen as substandard works of a social outcast to being considered great masterpieces by a change in aesthetic criteria, not because individuals suddenly became smarter and realised that he was in fact highly creative. What follows from this is the hypothetical question: would van Gogh have been creative even if we did not know it?

The role of society in novelty creation

Csikszentmihalyi (1999) presents five aspects of a society that influence the frequency and intensity of new memes. If the society has surplus energy available, it is easier for the society to create and accept novelty. When a society is trying to fulfil its basic needs it often does not have the energy to encourage and evaluate novelty. When material surplus is available, individuals are more likely to be encouraged to try new things. Secondly, it is not enough to have resources available; a society must also value and encourage creativity. Third, the social and economic organisation must support change and creativity. A society based on commerce with a high class status (an aristocracy) which is attainable by the lower classes tends to favour creativity more than a totalitarian or feudal society which is fairly stable. Furthermore, the ruling class might hinder innovations if they clearly threaten their status quo position. A meritocratic society is arguably the best type of society for supporting novelty because it allows free movement among classes based on the performance of the individual. The fourth of Csikszentmihalyi’s aspects is mobility and conflict in society. Societies located in or near trade routes are often rich in creativity. There are numerous examples of this, ranging from the Italian Renaissance, which was affected by Arab and Middle Eastern influences, to Silicon Valley, which is a
global hub of information professionals, entrepreneurs and venture capitalists. Internal conflicts in society are suggested to facilitate creativity due to the mixing of class structures. External conflicts, on the other hand, facilitate creativity due to competition between nations. Fifth and finally, the complexity of a society affects how it accepts creativity. If a society is too diverse or too uniform, this can hinder the adoption of new innovations.

The role of the field in novelty creation

Who then decides what is creative, what is original and what is merely bizarre? This depends mainly on the domain and on which phase of the novelty introduction process is under consideration. For consumer goods, the first individuals who decide about novelty are management teams and focus groups, who decide whether the product will go on to true market tests or not. If the product passes these tests, real consumers make up the field which decides whether the product is accepted or not. In the arts and sciences, these fields are often limited in number but high in their power to influence. Like an individual domain, an individual field also has certain dimensions that affect how individuals can operate within that field and determine novelty. Obtaining sufficient resources for the field is one of the basic requirements for any domain to flourish. Building cathedrals or making movies requires a large amount of financial capital, but even publishing poems requires some capital and access to publishing and promotional channels. While most creative individuals are intrinsically motivated, one should not underestimate the power of external motivators like money and fame.

Dependence on other fields and institutions can be a hindrance for a domain. Sometimes domains can start to serve as extensions of political power. When the field makes decisions that are politically or in some other way biased, this can be bad for the development of a domain. The constraints the domain places on the judgements of the field can play a significant role in some domains. When the symbolic system of a domain is highly developed and codified, the field has a fairly easy and limited task to do. All possible creative efforts are judged against this symbolic system, which requires the field to possess a good knowledge of this symbolic system. When the symbolic system is loose – as in the arts – objective judgements are harder to make, placing a higher value on subjective judgements. Institutionalisation of the field over time can hinder the development of a domain because changes are likely to threaten the status quo. Finally,
openness to change is one important consideration in thinking about the role of the field. Certain institutions and organisations, such as academia or the Church, have a tendency to select established individuals for leadership positions. This can easily limit the ways a domain can change as the field will hence be more likely to rely on past experiences and knowledge (Csikszentmihalyi 1999).

For most fields, the optimal state of the aforementioned components for creativity will probably be found somewhere in the middle. Overly strict institutionalisation will lead to the stagnation of the domain, but no institutionalisation will lead to constant changes, which signals a lack of credibility and will make it hard for anyone to move into the domain. Table 2 summarises how the society and the field affect creativity.

Table 2. How the society and the field affect creativity (Csikszentmihalyi 1999).

<table>
<thead>
<tr>
<th>Society</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy</td>
<td>Obtaining resources from society</td>
</tr>
<tr>
<td>Evaluation and encouragement of creativity</td>
<td>Independence from other fields and institutions</td>
</tr>
<tr>
<td>Openness of the society to change</td>
<td>Constraints of the domain on the judgements of the field</td>
</tr>
<tr>
<td>Mobility and conflict in society</td>
<td>Institutionalisation of the field</td>
</tr>
<tr>
<td>Complexity of the social system</td>
<td>Support for change by the field</td>
</tr>
</tbody>
</table>

Background and traits of an individual as affecting novelty creation

The third element of the systems view of creativity is the individual. This is the element on which most creativity (and entrepreneurship) research has focused in the past. Individual traits, behaviour and cognition have been and are still being researched in a large number of studies. While the role of the individual has been somewhat vague in the creative process, it clearly has a role in it. The traits perspective has found that personal qualities and personal background have some effect on creativity but that this effect is unclear. The systems model helps in part to understand why these results are mixed and vague. One thing that the systems model will hopefully clarify is that while research has found some traits to be supportive of creativity, they are not always necessary (Csikszentmihalyi 1999).
The role of background in novelty creation

Like for the “culture” and “society” elements introduced earlier, Csikszentmihalyi (1999) presents five aspects of the background of creative individuals that affect the creativity of the individuals. The first aspect is the surplus energy available to the family and community. This surplus energy can encourage the development of curiosity and allow energy to be spent on learning and schooling instead of survival. A lack of surplus energy does not mean that it is impossible for an individual to rise out of the ghetto, but it will certainly decrease the number of individuals who will show creativity later on in life. The second aspect is the environment’s respect for learning and for particular domains of interest. Family and the community can place different emphases on learning and the way they encourage the individual to pursue certain domains. The third aspect is the family’s ability to introduce the individual to a domain. This includes access to schooling, books, mentors, computers, etc. The fourth aspect is the family’s ability to connect with the field. In many fields it is important to be trained by and connected to the experts of the field. These experts teach the background needed by the individual to be creative and open doors in the future. The fifth aspect is that of the background conditions that the family comes from. Individuals coming from marginal (social, ethnic, economic, religious) backgrounds seem to break the norm more often than individuals coming from conventional backgrounds.

The role of traits in novelty creation

However, the right background alone does not make a person creative. The systems model suggests that the creative individual must have qualities that make them want to introduce novelty to a domain, and capable of doing so. Talent in some domains plays an important role in introducing novelty. You have limited opportunities in basketball if you are only 1.50m tall, becoming a musical virtuoso requires you to have an ear for music, and so forth. One of the central characteristics of creative individuals is an in-built curiosity about the surrounding environment. This intrinsic motivation keeps an individual learning enough about the domain that he/she can eventually change it. Intrinsic motivation is also needed because early experiments often meet with little external recognition. In fact, it is often quite the opposite: early (and failed) experiments meet with negative feedback. Most interestingly, Csikszentmihalyi (1999) mentions discovery orientation (Getzels & Csikszentmihalyi 1976), which
allows individuals to find and formulate problems others have not seen (Baer 1993, Runco 1995). However the challenge with these cognitive styles, personalities and traits is that their effects are still unclear. When we add to this the notion that creativity has been often linked with mental illness and insanity we notice that their relevance depends also on the domain and preferences at the time. Csikszentmihalyi (1999) concludes that in terms of personal qualities, creative individuals are often flexible in their traits: introverted when secluded for weeks, working at solving the problem and extroverted when finding ideas and promoting their inventions – sensitive or analytical and “masculine” or “feminine” depending on the occasion. Finally, creative individuals tend to be somehow dissatisfied with the status quo. Table 3 summarises how the personal background and qualities of an individual affect creativity.

Table 3. How personal background and individual qualities affect creativity (Csikszentmihalyi 1999).

<table>
<thead>
<tr>
<th>Personal background</th>
<th>Individual qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy within the family and community</td>
<td>The individual’s special talents</td>
</tr>
<tr>
<td>Respect for learning and culture</td>
<td>The curiosity, interests and intrinsic motivation of the individual</td>
</tr>
<tr>
<td>Ability to introduce the individual to a domain</td>
<td>Discovery orientation of the individual</td>
</tr>
<tr>
<td>Ability to connect the individual with the field</td>
<td>Having relevant personality traits</td>
</tr>
<tr>
<td>Support for conformity or innovation</td>
<td></td>
</tr>
</tbody>
</table>

Summary of the systems model

The systems model offers a non-individual-centred model of how creativity in a society emerges. For creativity to emerge there must be an individual who gets information about a domain and also becomes connected with their peers. The peers will stimulate novelty creation by showing what is considered to be novel in the domain. Based on this, an individual can direct their efforts to create a novel idea or product. The individual does not have to be specially gifted or have creative brains, but research has shown that these qualities can help. When the field selects what is considered novel in the domain, they transform the memes of a domain. For creativity to occur, the change in memes must also be transferred through time. The new memes must have an impact on the other individuals who are entering or are in the domain.
In terms of the discovery and creation paradigms (Alvarez & Barney 2008), the systems model offers a hybrid interpretation of these two paradigms. The systems model of creativity suggests that there are memes out there that exist outside of the individual. These memes create the possibility for an individual to interpret opportunities as existing out there. However, the creation of these opportunities is a dialectic process between the individual, the field and the domain. In this process the opportunity is shaped by a field (or many fields) and an actor into something that can be included in a domain. How other actors react to these changes is, however, unknown, and the systems model does not take a stand on this.

While Csikszentmihalyi (1999) explains thoroughly the entities in the systems perspective (individual, domain and field), he leaves the processes (stimulating novelty, transmitting information, selecting novelty and producing novelty) mainly untouched. Explaining the processes through the entities leaves the model static. The processes are the essential components that create movement in the model and allow novelty to be created. The processes offer a more complete and complex explanation of novelty creation in a specific context. Opening up and explaining the processes will also make the study of the phenomenon simpler because often research can only be done by interpreting the activities rather than the actors themselves. How a field stimulates novelty, and how a family introduces a child to a field and to a domain are more easily discovered than the ability to introduce a child to a domain or the ability to connect a child with a field. This leaves a significant research gap in the theory that this study aims to fill, in the context of new venture creation in the software domain. Next, I will turn to process philosophy and seek to find out how the concept of process has been explained and used in business studies.

2.4 Processes and process philosophy

The aim of this study is to look at how ideas are transformed into businesses. In order for this transformation to happen a sequence of events needs to occur. While this sequence is often – if not always – different, there should be some commonalities in the sequences. It is therefore useful to present a brief discussion about what is meant by process in this study and to take a look at process philosophy. This will provide the tools to further analyse the data later in this study.
A sequence of events is often called a process. There are at least two commonly used definitions of types of processes, which differ in their usage. In one usage, a process is to do with the management and repeatability of actions over time. This is reflected in, for example, the management of business, production and sales processes (e.g. Davenport 1993, Malone et al. 1999). This type of work process management aims to define a process so that the same activity can be implemented in a similar way over time by a variety of actors (Lillrank 2003). The purpose of this is to guarantee a certain level of quality, reduce learning time and make it easier to change any part of the process. This means that a process is a *predefined sequence of events* that the organisation is aiming to follow. This can be achieved in a static environment where the activities are controllable. In an environment that is ambiguous or changing, activities are changing or undefined, and processes are hard if not impossible (or at least useless) to define.

On the other hand, process philosophy and processual approaches in organisation studies take a different stand on the definition of “process”. Van de Ven (1992) found three definitions of process in organisation studies literature: 1) as an explanation for variance theory; 2) as a category of concepts; and 3) as a developmental event sequence. Van de Ven & Poole (1995) define a process as “the progression (i.e., the order and sequence) of events in an organisational entity’s existence over time”. In the context of organisational change and development, a process’s repeatability is not important because these processes are often unique, one-off development paths for a firm. Processes in this context can be also predefined, but existing research is more interested in how the changes happen, rather than how they are intended to happen. Generalisations can be made by comparing multiple similar processes, but it is highly unlikely that these processes can be defined in the same way that processes are defined in the work process management context. Therefore, Van de Ven & Poole’s (1995) definition of process is the definition adopted in this study.

*Process philosophy in organisation studies*

Process philosophy as intended here has its roots in Whitehead’s work (e.g. Whitehead 1929). Whitehead introduced the idea that processes are more important than things. Things do not have certain properties in themselves, only through the experiences of which they are part. These experiences are interrelated and accumulate over time, being affected by previous experiences and affecting
all future experiences. This is also one of the principles of subjectivist philosophy (for more on subjectivism, see Section 6.1 – Philosophical background). Process philosophy, process research methods and ideas in these areas have been applied to many other fields of study since their introduction. Management studies, biology, psychology and sociology have all had their share of studies carried out which apply the philosophy. An extensive review of process philosophy can be found in, for example, Rescher (1996) and Rescher (2000). In management and organisation studies, some of the most notable advances in processual studies have been made by Van de Ven (e.g. Van de Ven 1992, Van de Ven & Poole 2005), Poole (e.g. Poole et al. 2000) and Pettigrew (e.g. Pettigrew 1997).

Van de Ven & Poole (2005) argue that an organisation can be seen either as things or as processes, and that research into organisations can be conducted through variance or process methods. These create four different alternatives that differ in the ways they view time and organisational events. If we view organisations as things, organisations are seen to consist of actors, identity, structure, culture, etc., and their habitus does not change in time and space. If organisations are seen as processes, their existence is composed of organisational processes that maintain its structure and boundaries. Change is seen as the central power in an organisation, and stability is explained “due to processes that maintain the organisation so that it can be reified as the same thing by some observer(s)” (Van de Ven & Poole 2005). On the methodological side, Van de Ven & Poole (2005) apply Poole et al. (2000) by defining variance-based methods as focusing on observing organisational entities and their change in time, and process-based methods as focusing on a sequence of events which cause development and change. These viewpoints create four different approaches to the study of change in organisations. They differ in their perspective on time: time can be seen as a background for processes, as when events occur, as socially constructed and reflecting the temporal orientations of key players, or finally as an interval, reflecting different process patterns.

Van de Ven & Poole (1995) present four typological categories of organisational change processes: life-cycle theory, teleological theory, dialectic theory and evolutionary theory. Each theory type has different generative mechanisms that keep the changes moving. The life-cycle model progresses through a necessary sequence of stages. The contents of the stages are prescribed by institutional, natural or logical sequences. The teleological view is based on learning which fuels a cycle of formulation, implementation, evaluation and modification of goals. Dialectical models are based on conflicts between thesis
and antithesis, which collide to produce a synthesis which becomes the thesis for
the next cycle. Evolutionary models are focused on a specific population that
competes for scarce resources. This leads to a repeating sequence of variation,
selection and retention events. The different theories are not conflicting views on
a process. Instead they are complementary explanations of the same phenomenon.
Each process brings forth a different perspective on change, and together they
produce more complex explanations of organisations’ change and development.

Pettigrew (1997) argues that processual studies should be conducted through
longitudinal studies, following a process through time. He argues that the
language of process research should be different from the language of states.
Instead of static states and entities, analysis should focus on an active language of
becoming, emerging, developing, transforming and decaying. He concludes that
the purpose of processual analysis should be “to account for and explain the what,
why and how of the links between context, process and outcomes”. According to
Pettigrew (1997), the guiding assumptions for processual analysis are: “1) embededness, studying processes across a number of levels of analysis; 2) temporal interconnectedness, studying processes in past, present and future time; 3) a role in explanation for context and action; 4) a search for holistic rather than linear explanations of process; and 5) a need to link process analysis to the location and explanation of outcomes.” Finally, he proposes that processual studies should be embedded in time, agency, structures, contexts, emergence and
development. Only this way can we gain a deeper understanding of organisational
change and development.

Process models typically aim at explaining causation between different
entities. Randomness and non-causation have typically been considered to
represent failure in organisation studies. Processes that cannot be explained
through the interdependence of variables are often held to be examples of a
failure of the explanation. Similarly, organisational studies emphasise stability,
routine and order, making organisational change an exception rather than a
normal part of life (Tsoukas & Chai 2002). Dooley & Van de Ven (1999) propose
that even chaotic and complex processes should be considered meaningful
because reality is sometimes random, and there should be models to account for
this. Sometimes seemingly random processes are in fact the result of control
and/or cooperation. A typical case could be an innovation process, where changes
and discontinuous events shape the process.
Process philosophy in this study

This study considers organisations and organisational change to consist of processes (as opposed to things) and it can best be explained through process methods (as opposed to variance-based methods), as discussed in Van de Ven & Poole (2005). While the systems model focuses on actors, structure, and culture, these should not be considered static entities. In terms of Van de Ven & Poole’s (1995) typological categories of organisational change, this study is connected to the teleological and dialectical approaches. The motor of change can be the entrepreneur or some other actor (a competitor, customer or employer) which requires an individual to engage in venture creation. The definition and change of goals is unclear as they are shaped through social interaction. Finally, while this study does not fully embrace Pettigrew’s (1997) thesis about conducting process studies, it tries to follow the last three guidelines, namely to give context and action a role in explanation, to search for holistic explanations of processes, and to connect with the location and explanation of outcomes.

The approach selected a priori suits the study of new venture creation well because new venture creation happens over a (long) period of time, it is shaped by different events, and it is arguably almost always planned but hardly ever goes according to the prescribed plan. The systems perspective on creativity offers an abstract model for understanding creativity through processual analysis. It is by no means full in its detail, but what it lacks in detail, it gains in applicability.

The framework presented in figure 2 and in table 1, table 2 and table 3 acts as the skeletal structure for the research. What follows in Chapters 3 and 4 is the meat around these bones, i.e. the contextualisation of it within the venture creation and software business contexts. My aim is to show that the systems model for creativity can also be applied to entrepreneurship, and that by applying the systems model to entrepreneurship we can understand venture creation processes significantly better.

2.5 Summary

In this chapter I have explained recent developments in entrepreneurship and venture creation research and how they affect this study. There has been considerable debate in the literature about what the target of entrepreneurship research should be, how opportunities are created and how venture creation should be studied.
In this study I have defined venture creation as a market-changing phenomenon. This change is based on business opportunities that can be either discovered or created. The source of these opportunities is in uncertainties. The change of uncertainty to certainty and to business is the essence of entrepreneurship and venture creation that this study aims to understand. This change is always embedded in a specific context which determines how a certain opportunity is transformed into a business.

Based on this background, I have proposed that a systems model of some kind should be used to understand the contextually embedded nature of the phenomenon. In this study I have selected Csikszentmihalyi’s (1999) systems model for creativity as a starting point. While this was developed with creativity/novelty creation in mind, I believe it can be used in this study as well. Venture creation is essentially about introducing variation to the status quo and getting it accepted by others to allow the creation of a business.

In the following chapters I will contextualise the model that was described in Section 2.3. In the next chapter I will focus more specifically on the processual and temporal nature of venture creation: where ideas come from and how they are transformed into businesses. In the subsequent chapter I will focus on the domain-specific characteristics of software business and how they affect venture creation.
3 New venture creation

As previously described, in this study I see venture creation as a socially embedded activity. The activity depends on where it happens, who creates the ventures and when the ventures are created. Before I focus on these issues, it is useful to look at venture creation as a phenomenon on a general level.

This chapter focuses on creating an *a priori* understanding of how venture creation happens – in other words, how ideas are transformed into new businesses. This chapter does not take sides on the discovery versus creation discussion presented earlier, in Section 2.1.2. The reason for this is that I feel that at this point it is more important to look at the phenomenon of venture creation from different perspectives. As Alvarez & Barney (2008) and Kirzner (2009) note, both discovery and creation are present during a venture creation process. Their role changes depending on the situation but nevertheless they both usually exist.

As has been presented above, entrepreneurship is seen as a market-changing process based on business opportunities. Depending on the point of view, the process of opportunity creation can be seen to progress through two or three stages: opportunity discovery, opportunity evaluation and opportunity exploitation (Venkataraman 1997) or opportunity discovery and exploitation (Davidsson 2003). In reality these concepts overlap, run simultaneously and are not necessarily sequential or in that order. There can also be multiple instances of these during the venture creation process. This is typical for the evaluation phase that occurs continually as the opportunity develops (Ardichvili *et al.* 2003). However, in a research setting it is beneficial to separate these concepts to allow a more complete analysis. These concepts will be used to create the *a priori* understanding of venture creation which will be further contextualised and analysed through empirical data in Chapters 7 and 8.

This chapter is structured according to the venture creation process. First, in the section which follows, I will look at the actor and what role he has in initiating the whole venture creation process. Then, in Section 3.2, I will focus on the opportunity side of the process: how new opportunities are discovered, and what some of the precursors of opportunities are. In Section 3.3 I will focus on what it takes for an entrepreneur to start a new venture and how opportunities are created in new businesses. Finally, in Section 3.4, I will focus on the role of the social context in which these events occur.
3.1 The actor as the initiator of new venture creation

One widely studied issue in entrepreneurship literature has been the question of why certain individuals choose to exploit opportunities and become entrepreneurs. This topic was briefly addressed in Chapter 2 but deserves a look also from the individual’s perspective. Schumpeter (1934) and Kirzner (1973, 1997) created the notion that individuals’ traits, personalities or capabilities somehow affect who becomes an entrepreneur. Gartner (1988) has come to the conclusion that studies which consider entrepreneurs’ traits and personalities have had mixed results. He came to the conclusion that who the entrepreneur is is not in fact the important question. What the entrepreneur does is much more important and interesting. Even though the traits perspective is not widely supported, the actor as an initiator of the venture creation process deserves a closer look.

This section focuses on two main topics, the individual’s networks and the novelty of opportunities. Networks are an important source of ideas and greatly affect their development. Depending on the preferences of the individual, the level of novelty of opportunities varies.

Social capital and networks

Davidsson & Honig (2003) studied how human and social capital affect who becomes an entrepreneur and who does not. Individuals with a high level of education and experience of establishing a company were more likely to participate in the development of new ventures in the pre-establishment phase. However, education did have not a positive effect on the execution or success rates of the ventures. Previous experiences of firm establishment or business expertise gained through courses had a positive effect on the likelihood of exploitation of the ventures but had little or no effect on the likelihood of success. Social capital had a stronger effect on whose ventures made it to the execution phase and were successful. Participation in new venture creating activities was positively affected if the subject’s parents or close friends were entrepreneurs and they encouraged the subject to pursue entrepreneurship. Participating in a business club such as the Rotary Club or Lion’s Club had a positive effect on both the execution and the success of ventures. Based on their study, Davidsson & Honig (2003) conclude that both tacit and explicit human capital had an effect on how individuals discover new opportunities. However, tacit human capital had a
greater effect on the likelihood of success of the ventures once executed. The single factor that had most effect on the success of the venture was social capital. Everyone who is or will be engaged in new venture creating activities should consciously develop their networks in different directions if they want their ventures to succeed.

The role of networks has also been highlighted in other studies but from a different perspective. Dew et al. (2004b) do not directly point to networks as a source for new contexts for existing technologies, but it could be proposed that entrepreneurs, who have wide networks, can see new uses for existing technologies. Davidsson & Honig (2003) do not mention how direct an influence social capital had on starting the ventures. For example, were the first deals made through existing networks of contacts, was the effect of social capital more indirect, through encouragement and confidence building, or did social capital give them access to tacit information allowing them to discover new opportunities in an unknown domain?

The novelty of new ventures

Shane & Venkataraman (2000) go through the reasons some entrepreneurs establish imitative companies repeating existing routines while others establish innovative companies that break the status quo. The innovativeness of a business opportunity can be roughly measured with reference to novelty in the market and novelty in the product. Generally speaking, opportunities that are based on existing products and aimed at existing markets can be regarded as imitative opportunities, while opportunities that are based on novel products and aimed at novel markets can be regarded as innovative opportunities. In their study on organisational innovativeness in knowledge-intensive businesses, Cliff et al. (2006) noticed that entrepreneurs who had more experience from at the periphery of an organisation tended to create more rule-breaking organisations than those entrepreneurs who had experience from within the core of the organisation. This was the case even though the entrepreneurs with experience from within the core often questioned the legitimacy of the status quo. Those entrepreneurs that questioned the ethics of an industry were more likely to create more innovative organisations. These were often newcomers to an industry, who did not have strong ideas about what the industry standards were. This supports the conclusions of Ronstadt (1988), Venkataraman (1997) and Shane (2000), who have argued for the corridor principle.
Cliff et al. (2006), like Schumpeter (1934) and Kirzner (1973) recognise that certain individuals are exceptionally creative or alert in recognising opportunities left unnoticed by others. Based on this, certain individuals could establish more innovative organisations than others. Nowadays this way of thinking is not widely recognised; instead, previous experience and knowledge accumulated through such experience is considered to have a greater role in opportunity recognition (Shane 2000).

One form of personal behaviour that has been linked to entrepreneurs is propensity to rule breaking. When comparing managers and entrepreneurs, Zhang & Arvey (2009) found that entrepreneurs were more prone to modest forms of rule breaking in adolescence. The researchers defined modest rule breaking as delinquency and family and school offences excluding more severe forms such as drug abuse and crime. This indicates that the often rebellious energy of adolescents that is often interpreted in a negative way could be turned into a positive energy by offering developmental opportunities into which such individuals could channel their energy. Brenkert (2009) notes that this boundary-crossing is part of the creative destruction that can change business and also morality, which is essentially defined by the social setting and which defines what is accepted and what is not. Zhang & Arvey (2009) also conclude by noting that the ethical dimensions of a new venture are often considered by entrepreneurs.

If entrepreneurship is defined widely as creating new ventures, creating novelty, and the leadership that enables both of these, the question who is an entrepreneur starts taking on new forms. This introduces a more varied group of people with different skills and characteristics. If we start thinking of the arts as a form of entrepreneurship (Berglund et al. 2007), this changes the picture of an entrepreneur completely. Business skills become irrelevant in their own right, and instead the ability to envision the future and change current patterns becomes equated with entrepreneurial skills.

Summary

As a summary to the above, it can be concluded that it is important for actors to be engaged in a network of people. This gives them an understanding of what others perceive to be valuable. However, envisioning the future is not enough: someone must do something to change the status quo. The entrepreneurs who decide to break more rules than others usually engage in higher risk and more innovative ventures.
3.2 Finding business opportunities

Before a person can become an entrepreneur he/she must typically find a business opportunity to exploit. Finding an opportunity can also happen after the person has started this exploitation. A typical example of this would be turning a hobby into a business. One way of dividing opportunities is into supply- or demand-side opportunities (Eckhardt & Shane 2003, Sarasvathy 2004a). A new technological invention creates new opportunities, or changes in demand create a need for new supply. The main question at this point is how a person finds these opportunities.

The previous section focused on who is responsible for the new ventures and how it affects venture creation. This section focuses on understanding where the opportunities come from and how these issues affect venture creation.

Previous experience

One factor that has been shown to have some effect on the activities of an actor are the previous experiences that they have accumulated. One of the first to notice the effects of previous experience was Ronstadt (1988), who coined the knowledge corridor thesis. According to this, previous knowledge about markets, ways of serving the market, and knowledge of customer problems affect which opportunities entrepreneurs see and which they ignore. Like a racehorse, the entrepreneur’s vision regarding possible opportunities is focused as he/she gains more experience. One tends to see mainly opportunities related to one’s own industry instead of seeing opportunities in other industries. This can sometimes lead to seeing opportunities where there are none. When one has expert knowledge about an industry one can envision revolutionary opportunities (often technology-based) that actually provide little added value for a paying customer.

The corridor principle also describes how individuals start discovering more opportunities once they have started a business. In this way they can start multiple parallel ventures and get a longer entrepreneurial career. Entrepreneurs should therefore see their initial ventures as part of a larger discovery process. The initial venture might not be a profitable one or meet the initial goals of an ambitions entrepreneur, but it might be a necessary waypoint on the way toward high growth ventures (Ronstadt 1988). Hence, if more fruitful opportunities start to emerge during the execution of a venture, the entrepreneur can be faced with the choice of abandoning the current venture to pursue the more fruitful one. If the ventures are related mainly to benefiting professional skills as in the case of
dentists or hairdressers, it might be more difficult to change direction. In this situation the resources are constrained and knowledge and skills are typically narrowly focused.

On their study of farm-based entrepreneurs, Alsos & Kaikkonen (2004) found support for Ronstadt’s (1988) corridor principle in how entrepreneurs discover new opportunities. Entrepreneurs who had more knowledge and experience of entrepreneurship, leadership and recreational activities participated more actively in the development of new business opportunities than those that lacked the knowledge and experience. The opportunities of the more experienced ones were also more innovative and included greater growth potential.

Shane (2000) came to a similar conclusion. In his study of eight MIT-based innovations around a single technology, he came to the conclusion that entrepreneurs recognise opportunities based on their previous knowledge. Entrepreneurs are also biased in their opportunity recognition. They do not always select between alternative markets for technologies; instead they are more likely to focus on the markets that they have knowledge of. Of eight entrepreneurs that exploited a single technological innovation, all discovered different opportunities to pursue. However, opportunity discovery alone does not guarantee the success of the opportunity. As was the case regarding the eight entrepreneurs that Shane (2000) focused upon, many entrepreneurs choose not to exploit the discovered opportunity. Shane (2000) came to the conclusion that before any opportunity is turned into a profitable business, it needs to be evaluated and exploited. In this process, prior knowledge affects both the ways in which technological innovations are perceived and the approach to exploitation. Business opportunity research should therefore focus on how entrepreneurs develop initial business ideas into business opportunities, and further, into viable businesses (Ardichvili et al. 2003).

Weterings & Koster (2007) have studied the effects of pre-entry experience of the founders on the innovative performance of small software firms in the Netherlands. By measuring different kinds of pre-entry experience among the founders (industry experience, entrepreneurial experience and management experience) they found that only entrepreneurial experience clearly increased innovative performance. They also found that continued contacts and spatial proximity with previous employers seemed to limit innovative performance. This limiting effect on innovativeness is most likely explained by the need for ventures to reduce uncertainty during the start-up period. When the new venture engages in business with the previous employer it will most probably mean that the venture
is doing some kind of project or outsourcing work for the previous company. This will bring income for the company and reduce uncertainties in the short term but will be likely to take resources away from innovative activities because companies seldom outsource their most innovative product development work. Other experience types (e.g. managerial experience, industry experience and other work experience) did not increase firms’ innovative performance, according to Weterings & Koster (2007). The effect of innovativeness on firm performance was not measured in the study.

Knowledge types

Previous studies on opportunity discovery have somewhat neglected the role of different types of knowledge in the discovery process. Knowledge can be separated roughly into two types: explicit and tacit knowledge. Explicit knowledge is the world of numbers, words, formal concepts, hard facts and systematic knowledge. It can be easily transferred and transformed among actors. Tacit knowledge, on the other hand, is the world of intuition derived from in-depth understanding and informal, hard to communicate and personal knowledge that is accumulated over a period of time. It can be expressed through hunches and intuitive decision making. (Nonaka & Takeuchi 1995).

Ardíchvili et al. (2003) come to the conclusion that entrepreneurs interpret business opportunities in relation to their earlier experiences, which suggests that it is the earlier tacit knowledge that is of significance in that it enables opportunity discovery and evaluation. The comparison of the roles of tacit and explicit knowledge on opportunity creation processes is uncharted territory. It is most likely that the role of tacit knowledge is highlighted in the development of innovative firms where there is not a clear demand or clear offering. Creation here happens through intuition rather than through demand functions and process improvement workshops. Sarasvathy’s (2001a, 2004b) theory of effectuation is an example of the use of tacit knowledge on creation processes. Focusing on the entrepreneurs’ own resources, contacts and experiences is a prime example of using tacit knowledge in the creation of opportunities.

Seeking information about opportunities

Information seeking is also based on the industry experience of the entrepreneurs. Cooper et al. (1995) concluded that information seeking is different in industries
where the entrepreneur has experience from in those where the entrepreneur is inexperienced. In general, inexperienced entrepreneurs sought more information than the experienced entrepreneurs. What is fascinating is that experienced entrepreneurs sought more information on the industries with which they were familiar and of which they had more experience. This might be because they had more information about the requirements of the industry and therefore know what to seek, or they might have had knowledge of and access to more sources of information.

Lee & Venkataraman (2005) note that some individuals choose to systematically pursue entrepreneurial opportunities. They propose that the likelihood of someone pursuing opportunities is dependent on personal aspirations and how valuable possible employers judge the person to be. When a person feels he is more valuable than the current employer thinks he is and the opportunities outside exceed the opportunities in the current situation, the person is more likely to pursue alternative opportunities. How valuable a person judges him to be is affected by his skills, his earlier achievements, values and environment.

Eckhardt & Shane (2003) identify several sources of opportunities from the literature:

- Information asymmetry vs. exogenous shocks: Unevenly distributed information at the micro or macro level allows the creation of new business opportunities and the gaining of higher profits from existing businesses. In an industry this information asymmetry can be the result of information differences, for example about resource allocation, industry realities and generally accepted assumptions about the industry, consumer demands or the logic of the industry’s processes. Exogenous shifts can come from regulatory changes (for example antitrust and deregulation laws or environmental laws), demographic changes (e.g. ageing baby boomers) or the introduction of new knowledge or technology.

- Supply- vs. demand-side changes: Supply-side changes have been of more interest in the entrepreneurship literature with much of the research focusing on new products, new processes or new ways of organising. Demand-side opportunities are based on new markets, changes in existing customer demands or the growth of existing markets. Many of these have been ignored in entrepreneurship studies, and therefore studies have implicitly assumed that there are markets for the new products.
Productivity-enhancing vs. rent-seeking opportunities: Most entrepreneurial ventures are productivity-enhancing ventures, where the aim is to make economies more efficient. More jobs, smaller production costs, and increased value for the customer are all examples of the aims that companies typically seek with their new ventures. Rent-seeking opportunities are those that focus mainly on generating personal value, with little social value (Baumol 1990). Some examples of this include crime, piracy and corruption. Once again, research tends to assume that ventures are more or less always productivity-enhancing rather than rent-seeking.

Based on Eckhardt & Shane (2003) it can be said that entrepreneurship research should not focus only on the firm or individual level but also on understanding the wider social consequences of the ventures. Although Eckhardt & Shane (2003) note that “because discovery of an opportunity is a cognitive act, it is also an individual act”, I think that the sources of opportunities stay much the same in the socially embedded creation view of entrepreneurship. The seeds of the opportunities come from the environment but they are shaped by the actor. The actor’s position in society determines what kind of information he receives and he then determines how to interpret and act upon that information. Whether the individual chooses to proceed with piracy or crime (which can be regarded as common forms of entrepreneurship among young adolescents on the coast of Somalia or in the Brazilian slums) they are also socially bound decisions. The heroic entrepreneurial icons can be the criminal bosses, and the criminal “career” can be seen as a lucrative opportunity in the local culture.

**Development of technological artefacts**

Dew et al. (2004b) point out that innovative technologies do not always evolve through adaptation, which is the common way in evolution. Sometimes technologies leapfrog into new, previously unplanned areas through exaptation. These cases involve an innovative way of exploiting a given technology. Exaptation occurs when a technology is used in a way or in a domain for which it was not initially designed. In these cases the new use area becomes a new domain in which development happens along its own path through adaptation. Technology developers themselves often do not see all the ways a new technology can be used. An outside view can release new opportunities in the ways that a technology can be exploited. For example, the CD was originally designed for
recording and playing music but today it is also widely used for storing data. CD technology was not originally designed for data storage but it was quickly noticed that it can also be used for storing data.

This means that technologies that might originally seem worthless might in other contexts become very valuable. This is the uncertain nature that is closely related to entrepreneurship by, among others, Knight (1921). Discovering new ways in which a technology can be used is more likely when an entrepreneur has a wide social network where the entrepreneur can discuss the opportunity. The network should consist of individuals from different domains, backgrounds and walks of life. This way the entrepreneur is more likely to get new ideas on how to benefit from the technology. The use of wide networks is also more likely to create more innovative companies and exaptation than imitation and evolution through adaptation.

Renewal of organisations

The discovery of new opportunities should not be limited only to the individual. Although entrepreneurship studies have been skewed toward individuals to the detriment of organisations, established organisations also discover new opportunities to expand their businesses. Lichtenthaler (2005) looked at the activities that diversified firms can implement to recognise new businesses systematically. While the maturity and diversification of the organisations posed challenges to the innovation capabilities of the case companies, it can also offer hidden possibilities if diverse technologies can be connected and applied to new fields. This process of exaptation (rather than adaptation) is a central concept in entrepreneurship and technology evolution, but it is missing from the literature in the field. Exaptation occurs when technologies are used in a new context, other than the one for which they were initially designed. This causes the use and value derived from a technology to change (Dew et al. 2004b). Lichtenthaler’s (2005) research focused mainly on new business ideas through search strategies. Lichtenthaler (2005) proposes a six stage process for diversification strategies. The different stages are:

- Definition of search fields
- Identification of business ideas
- Validation of business ideas
- Rough assessment of business ideas
- Detailed analysis of business ideas
- Decision making.

The decision makers have a different emphasis in each stage, with the CEO and management team level starting and finishing the process. The perspective of a single entrepreneur is not discussed, but quite similarly entrepreneurs can benefit from a formal analysis of the kind proposed. The role of different decision makers is naturally reduced in the case of a lone entrepreneur, but the stages in the process stay roughly the same.

Company age and size can have some effect on how organisations recognise these new opportunities. For example, established companies that are committed to earlier businesses may have a limited capability to change their business and act on rapidly occurring new opportunities. Large companies can easily become hierarchical, hindering their opportunity discovery and exploitation processes. Large companies are also not too keen to act at an early stage because the opportunities might be considered too small. This might be because large companies are typically able to quickly develop the technical capabilities required to benefit from the innovation. The strategic change is what is usually more difficult and requires more time and other resources (Christensen & Bower 1996). Established companies also seldom cannibalise their own products, trying rather to gain profits from the products even when their time has passed.

Summary

In summary, it can be concluded that finding business opportunities depends mainly on the previous knowledge and experiences of an individual, and on information seeking patterns. Previous knowledge allows individuals to see different opportunities but it also hinders this by giving them a preconceived idea about what can be done. This preconception may be based on bad previous experiences in conditions that may not be applicable any more. This can limit the ability to see new opportunities for applying a technology to allow the creation of new markets.

Venture creation can also happen inside existing organisations. In these cases the renewal of an organisation happens through a similar process to that in a new firm but the resources are often more abundant and the process more defined.
3.3 Creation of new ventures

In the previous section I discussed where opportunities come from and what affects their discovery. Next I will focus on how businesses are created from the discovered opportunities. This is an important part of venture creation because many people have great ideas but only a few choose to do something about the ideas. Even fewer can create a growth business from those ideas.

The actor must have a strong belief in the success of an opportunity before he commits to it. He must be convinced that the opportunity when successful will provide more returns than other available alternatives (paid labour, free time), that investments made into the venture (money, time) will gain returns and that the risk-return benefits are sufficient (Schumpeter 1934). Often entrepreneurs see their chances of success too optimistically, considering the long term statistical success rates of new ventures. Roughly half of all ventures fail, yet no one predicts failure when starting a new venture. Otherwise it would not make sense to start the new venture; it would be more beneficial to do something else instead. This might be due to entrepreneurs thinking that they can influence their success more than they actually can (Cooper et al. 1988). This would be a supportive argument for using a systemic approach to the study of new venture creation. The venture creation process might be initiated by an actor but it is not controlled totally by him, rather by myriad other actors who try to influence the process.

Commitment to ventures

Entrepreneurs usually decide to exploit new opportunities when their expected value is sufficiently high. Shane & Venkataraman (2000) have identified from the literature several factors that positively influence the probability of exploiting an opportunity. The probability of exploitation is high especially in cases where expected demand is high (Schmookler 1966, Schumpeter 1934), industry margins are high (Dunne et al. 1988), the technology is at the start of its life cycle (Utterback 1994), competition is not too tight and not too loose (Hannan & Freeman 1984), the costs of capital are low (Shane 1996), and customers can also learn from other market entrants (Aldrich & Wiedenmayer 1993). At the individual level, exploitation seems to be associated with high personal net worth (Evans & Leighton 1989) and personal relationships with resource providers (Aldrich & Zimmer 1986).
The reasons behind starting a new venture to exploit an opportunity are varied. Shane (2001) found that the importance, level of radicalness and patent scope of a technological opportunity affected the likelihood of a firm being established to exploit the technology. The importance of the technology is based on the number of citations the patent has received since its publication. The level of radicalness is based on the number of previous patents in the same patent class. Patent scope was based on the number of patent classes to which the patent was assigned. To base the analysis only on quantitative measures and especially patents brings problems with software innovations, which are generally harder to patent and for which patents have a different meaning (Zahra & Bogner 2000). While Shane’s (2001) results could be applicable in broad general terms to software-intensive technological opportunities, this has nothing to do with the success rate of the firm or with the process by which the firms are established. The importance of technological opportunities might be determined not by the customers who pay for the technology but by the inventors or entrepreneurs who might see the technology as more important than it actually is from a customer perspective. This can bring about problems if the company has not carried out customer validation before start-up. If the customers do not value the innovative features of a technological opportunity, the company might have difficulty surviving. This product-driven and technological approach is regarded as one of the key challenges for high-tech companies.

Uncertainties related to execution

After an individual has an idea about what could be done, he or she needs to exploit that opportunity if they want to see it on the market. When individuals are thinking about exploiting an opportunity, they often consider what their position is in relation to others. How much information, resources or networks one has that others do not have, how many others have discovered this opportunity or how much better financing one can get than others are examples of the typical questions that one may think about when considering the opportunity. Because information is distributed unevenly in the markets, these questions are likely to result in uncertainties. Information is also valued differently by different actors. Because of these uncertainties, information asymmetries and valuation differences, it is possible to create business by selling products at a higher cost than their production cost (Schumpeter 1934, Kirzner 1973). The market environment can also been seen to be in constant disequilibrium, with regulatory,
political and social changes taking place along with the development of innovations and other factors that shape the market. These create an environment that makes entrepreneurial behaviour possible and enables the creation of opportunities.

Opportunities arguably always have some degree of uncertainty associated with them. When uncertainties are high, actors aim to minimise the uncertainties. One way to do this is through selection of the mode of organisation. Once an actor discovers an opportunity, he has basically two ways to pursue it: either through an existing organisation or by creating a new one. One way of looking at the choice of the mode of organisation is through knowledge dispersion within a firm and outside the firm. If the outside is showing a high level of agreement with the opportunity it is more likely that the opportunity will be pursued through a new organisation. If, on the other hand, the outside is showing a low level of interest the opportunity is likely to be developed within a firm. Agreement within the existing firm is also relevant, with a high level of agreement making it more difficult to launch a new firm and a low level of agreement making it easier to launch a new firm to exploit the opportunity. This reasoning is based on knowledge dispersion among individuals in organisations. Someone might discover an opportunity but because not everyone has the knowledge of how to create the opportunity, the firm-internal organisation might not value it highly (Dew et al. 2004).

Uncertainties are always experienced by an individual. The would-be entrepreneur does not necessarily know if there is demand in the market for the offering, he might be doubtful about his technological knowledge and there might be uncertainties related to funding. Estimating the demand might be hard even in cases where there is a customer that has a prototype through which the customer can evaluate the product. This can make it hard for the actor to allocate resources appropriately (Christensen & Bower 1996). On the other hand, the actor can gain competitive advantage by being the first mover in the field. In this situation the actor must act under more uncertainties than in a situation where he shortens his first mover position by doing more market scanning and research. Choi & Shepherd (2004) studied situations where entrepreneurs were making decisions under uncertainty to start exploiting a business opportunity. They came up with four notions that affected the speed at which the entrepreneurs chose to move to exploitation:
Customer valuation: Entrepreneurs who believe that customers will value their new product(s) are more likely to proceed with exploitation.

Enabling technology: Entrepreneurs who believe that they have the enabling technologies for full-scale operations are more likely to proceed with exploitation.

Management competency: Entrepreneurs who believe that they have a highly capable management team are more likely to proceed with exploitation.

Stakeholder support: Entrepreneurs who believe that they have strong stakeholder support for full-scale operations are more likely to proceed with exploitation.

In addition to these four simple notions, lead time as perceived by the entrepreneurs affected the full-scale exploitation of an opportunity. When lead time was considered to be long, all the notions had an even more favourable effect on the exploitation decision, making it a more complex phenomenon than merely a sum of the four factors (Choi & Shepherd 2004).

**Business planning as a way to reduce uncertainties**

Usually when entrepreneurs choose to exploit an opportunity they write a business plan either for themselves or at least for their financial backers. Studies on the benefits of writing a business plan have come up with mixed results about the usefulness of the business plan. On one hand, writing a business plan has little positive effect on how successful the venture will be (Honig & Karlsson 2004), but on the other hand writing a business plan has a positive effect on taking up other legitimating activities that have further positive effect on the survival of a venture (Delmar & Shane 2004). According to Honig & Karlsson (2004) formal management education had little effect on writing a business plan and those that received education seemed to neglect things that they had learned. One reason for this might be that management education has its emphasis on larger corporations, while the education needed in start-ups is different. The study concludes that a business plan is often written because it has to be written or because of the institutionalised traditions in the industry.

Delmar & Shane (2004) on the other hand came to the conclusion that ventures for which a formal business plan was written before sales and marketing efforts began were more likely to proceed further. One reason behind this could be that the entrepreneurs who wrote a business plan had a more positive feeling
about the outcome. They therefore continued the ventures further than those who initially had a more negative feeling and therefore chose not to write even a business plan. On the other hand this result might have been affected by sales and marketing activities that revealed that a company would have limited chances of survival if established. Based on this message from the markets the ventures could be quit before writing the time-consuming business plan and carrying out other legitimating activities.

**Firm development after establishment**

After the venture has moved to exploitation of an opportunity it usually starts to strive for growth. Growth is something that is pursued by many companies but most fail to achieve it to a significant degree. Every new venture tries, arguably, to grow at least to some degree. Without growth in the beginning a venture will not pass its initial stages and will fail. Growth after the initial stages requires risk-taking and therefore can be problematic because it brings with it a threat to survival (Sapienza *et al.* 2005). Some new ventures will settle for a business that is risk averse and will secure a steady job for the founders. Some choose to seek aggressive growth for various reasons and risk the failure of the venture. The reasons why companies grow are varied and many scholars, consultants and managers have tried to find the “silver bullet” that makes companies grow. Many conclusions have been drawn, but no single solution seems to exist. Because of the complex nature of organisations and new ventures, a silver bullet of growth seems unlikely to exist. What is more important than the outcome is the mindset that a company takes towards growth. Without growth orientation or entrepreneurial orientation (Lumpkin & Dess 1996) the company will arguably not experience growth even if the business opportunity would make it possible. This orientation will shape the organisational mindset and create a long-lasting identity for the company.

Different phases are commonly identified along the growth path of a company. Probably the most common model of company development is Greiner’s (1972) model of organisational growth and development. This is a five-phase model which describes different crises through which companies evolve into larger and more mature organisations (Greiner 1972). Swiercz & Lydon (2002) have formulated a two-phase model of start-up firm growth where the differences between the two phases are in the entrepreneurial leadership competences required. The formative growth phase requires more entrepreneurial
skills while the institutional growth phase requires more managerial skills. The problem with static and linear growth models is that firms do not necessarily evolve through these stages. A software product company can grow to a significant size and market dominance without going through a certain number of revolutionary stages as proposed by Greiner (1972). Similarly, in the case of the new venture being a spin-off from an existing organisation, it may skip the initial phases. An organisation can also grow into a mature organisation without growing into a large organisation. This can happen to companies operating in a niche market, for example. It is common that these companies bring high added value to a limited customer base, thus limiting them from growing into a large company but not into a mature one. Although Swiercz & Lydon (2002) do not mention it, it might be possible that the growth of firms is a cyclical development with formative and institutional growth phases. Maturity is followed by a new phase of creative growth, rather than the organisation staying at an internal state of maturity.

**Summary**

In summary, it can be concluded that venture creation requires more than the mere recognition of opportunities. The opportunities must be acted upon and ventures created.

Commitment to execution is one of the first steps that an entrepreneur must make. The level of commitment is largely dependent on the uncertainties that a venture faces. Sometimes the market and product are ready, members of the management team are committed and financial backers have given the green light. In this type of situation it is easy to commit to a venture. When the market does not exist, the product is only a vague idea and all one’s peers are questioning the venture, it is harder to commit fully to a venture.

One way to reduce uncertainties is to do business planning. This will indicate what it will take for the venture to be successful. Business plans in themselves act as a communication tool for the entrepreneur to show what the venture is about. Business plans as such have been shown to have little effect on the performance of a venture.
3.4 The role of social context in venture creation

In the previous section I discussed how opportunities are turned into ventures. Next I will focus on the role social context plays in venture creation. As was discussed in Section 2.1.3, venture creation is not only an activity of an individual, it is embedded in a wider social environment.

New business opportunities are not transformed into profitable businesses merely through the activities of the actor (whether an individual or organisation). Opportunities require at least partners, customers and financing, among other things, before they turn from opportunities to businesses. The process of turning opportunities into businesses is mostly about getting other people to accept the new idea and changing the initial opportunity into something that can be accepted by the other relevant individuals.

Market changes as a source of opportunities

When Liu et al. (2007) went through the development path of Trend Micro, they found that environmental jolts had a major impact on opportunity discovery and exploitation. They define environmental jolts as points where customers’ cognition shifts, creating a source of opportunity. Trend Micro had grown their anti-virus software-based business by exploiting environmental jolts that had created a market demand for new kinds of products and product categories. This required them to carry out entrepreneurial actions to change their own organisation, products and processes to meet the demands of the changing market. Liu et al. (2007) conclude that large corporations like Intel or Microsoft can create these jolts themselves in order to create market demand. For companies that cannot create environmental jolts or market disruptions themselves, value creation can happen by creating and participating in strategic networks that allow them to anticipate the jolts before they occur.

While environmental jolts are an important source of entrepreneurial opportunities, it should be noted that the jolts do not occur by themselves. They are created by some activity in the market. While Liu et al. (2007) limit the power to create jolts to large corporations, I would argue that the ability to create jolts is not a capability possessed only by large companies. New and small ventures are also capable of creating jolts that are meant to shift customers’ cognition. A revolutionary new technology introduced by a new company can shift cognition
in the way that large companies see this revolutionary technology as an environmental jolt and as a source of opportunity.

**The effects of relationships on information**

Knowing who the right people are, and knowing these people, is important when finding resources and customers for the business opportunity. When an actor (individual or organisation) that is publicly recognised as an entrepreneurial actor engages in a new venture creation process that has high novelty value, it is more likely to be accepted than if an actor that is not recognised as entrepreneurial engages in a similar new venture creation process. The field arguably wants to eliminate risks by not investing in the non-entrepreneurial actor. Shane & Cable (2002) studied the role of network ties in finding financial backing for new ventures. They found that investors exploit social ties to gather information but they do not make investment decisions based on social obligations. Previous research has found that venture capitalists tend to finance opportunities that come by referral, rather than opportunities without introduction (Fried & Hisrich, 1994). Shane & Cable (2002) suggest that this is not because of the referral as such but rather the information that it provides. Shane & Cable (2002) argue that if the information is publicly available, referral is not needed for the entrepreneur to obtain financing.

The information transfer aspect of social networks is related to the discussion about the role and type of information and knowledge. Information or data is usually considered something explicit that is easily transferrable and quantifiable. Knowledge or implicit information, on other hand, is harder to transfer and quantify, and it is subjective (Polanyi 1962, Nonaka 1994). When information is received from a public source, it is typically just that: explicit information with few value judgements attached to it. When information is received from other people, it is most likely processed in some way, and therefore it is implicit knowledge rather than mere information. Even when a subject is merely transferring explicit information (e.g. press releases, interim reports) to another party, there is a selection process that affects whether or not to transfer that information forward. This selection process brings a contextual aspect to the information. Therefore, the information venture capitalists receive from network ties is arguably considered more reliable than information received without a referral.
The role of customers in venture formation

The argument of simply providing enough information about different opportunities is not a valid argument about how and why certain opportunities are financed and why others are not. Shane & Cable (2002) further note that the results may vary in innovative and imitative industries and in different social contexts. Network ties (i.e. people) bring with them knowledge about different things. This (tacit) knowledge is different from merely receiving information from publicly available sources. This knowledge reduces uncertainties far more effectively than information received from public sources. It is therefore important for entrepreneurs to gain network ties and social capital to increase their chances of receiving outside funding if they need it in order to advance their venture.

One clear sign of the validity of an opportunity is the existence of a paying customer. The first customer can therefore have a significant impact in shaping the company’s future. In fact, most software company CEOs actually name getting their first customer as the most important event for their company (Ruokolainen 2005). The first customer or customer segment will define the type of business opportunity the company is eager to pursue and will be likely to create a long-lasting mindset for the organisation. However, if a company places too much value on the requirements of the initial customer it can lead to their developing a customer-specific solution that does not solve the problem at a general level.

The issue of the first customer arises in a different form for software service and for software product companies. For a software service company the first customer brings credibility, experience and most importantly income. For a service company each customer brings a fixed and limited amount of income. It develops a company’s knowledge base but will probably not shape the business opportunity pursued by the venture. For a software product company the first customer of the ready-made product is not as significant as the customer(s) with whom the prototypes are developed. Even more importantly, it is the type of customer segment that they represent that is meaningful. Rogers (1962) defined different customer segments based on their behaviour in adopting innovations. Innovators, early adopters, early majority, late majority and laggards all have different reasons for buying a product. If the company targets the wrong segment when introducing a new product, it can fail in the introduction simply because the customer segment does not perceive the value of the product (Rosen et al. 1998,
Moore 1991). This can happen if the product requirements have been gathered from customer segment different from the segment at which the product is targeted, for example.

Regarding the first customer, Ruokolainen (2005) found that for software companies making enterprise software products in Thailand, credibility due to the first reference customer had a significant impact on sales growth. What was also found interesting in the study was that the learning about the correct technology that occurred thanks to the first customer had a negative correlation to sales growth. On the other hand sales arguments that were learned from the first customer had a positive correlation with sales growth (Ruokolainen 2005). This indicates that for software companies that offer software to the end user, customers are not interested in evaluating or deciding about technology choices. They care most about the value that the solution brings, regardless of the technology. The situation might be different for software companies developing middleware for other software companies in the value chain. For software product companies, any mistakes made might also be easier to solve because the software is easier to change than hardware-based solutions.

The network position of customers

As found by Ruokolainen (2005), social contacts form the base for acquiring the first customer. The implications of this are two-fold. On the one hand, start-ups should increase their social capital to gain access to a wide base of possible first customers. On the other hand, it could be argued that if a start-up focuses on getting their first customer from amongst their close social relationships, they will not get the best first customer available (Weterings & Koster 2007). This is because social relationships tend to be formed among the same types of people (Granovetter 1973). This can easily lead to a “group think” style of behaviour where little added value is created.

Young technology-based firms often benefit from key customers by acquiring knowledge through social interaction and network ties as well. This knowledge acquisition adds up to a greater number of new products, greater technological distinctiveness and lower sales costs (Yli-Renko et al. 2001). However, Weterings & Koster (2007) show that an intensive relationship with a previous employer limits the innovative performance of a new venture. This indicates that the knowledge acquisition benefits of new product development and technological
distinctiveness are greater when the type of knowledge exchange and acquisition is heterogeneous than when it is homogeneous.

Partnering to accelerate venture development

Many organisations try to associate themselves with bigger companies through references and partnerships, in the hope that some of the values associated with the partner will also be associated with the new venture. One method often used by firms is to form cooperative agreements with each other. The management literature is filled with reasons why firms form these agreements. These agreements are commonly formed to share or reduce risk, to increase development speed or production benefits or to accelerate market adoption of some new technology. It has been found that leading high-tech firms are less likely to cooperate than follower firms (Shan 1990). Leading firms are more likely to think that the technology they have is the key to a leading position in the market. Looking at this from a socially embedded view on venture creation, it would arguably be beneficial for them to cooperate with established firms in order to reduce uncertainties and create legitimising activities. The tactic is commonly summed up as one of “standing on the shoulders of giants”.

Summary

There are several ways in which the social embeddedness can be seen in venture creation. The source of opportunities does not lie only with the individual. Opportunities can also come from a change in the environment, through changing perceptions of what is perceived as valuable. The value of information also depends on the closeness of the individuals. Information about these opportunities is also perceived differently depending on where it comes from. Information received from an established entrepreneur is often valued differently from information received from a novice entrepreneur. These issues can create certain barriers to entry for new entrants.

Customers are always important for new ventures. Besides their financial effects, they have other significant effects on the venture’s future. If the first customers are technological innovators who are keen to develop a product further, they will be likely to advance the development of the firm significantly. On the other hand, they can hinder the development of a new entrant by sticking to the old rules of the business and using the new entrant as a mere outsourcing partner.
For these reasons, it is important that entrepreneurship studies also pay attention to the wider social dimension of venture creation.

3.5 Regional effects on venture creation

As has been discussed previously, entrepreneurs do not function in a void. In addition to the other individuals that affect new venture creation, the process is arguably shaped by the environment in which the emergence takes place. Regional issues can be considered as a two-directional relationship between organisations and regions. On the one hand the organisations in part create the region, and on the other hand a region shapes what type of organisations emerge in it. For a new software venture it is easier to be established in Silicon Valley (US) or in Oulu (Finland), which are known as software industry clusters, than in the Research Triangle (US) or in Turku (Finland), which are known as biotech and life sciences clusters. Furthermore, if a region is going through a prosperous time, it will probably be easier for a new venture to emerge.

Theoretical lenses on regional differences

Sternberg (1996) recognises four theoretical backgrounds that can be used to explain the formation of high-tech regions. The product cycle (regional version) hypothesis is based on the genesis, introduction, growth and maturity phases with no definite time limit. Regions move through these phases as market powers change. The Theory of the Long Waves of economic development is based on a Schumpeterian view that economic cycles consisting of economic growth, prosperity, recession and depression are shaped by entrepreneurs and their innovations. The theory of flexible specialisation and production is based on the idea that new organisational forms deriving from new industries shape the region to meet their specific needs. These regions emerge at the periphery or far away from the centres of the old regime. Innovative milieu and network theories emphasise the role and activities of individuals, organisations and institutions in the formation of a region (and its milieu). Collectively, their activities try to reduce the insecurities related to technological changes.

Based on a five region study, Sternberg (1996) concludes that none of these theories alone can explain regional cluster formation. However, from a new venture formation standpoint they make one thing very clear. As industries and regions reach their mature state, they often start to move to a defensive mode,
limiting the opportunities of a new venture’s survival. New ventures are seen as a threat to the status quo rather than as an opportunity. This means that radical new ventures that change the market or create a totally new one will seek a more fertile ground in which to start off. As these ventures move to a region that is more accepting of them they start attracting other ventures of similar types, creating a growth pattern and an identity for a region.

**National differences**

Location aspects are important for all types of businesses. Many researchers emphasise the national-level differences in entrepreneurial and innovation activities. For example Rhyne et al. (2002) found differences in new product innovation activities between US and Belgian companies. In general, the national cultural dimensions (Hofstede 1984) in the US were found to be more supportive of innovation. A study by Rhyne et al. (2002) found that Belgian executives were satisfied with lower levels of profitability than their US colleagues. Scientific progress was also valued by the Belgian executives more for its own sake, as opposed to for its commercialisation. This is in line with the general consensus that US companies are more business-driven than European ones (Tekes 2007). It might be possible to draw the conclusion from this that when a European venture has a strong motivation for growth and success, it can be seen as unusual among other companies. This can lead to discriminating behaviour by existing companies that can see the company not as a partner but as a threat to their existence.

Dana et al. (2003) found that differences in regions and their cultures of knowledge management and innovation practices have an effect on the way organisations organise their new venture creation activities. Despite these regional differences, the study found similarities across the leading organisations in Silicon Valley, the Netherlands and Singapore. These organisations’ cultural beliefs, values and behavioural norms were more similar than different, highlighting the global nature of innovation management practices in different high-tech regions among their leading organisations. These organisations were found to have flexible, open, non-hierarchical, team-driven, knowledge-sharing and rapid response cultures. These results show that 1) regardless of the regional culture, innovative organisations can form, but also that 2) a region’s culture and infrastructure support the formation of these types of organisations.

Florida et al. (2008) studied the mega-regions of the world and what makes them different. Amongst other findings, they found differences in the number of
people, economic activity, innovations and star scientists (based on citation counts) between the different regions. These results seem to show that people, production and innovations are dispersed unequally around the world in spikes. What was interesting in the study was that these factors seemed to correlate little with each other. Around the world, people were the most evenly distributed factors in the study, with the rest of the factors concentrated in mega-regions. The concentration is denser for economic activity, denser again for innovations, and at its most dense for star scientists. This indicates that new innovations are fuelled by the clustering of creative people who benefit from knowledge spillovers, economies of scale, the sharing of ideas and other benefits brought by density.

*Regional differences*

For businesses that base their competitive advantage on more traditional advantages such as scale advantages in manufacturing, a location might be good because of access to cheap labour. This is the current trend in globalisation discussions. A more neglected discussion is the location advantages sought by knowledge-intensive industries. Willoughby (2004) points out that an affordable resources strategy which is based on seeking environments that offer mainly cost advantages will not give a competitive advantage to biotech companies. On the other hand, biotech companies who take part in intensive informal cooperation with other biotech companies and with complementary organisations in the area as well as having high R&D intensity experienced significant revenue growth. This indicates that location does matter for knowledge-intensive organisations but for different reasons than for manufacturing-based organisations. Knowledge-intensive businesses should select their location based on its people, knowledge and institutional resources to enhance informal communication with their peers. Yasuda (2005) comes to a similar conclusion about the formation of strategic alliances in the semiconductor industry. Analysis of ten semiconductor companies showed that companies are seeking strategic resource advantages in technology licensing, joint R&D, sourcing agreements and joint ventures rather than looking for cost advantages.

These clusters do not only attract established companies from a specific industry. According to Carlsson & Eliasson (2003), clusters – or *competence blocs* as they refer to them – require:

1. Competent and active *customers*
2. **Innovators** who integrate technologies in new ways  
3. **Entrepreneurs** who identify profitable innovations  
4. **Competent venture capitalists** who recognise and finance the entrepreneurs  
5. **Exit markets** that facilitate ownership change  
6. **Industrialists** who take successful innovations to industrial-scale production  

These components create an *experimentally organised economy* where new innovations are created, tested and selected dynamically (Carlsson & Eliasson 2003).

Knowing the right people is significant from both a personal and a regional perspective. Myint, Vyakarnam & New (2005) showed that the majority of high-tech companies that have shaped the Cambridge high-tech cluster are connected to a handful of serial entrepreneurs. The social capital of these individuals is important and it can be seen to form the field in this domain, that selects which new ventures are worthy of execution. Exclusion from this social network might hinder the emergence of a new venture.

Florida (2008) carried out a Place and Happiness Survey for different US cities and regions. Based on this, every region seems to have a spirit of its own. Some regions are better for young adults, others are better for retirees, some are better for people on the move, some are better for the rooted. Most of us can comprehend this by looking at the different parts of the city in which we live, but the contrast among different regions is striking. For example, people who are open to experience seem to reside around San Francisco, New York and Miami, but of these only Miami also has people who can be described as extroverted. In contrast, the New York area’s inhabitants are characterised as neurotic. This does not mean that all the people in these areas are extroverts or neurotic, but compared to other regions in the US, these areas have a distinct portion of the population with these qualities.

Previously, Florida (2003) proposed that knowledge-intensive professionals are the most important group that determines the success of a city. He named this group of professionals the creative class. It is constituted of engineers, artists, scientists, educators, writers and entertainers. These are the people who create new ideas, new technology and creative content and their economic production is mostly knowledge-based (rather than based on the production of goods). He proposed that areas that can attract talent and technology and are tolerant have the strongest position in the short term future. The members of the creative class
value creativity, individuality, diversity, and meritocracy as their guiding principles when selecting where to live.

\textit{Summary}

We can conclude from this that country- and regional-level differences affect venture creation. While national differences are not the focus of this study, they do have an effect when we consider venture creation. Previous studies clearly show that venture creation is quite different in different parts of the world. Certain parts of the world are more concentrated in terms of innovation activity, and this brings advantages for innovative performance.

Regional differences can be significant even in a single country. Rural parts of a country seldom have all the components (customers, innovators, entrepreneurs, venture capitalists, exit markets and industrialists) needed to create world class businesses. For an entrepreneur these issues should be considered in advance, in order to avoid possible disappointments later on.

\textbf{3.6 Summary}

In concluding this chapter, we can note several key points that arise from previous entrepreneurship studies regarding venture creation. The first point to note is the processual nature of venture creation. Opportunities are discovered and developed into businesses through a process. The central actor in this process is the entrepreneur. While he is not the only thing that affects the process, he is often the one who initiates the process.

The discovery of an opportunity is the starting point for most new ventures. This discovery can be a premeditated and deliberate act, or it can be a random coincidence. In either case it is affected by previous knowledge, social networks and the individual’s desires. These opportunities are then developed into businesses under uncertain conditions. The path from an idea to a business is seldom a straightforward one. It is often shaped by changes in strategies, business plans and execution.

Furthermore, the process of venture creation is always embedded in a social environment. The environment affects which acts are determined to be positive and which negative. It shapes the desires of an individual and guides goal setting. Customers determine what they are willing to pay for and why. Arguably this is one of the key forces that drive the direction of entrepreneurs’ activities. The
region also plays its role in this. Different regions have different preferences. Technology clusters also form around certain universities, creating the region’s environment. Some parts of a country are more inclined toward technological ventures, while others are more fertile ground for arts ventures.
4 Software business as a research domain

The previous two chapters have focused on what entrepreneurship is and how it happens respectively. As was pointed out throughout these chapters, it is as important to focus on what happens (how ventures are created) as it is to focus on where it happens (social embeddedness). In this chapter I will cover the domain- and context-specific characteristics of software business, i.e. where venture creation happens.

A few factors make software production different from the production of physical goods. Software is hardly ever made from ready-made components, it is developed rather than manufactured, and software doesn’t wear out (Pressman 2005); the reproduction costs of software are close to zero (Raghunathan 2000); software products can be easily distributed, sold and used globally (Hoch et al. 2000); customer lock-in is strong (information produced with one piece of software cannot be used by other software) (Shapiro & Varian 1999); the law of increasing returns (Shapiro & Varian 1999) and knowledge intensity (Zahra & Bogner 2000) are some of the characteristics of the industry. These are not, of course, characteristics unique only to software business. Many high-tech fields are knowledge-intensive (such as electronics or biotech) or have marginal reproduction costs (like biotech or pharmaceuticals), but in the software industry these features are present most strongly and clearly.

Software business types

There are several typologies for classifying software business. Quite often it is considered to be part of the high-tech industry (e.g. Moore 1991, Hoch et al. 2000, and Mohr 2001). High-tech business is characterised by rapid technological changes that can change market dynamics in a very short time. This challenges an organisation’s decision making at least in terms of timing the adoption of a technological innovation, determining optimal spending on an innovative technology and predicting the success of a class of products (Bridges et al. 1991). In this kind of environment, there is increased pressure from the environment to make rapid decisions. However, there is usually not enough time and knowledge to fully understand and optimise these decisions. This can lead to rapid introduction of a technology that is not driven by customer expectations or is focused for totally the wrong market (Rosen et al. 1998).
When approaching the definition of software business, a more fine-grained analysis can be made inside the high-tech domain. Fig. 3 below shows how the IT market can be positioned within the high-tech market. The software products and services market is what is generally considered as the software business market (Hoch et al. 2000). The scope of this research is highlighted in figure 3 with italics.

Fig. 3. Typology of software business types (edited from Hoch et al. 2000).

Another typology of software firms is offered by Sallinen (2002), who classifies software suppliers into five categories: resource firms, resource firms with supporting projects, system houses, software product firms with supporting projects, and finally software product firms. These firms differ in their ways of operating and key customer dependence. The first types of firms are highly dependent on key customers and operate as resource-hiring firms. The latter types
of firms are not dependent on individual customers and operate through independent production of software products or modules.

One way of defining “software business” is to look at the object of trade. Back in the days of mainframe computers, this was easier to do. If the object of trade was software, the company was in the software business. This means that typical business areas to be excluded are hardware products (even though significant added value is produced by the software in them, e.g. computers, mobile phones, iPods etc.), hardware maintenance services that are not involved with implementing or deploying software, and e-business sites like Amazon.com or Ebay.com, where a certain software platform is used to deliver a (shopping) function, but the object of trade is something else.

However, recent Internet developments have resulted in application software being developed for use over the Internet. This type of software is typically referred to as software-as-a-service (or SaaS for short). This type of software is typically delivered for free or at a monthly cost. Examples of this are CRM software (such as Salesforce.com), office automation software (such as Google Docs), and networking and communication software (such as Facebook.com). This creates a discussion about what should be included in the software business domain. If we want to include Google and Facebook (whose main revenue streams revolve around advertising) in the definition of software business, we should define a software company as “an organisation that has capabilities and resources that are used to create software”.

Software business types in this study

This research excludes e-commerce-based companies from the scope of the study. These are companies like Amazon.com, Ebay.com or Alibaba.com. Even though these companies spend a great deal of resources on software and ICT, the primary object of trade in these businesses is not software as such. These companies are typically customers of software companies because of their huge spending on ICT. In terms of internal organisational development they can share a lot of commonalities with software businesses. They might need a lot of internal software developers to develop their software solutions, or expectations about their growth potential might be valued as high as software product companies’ potential, which might make them look like a software company. However, because they typically sell products other than software to their customers, their venture creation processes, business models, etc. differ greatly from software-
based ventures. Their value chains are also significantly different, separating them from the other types of software businesses. This is not to say that every company doing Internet-based business is excluded from this study. Some software companies offer their products through the Internet either as downloadable software or usable online. Examples of these types of companies include Salesforce.com, LinkedIn.com, Google.com or Facebook.com.

4.1 History of software business and recent developments in software business research

The history of software as we know it today begins roughly around the 1950s, when the first non-hardware-based programming saw the light of day. During the early days of software business, these software solutions used to be developed inside the organisation that was using them. Programming was close to the hardware and it consisted mainly of controlling the hardware. Few resources were used on user interfaces, business process development and other higher-level functionalities (Johnson 1998, Sawyer 2001, Haigh 2002, Cambell-Kelly 2003). This inherently meant that the programmers who were doing the job were more mathematics- than humanistic-oriented (Blum 1996).

In the early days of computing, software was developed by the same organisations that produced the hardware. In the mid 1960s these became decoupled when the competition authority and several independent software vendors protested against the dominant position of IBM. Starting from the early 1970s there has been an increasing number of independent software vendors developing software products. While this meant that there were independent vendors that produced the software, at first the development was still close to the hardware, compared to today’s standards (Johnson 1998, Sawyer 2001, Haigh 2002, Cambell-Kelly 2003). Software development work at that time consisted mainly of work process automation. This automation of pre-existing processes was done by analysing and dissecting the work processes to make them transferrable to the computer. This was a deterministic approach similar to the one used 20 years earlier by the engineers building the transistors (Blum 1996).

The decoupling of software development work from the organisations that use them that happened on the 1970s brought challenges for the whole software production industry. New business models had to be developed because the old ones became ineffective, and new production processes had to be invented
because work became more distributed and new user groups started using the software.

In the 1980s the computing age was revolutionised by the personal computer. Previously computers were mainly used by experts, but this revolution created new groups of users who had never used computers before. This created a market for new kinds of software products such as games, personal productivity and office software, and operating systems for the PC. These were produced by independent software vendors and the aim was to produce them in mass quantities. Previously the units of software produced might have been calculated in thousands, but the PC market enabled the number of units to rise to tens and hundreds of thousands, and eventually to millions. This meant that during the development stage the developers saw ever fewer numbers (proportionally) of the end users (Messerschmitt & Szyperski 2003).

The decoupling of software from hardware and the rise of the PC market also meant that developers of infrastructure software became more separated from the developers of application software. Previously these were partly developed by the same organisations, but when the number of applications began to grow a need arose to create common interfaces (Messerschmitt & Szyperski 2003).

The next revolution came in the form of the Internet in the mid 1990s and early 2000s. This created a new layer on top of the application and infrastructure software. Internet-based software runs in a browser environment, which means that software development has expanded to a higher level.

**Research perspective on software business**

As the need for and amount of software has increased, so have the research and development efforts regarding software and its development. Starting in the late 90s and early 2000s, there has been a rising interest in the business and management side of software businesses. Recently there has been a drive to integrate business management and software engineering disciplines. The current software business research can be divided roughly into two branches.

**Software engineering and information systems research**

The first branch has its background in computer science, software engineering and information systems development. This branch focuses more on software development processes, organisations’ use of software, and software technologies
in general. Much of this research comes from engineering-focused researchers and is of a technical nature (e.g. Boehm & Sullivan 1999, Boehm & Sullivan 2000, Wallin et al. 2002, Boehm 2003, and Wan-Kadir & Loucopoulos 2004). For example, value-based software development as suggested by Boehm (2003) criticises value-neutral approaches to software engineering. Instead, Boehm (2003) proposes seven criteria (benefits realisation analysis, stakeholder value proposition elicitation and reconciliation, business case analysis, continuous risk and opportunity management, concurrent system and software engineering, value-based monitoring and control and finally change as opportunity) that could be used in all software engineering principles, ranging from requirements engineering through verification and validation to people management, to name a few examples. Wan-Kadir & Loucopoulos (2004) note that changes in the business model are rarely reflected in the software that supports the organisation. They propose the Business Rule Model and the Link Model as a way to integrate changes in a business model with changes in software development. Similar related attempts have been made in economics-driven software engineering (e.g. Boehm & Sullivan 1999, Boehm & Sullivan 2000, and Wiederhold 2006). This approach integrates models traditionally used in economics modelling with software engineering. These approaches aim to quantify more accurately the costs of software throughout the life cycle. Wiederhold (2006) comes to the conclusion that as the size of software increases over time, maintenance costs increase as well. When this is combined with the decreasing number of sales, it can quickly lead to a situation where software maintenance is making profits sink. Hence, companies need to develop both service-based earnings models and new software products to keep their product pipeline active.

The aim of this branch of literature is to develop software and to improve the software process. The focus is driven by technical thinking and application development. Little thought is given to how the software (development process) integrates with the business side of the organisation.

Management studies and software business

The second branch has its background in management and strategy literature. This branch focuses on phenomena related mainly to differences in information goods markets (Katz & Shapiro 1985, Shapiro & Varian 1999, Mohr 2001) but also on technology and growth strategies and organisational performance (Zahra & Bogner 2000). These approaches focus more on combining management of a
software process with management of business strategy. Their focus is commonly not on supporting the software development of a new venture. The approaches often make assumptions, such as the assumptions that the customer is ready and willing to buy the product, that there is a market ready for the product, and that software can be built accordingly. However, these are typical examples of issues differentiating new venture creation from strategic management. The problem is that current software development approaches do not take into account the constantly changing and evolving nature of a new venture’s business strategy. Moreover, the software industry is considered to be a factor limiting the research scope, rather than having some effect on the research design and methods.

Literature combining these two branches is hard to find. Hoch et al. (2000), Messerschmitt & Szyperski (2003) and Cusumano (2004) are some examples of literature that combines an understanding of software engineering practices with an understanding of their effects on the software organisation and the industry as a whole. All of these show how the fundamentals of software engineering and the software industry shape the business practices of the industry. However, their focus is on the strategy and management of existing companies or industry-level issues, not on new ventures.

Quite recently, the software process improvement (SPI) literature has acknowledged the need for different types of process models. Dybå (2000, 2005) has recognised that most SPI practices are focused on rationality, stability, control and planning. Reality has hardly ever been easily predictable or controllable but during recent decades it has become less so. This is creating a need for software processes that are based not on planning but on the ability to accommodate change. What has become increasingly important are not the software processes but the ability of the software organisation to build an organisational culture that can absorb and use rapidly changing information in current product development and to create new opportunities (Dybå 2000, 2005).

Laari-Salmela (2009) carried out a recent study of the formation of business strategies in small software firms. She found that strategy formation was a multifaceted process in which network visioning, strategising and organising take place. These create the generative mechanisms of the action-formation mechanism, the situational mechanism and the transformational mechanism. All in all, strategy formation is not as straightforward a process as described in the management literature.
The role of new ventures in software business research

This lack of the organisational development aspect is easy to notice when one looks at current software development processes. It seems as though people in engineering and management are in their own separate cubicles. Both are ultimately aiming for the same cause – building an organisation that creates software – but they do not seem to be speaking to each other. Software process literature mainly focuses on the product development process while disconnecting business and organisation development from the process. Organisation and business development literature focuses on organisation development and disconnects from product development. For some companies this might be fine but not for software ventures, because their whole business is about developing the software.

A good example of new venture creation as a social phenomenon is the federal government’s role in the development of the US software industry. The Cold War meant golden times for the US defence industry. Heavy investments were made in software development from both infrastructure and application development perspectives. Various research institutions were established for high-tech research, which resulted in spin-offs and knowledge spillovers. This resulted in a favourable environment for software companies and entrepreneurs. (Mowery & Langlois 1996.) It can be argued that industries considered less important from the perspective of national defence received fewer resources and new venture creation was harder in those industries. Similarly, Jackson et al. (2002) point out how the development of the industry was first of all a social process leading to the creation of an ecosystem. Although in the post-World War II era many companies were vertically integrated, they needed partners to set the industry norms. At that time it was not about calculating ROIs or price discovery. It was a spontaneous process that happened mainly because hobbyists wanted and were able to create their own pieces of hardware and software. At first, the existing industrialists of that time did not see the new emerging technologies and therefore did not participate in the re-formation or creation of these industries. By the time they saw that computing was developing towards the unbundling of software and personal computing, new players had managed to gain significant positions in the market.

This type of opportunity creation process, I believe, is one of the purest forms of entrepreneurship. When we are looking at the process in retrospect it looks like a relatively rational process. However what has remained in the history books is
only one part of the story. What one does not hear are the stories of the failures that it has taken for the ecosystem to develop and knowledge to be accumulated. Because of these failures and the process of creative destruction, new venture creation in the software industry can hardly be called a rational process. The development path of the industry, with the close proximity of user-innovators, has also left a mark on innovation practices in the industry today. With high levels of user involvement and the possibility to create billion-dollar ventures with scarce resources, the software industry is still a somewhat special setting when it comes to venture creation.

4.2 Market dynamics in the software business domain

As mentioned at the beginning of the chapter, the software market has characteristics that make it a distinct industry. They are not merely unique to software business, but their relevance to software business makes the business somewhat different from other industries. There are several ways to divide the market into different segments. Software can be regarded as a special segment of the IT market, and software is not only different from hardware in technical terms, but also in business terms. One way to segment the IT market is to divide it into hardware, hardware maintenance services, software products and processing services markets (Hoch et al. 2000). The software market can be further divided into project and product businesses. Different names have been given to these two types of businesses, for instance customised and general products (Sommerville 1995), custom and packaged software (Carmel & Becker 1995), and professional services and product business (Hoch et al. 2000).

Business fundamentals in different software business types

Hoch et al. (2000) define key differences in the management of software companies depending on whether the companies operate in professional software services, enterprise solutions or mass-market software business. In professional software services business, internal development issues such as people management, human resource assignment and software development are considered more important than issues that can be considered more external, such as marketing and partnering. This is contrary to management issues in mass-market software business, where marketing, partnering and globalisation are considered more important than people management and software development.
The enterprise solutions business takes a middle road, and most important management issues are considered to be partnering, service strategy and marketing, not people management and software development.

Companies operating in the software business have to acknowledge differences in different markets and tailor their strategies and management accordingly. While research has been done on differences in management in these different types of businesses, there is hardly any research on the differences in the early stages of the companies and the entrepreneurial activity required in the different businesses. Hoch et al. (2000) are the exception to the rule; they list some of the management capabilities required by the entrepreneur and the organisation. While management (managing something which already exists) and entrepreneurship (creating something new) can be seen as requiring different skill sets, Hoch et al. (2000) could also be seen to be listing some important entrepreneurial capabilities:

- Software leaders must deal with very high levels of uncertainty
- Software leaders have to be visionaries
- High risk-taking ability: leaders of successful software product companies take, on average, 25 percent less time to make important strategic decisions
- Successful companies bet on multiple options to prepare for all uncertainties
- Fail quickly rather than avoid costly mistakes
- Aim high: 93% percent of successful companies had clear and ambitious vision compared with 25% among less successful companies
- Highly dynamic organisations that can adapt to changes in strategy rapidly
- Flat, team-based organisations to encourage responsibility
- Ability to get top talent in various ways
- Ability to sustain a motivating work culture.

Hoch et al. (2000) also emphasise the importance of the management team and of interaction between different members of it. They note that successful software companies are quite often controlled by “twins” – two leaders whose skills complement each other. Similar findings have been made in entrepreneurship studies where heterogeneity of management is generally considered to help the venture succeed.

Many researchers and consultants have given definitions of the success factors for companies. Umesh et al. (2005) have analysed the success factors for IT-based ventures. They base their analysis on well known examples of software
and e-business companies and conclude that for an IT venture to be successful it should consider:

- Growth rate of the market: if the market is not growing, sales growth is hard to achieve
- Timing of market entry: IT markets are often characterised by chicken-and-egg-type problems with enabling technologies not adapted by users
- Ability to gain revenues quickly: companies can only survive a long time if they produce revenues
- Understanding the cyclical nature of markets: the best time to start a company might not be at the peak of a cycle because this is usually followed by a downturn.

While these success factors are general in their detail, they highlight some important features for IT ventures. The IT business is highly networked and characterised by products that use other products. If there is a piece of enabling technology missing or not functioning as desired, a new venture will have significant difficulties in entering the market. In contrast, a steel mill also has to acknowledge market cycles and networks, but it can make product development decisions relatively independently.

**Special characteristics in software production**

In software production, the production costs are often fixed and sunk. Costs are fixed because they are mostly salary costs and can seldom be left unpaid until after the project is finished and the end product is delivered to the customer. Salary cost per production unit (a programmer) can only be lowered by hiring lower cost employees, which often means lower quality or raised management costs. Sunk costs mean that the costs are incurred before the product is ready and the end product has little or no value if it fails (Shapiro & Varian 1999). However, compared to some other industries software has its advantages. Components of a software product can be used in part to develop a new product. This type of technology recycling requires that the company has capabilities to create interpretations of the types of solutions that could be created with existing technology (Vendelo 1997). Although this was found to be an important ability in a software project company, it is likely also to be applicable to product companies. Certain general components can be transferred although they might
have to be transformed, and the learning costs in terms of the technologies and processes used are likely to be lower.

Software business differs from other product markets in 1) reproduction costs and 2) the ability to offer updates (Raghunathan 2000). These characteristics allow software companies to do things differently compared to traditional product companies. For example, producing different versions of the software can be significantly cheaper when features can be simply switched on or off without producing a new product. Even though updating software is rather easy, Raghunathan (2000) argues that offering a low-end version at launch followed by an update later on is a beneficial strategy only when cannibalisation in the market is high. This is a strategy commonly followed in the web-based software industry. Software is first released as a beta to the public for testing and to gather development ideas and gain customer commitment from the users. This approach is more commonly used in the consumer software market than in the corporate market.

Firm size

Finally, the software landscape is somewhat polarised in terms of company size. There are many small companies who do not want to or do not succeed in growing into a large company. Then there are large companies that dominate the technologies and platforms. Because the software landscape is fragmented, with many small companies thriving for success, there is an obvious need to establish partnerships between companies. Nowak & Gratham (2000) propose that there should be virtual incubators promoting public-private cooperation in order to close the knowledge and capital gaps that limit the growth of small companies in knowledge-based economies. These virtual incubators should focus especially on increasing the human capital elements of software companies. This would help companies to grow their businesses.

Summary

The software landscape is characterised by different business types that require different strategies and resources for success. The two major business types are product business and service business. These require different approaches to management, marketing and product development. As in any other business,
overall market development has a large impact on how a business is formed. If a company enters the market too early, it is very difficult for it to gain in size.

While software is easy to change and upgrade, the production costs are often sunk costs. Software cannot be recycled if it does not meet customer expectations.

In addition to the previously mentioned issues, there are other factors that characterise the software industry. Next I will look at some other main business dynamics that affect the software industry.

4.2.1 Complementarities of software

Software is often complementary in nature. This means that software interacts with other software to create added value for the customer. Possible need and degree of integration and interaction should be noted in the initial technology strategy of a new venture. Planning for integration at the early stages of product development is costly and timely but in some cases integration is essential (Nambisan 2002). This complementary nature brings a natural need for software organisations to create networks with other software companies. These networks can offer valuable capabilities, from which new ventures can benefit. In these networks the exchange of knowledge-based resources is facilitated by social interaction, network ties, and trust embedded in network relationships (Vainio 2005). This will also help them in designing the integration process which in turn will aid achievement of the business goals.

One way to illustrate the complementary nature of the industry is through software stacks or the OSI model (Open Systems Interconnection Basic Reference Model). In the OSI model, different hardware and software systems are put into hierarchical layers to depict the interaction between the systems. To ensure interoperability with the other layers, developers provide APIs (Application Programming Interface) for their software to ensure interaction is carried out correctly.

Software value chains

This application interaction is also reflected in the software value chain (Messerschmitt & Szyperski 2003). A natural software value chain consists of application and infrastructure providers, system integrators, application and infrastructure service providers, end-user organisations and business and industry consultants (figure 4). Different variations of this exist depending on the software
being built and the organisations involved. Industry consultants typically look at software in terms of vertical industries (e.g. medical care) or horizontal business functions (e.g. accounting) and what the commonalities are for the software. The application software supplier develops the application with the aim of satisfying multiple end-user organisations. The infrastructure software supplier aims to provide scalable software that a wide range of application software suppliers can use. The role of a system integrator is to integrate one or several applications and pieces of infrastructure software, and possibly provide modifications, supporting hardware, and testing. Application and infrastructure service providers often work in a close relationship with system integrators and the end-user organisation. Their aim is to make sure that the needs of end-user organisations are met. Business consultants often help by bringing past experiences from similar or the same applications or organisations. Organisations can perform several functions on the value chain and their role can change in different contexts.

**Fig. 4. Software Industry Value Chain (Messerschmitt & Szyperski 2003).**
The complementary nature of software products is also significant for Mergers and Acquisitions (M&A) performance. It has been shown that M&As between companies that have complementary components – i.e. their software components are in adjacent layers of the software stack (OSI) – earn higher returns compared to companies that are in the same layer or in layers further apart (Silva & Iyer 2006).

4.2.2 Network externalities

When the value a user experiences from a product or service is affected by the number of other users who use the product, the market is affected by network externalities. Network externalities are also called network effects or bandwagon effects, all of which mean the same thing. Katz and Shapiro (e.g. Katz & Shapiro 1985, Shapiro & Varian 1999) have done a lot of theory development on the topic, focusing mainly on information goods. Network externalities are important in many high-tech fields, including software business (Arthur 1996). Common examples are communication devices like fax machines, mobile phones or software data file formats which are only valuable if the other party is also using them. This means that the install base of many software products has to be large before the users experience high value from it (Mohr 2001).

It should be noted that network externalities have many kinds of effects. These are not limited only to ways of gaining market share but also affect the features of related products. For example, between 1987 and 1992 the spreadsheet programs that used the dominant standard of the Lotus menu tree user interface determined the pricing of the whole product category and had nearly 50% higher prices (Brynjolfsson & Kemerer 1996). This tree menu had become a meme that others either had to follow or they could try to create another, even better interface. This shows that the effects of an innovation that becomes dominant are far-reaching, affecting the design, production, marketing and sales of other products in the product category.

The effects of network externalities on product development

Network externalities pose challenges regarding the release strategies of products. The amount of quality delivered to customers in the introduction phase is connected to the adoption rate of the product. If the product experiences high network externalities, it is more beneficial to offer the product with limited
quality in the first phase. In software business this usually means shipping a trial or free version in the introduction phase and charging for an upgrade with additional features in the second phase (Padmanabhan et al. 1997). The aim of this is to increase the number of users quickly in order to get faster returns on investments. However, this pursuit of first-to-market benefits and maximising network externalities can also have drawbacks. For instance, software quality can be diminished, leading to security issues (Råman 2004). Other common problems associated with software quality are usability or maintenance issues which can increase as the company tries to lead the market.

Van den Ende & Wijnberg (2003) studied innovation processes in firms developing different software products. They found that independence of project teams seems to increase the chances of success in a dynamic market place with bandwagon and network effects. This independence includes internal autonomy, the ability to integrate tasks according to needs, and management of external relations. Decreasing autonomy was associated with lack of management of network externalities. The study was carried out in an existing organisation; hence issues faced by a new firm, such as the “liability of newness” or low process maturity, were unlikely to be relevant issues.

The effects of network externalities on venturing strategy

Westarp & Wendt (2000) show in a simulation that when network effects are present in a market, the importance of random or close connections among users depends on the users’ preferences. If user preferences are similar to each other, software will reach total diffusion and market dominance even with a relatively low number of random connections. When the number of close connections increases or user preferences become more heterogeneous, it becomes harder for software to reach market dominance. (Westarp & Wendt 2000.) An example of this can be seen in the case of Windows, where users have similar and basic requirements from the software. It offers a platform for various kinds of software but does not enforce many requirements on the users which might hinder adoption.

Gallaugher & Wang (2002) have examined the web server market and its pricing and found that in a software market where network effects are present, a positive market share to price relationship was significant for both the product itself and also its complements. They also found pricing benefits for products that secure positive consumer mindshare, support dominant standards and offer trial
products. These findings are somewhat surprising since the web server market is mostly based on open standards. This means that market entry is relatively easy for new entrants. While the study was being carried out, a well known free web server solution was released to the market that had a negative price shock effect. However, the effects of price shock could not overcome the benefits enjoyed from market share. These results have important implications for new entrants. While trial versions are important, in a situation where the competitive space has products with significant market share, the benefits of simply giving the product away for free are questionable. When the product is given away for free, profits are reduced but there may not be a significant impact on the market share of the new products. Arguably, in a situation where the market space is new, pricing the product as free can help gain significant market share faster especially if the product is linked with complementary products that have a high market share, i.e. “standing on the shoulders of giants”. This can also help leverage the consumer mindshare by making it easier for consumers to adopt the product.

### 4.2.3 Switching costs

When changing from one product to another, users experience switching costs. These switching costs often result from seeking information about alternative products, the time and energy consumed learning to use the new version, and the pure transaction costs. Switching costs act as a barrier to entry to new entrants and reinforce the market position for incumbents (Shapiro & Varian 1999). Because of the complementary nature of software products explained earlier, changing software can be hard. When a user switches from one application to another, he risks losing all the data saved with the previous application, he might have doubts about the integration of the new application with other software and he might be hesitant about how he will learn to use the new software. These types of risks are not typically associated with changing a car or the shop from which one buys one’s groceries. The latter changes can have significant financial effects but they are not dependent and they do not have other effects.

**The effects of switching costs on new ventures**

For new entrants, switching costs can be lowered by building products that are complementary to existing products and share common functionality and usability features. Search costs can be lowered by providing information about the product
to potential users. Segmenting the market and providing high-value information relevant to the segment can significantly lower the switching costs experienced by potential users.

On the other hand, incumbent companies might want to raise switching costs to prevent customers from changing their software. One of the best ways to retain a leading market position is through preannouncements (Pae & Hyun 2006). An incumbent’s preannouncement will hinder new entrants’ chances by trying to raise consumer expectations for the incumbent’s product. Pae & Hyun (2006) show that unless there is a fundamental change in technology it will be very difficult for new entrants to enter the market. This indicates that when a certain market that is likely to experience high switching costs is shaping, it is important for companies to act in a rapid manner if they want to participate in the market. Not acting can quickly result in a dominant market position for other companies created by their technology becoming the de facto standard, making it difficult for others to participate in the market afterwards. This can happen because software is often complementary and solutions are not interoperable. If there is a dominant product on the market, it is likely that most new users will buy that product because they want to ensure compatibility with other users, hence a dominant market position due to this de facto standard is formed in the market (Shapiro & Varian 1999).

Raghunathan (2000) makes the interesting point that research often assumes that the benefits of a product increase as product features increase. Versions are also often considered in terms of the number of high- and low-value features or advanced and basic features. “The more high-value or advanced features the software has, the more value it has for the consumer” is the presumption often made. However, quite often adding a large number of features can result in a feature creep that results in decreased value through decreased usability and maintainability and increased learning curve. This creates the challenge of putting the right features into the product to maximise its value. This is likely to happen when customers participate closely in the design of the product. A company can therefore unintentionally raise its switching costs by introducing new features that make the product more complex.

4.2.4 Protecting software

There has been a lot of debate about protecting software-based intellectual property (IP). During the first stages of the software industry’s development, trade secrets and contract law were the primary way of protecting IP. Later, copyright
law became the primary way of protecting software IP. Nowadays, the suitability of patent laws for the protection of software-based IP is being widely discussed (e.g. Smith & Mann 2004). These differences in software-based IP protection compared to other high-tech domains might be hard to comprehend by people not close to the software industry. A new software venture searching for financing might be rejected by financial backers looking for patentable IP simply because it is not common to have this in the software business.

Warren-Boulton et al. (1995) propose three factors to consider about software-based IP protection. Firstly, copyright should not be extended to de facto standards. If a de facto standard is copyrighted, the standard holder can charge higher prices for the product than it could without the protection given by the copyright. Secondly, interface specifications should not be copyrightable. This would hinder the interoperability of the software making it hard or impossible for other vendors to develop interoperable applications. Thirdly, reverse engineering should be allowed. This is especially important in markets with network externalities and in markets that are biased against open systems. These points are mostly justifiable from a social standpoint and their focus is to prevent de facto monopolies from building up (Warren-Boulton et al., 1995). However, these de facto monopolies are what most software companies are aiming for. This will ensure a steady income stream from the customers and can allow the company to dominate the development of a certain application type. The most common example of this is the Windows operating system and Office desktop software, which currently dominate the market. This can also lead to a situation in which customer value decreases because of a lack of innovation and competition in the marketplace.

Tang & Paré (2003) found three software industry-specific dimensions explaining why software patents are not suitable for software-based innovations. Firstly, the complementary nature of software limits the usefulness of patents. Secondly, patents could jeopardise ease of entry to the software industry. Furthermore, they could draw attention away from the fact that patents do not prohibit copying (in a technical sense) the software. Thirdly, smaller software firms tend not to patent for competitiveness reasons nor do they regard patents as stimulating innovation. This is mainly due to the high costs associated with software patents. Furthermore, it could be argued that the dynamic nature of the industry makes patents obsolete quickly, hence limiting the benefits of patents. The nature of software work itself, which is often referred to as being more art than engineering, also makes it harder to fully protect software IP. These
dimensions further highlight the special nature of software business, compared to other high-tech domains.

4.2.5 Software producers' relationships with users

One thing that is distinctive about the digital economy is the changes in the production and consumption of digital goods (Terranova 2000). Digital goods are not only produced by companies offering services or applications but also by the users themselves. These user contributions are often voluntary and happen when a user produces content that is valuable to both the user and a wider community. The sole purpose of this voluntary work can in some cases be for the user to feel that he is a valuable member of the community. Especially on the Internet, there is a common practice of promoting volunteer members as moderators of content on discussion boards and other communal services. This also means that production and consumption is happening at the same time. When users are producing content for a service (for free or even paying to produce the content) they are at the same time using the service, for instance by communicating.

The mixing of producer and consumer roles

Tapscott (1995) coined the term prosumer and prosumption to refer to the mixing of producer and consumer roles. This happens mainly because customers want customised solutions and want to participate in value creation. In prosumption the company does not produce a single solution for every customer but rather provides a product framework or components from which the customer can build their own product. Customers also participate in the value-adding process by adding something to the product. In the case of software products this is often information which benefits other users. This means that customers can identify more strongly with the product and build their identities accordingly. This gives the companies a closer view of the customer and of their changing needs. This lead user- and user innovation-driven thinking (von Hippel 1988) has been a major trend in product development in recent years, and while this change is happening more widely in society and business, it is most easily applied in the software industry, where products can be easily customised (Terranova 2000).

These phenomena show how this spirit of creativity and freedom characterises both the Internet and software industries. With advanced tools to create pieces of applications becoming available to everyone, people can create
their own content and businesses, especially on the Web. These businesses might not grow into large-scale organisations, but they are the “corner shops” of the Internet, that can each provide a steady income for one or two individuals. Although this is part of a wider social change driven by the digitalisation of our lives, its roots lie in the software industry and way things have been done in that industry.

The hacker ethic and creativity in software business

This hacker ethic (Himanen 2001) of doing things for free is a particular characteristic of the software industry. The hacker ethic means that people most often engage only in tasks that they find interesting. The reward is often only the recognition they receive from peers, the (intellectual) challenge of the task itself, or the learning experience provided by task. While the hacker ethic is arguably most influential among open source software developers, I believe it influences other – commercial – software developers as well.

Extrinsic motivators such as getting a good reputation, gaining skills that can be used to advance one’s career or feeling rewarded simply by participating have often been named as the reasons people participate in open source software (OSS) development. Research has shown that these might not be the most important reasons people participate in OSS projects, and that intrinsic motivators may in fact be stronger. Lakhani & Wolf (2003) found that OSS developers come from different backgrounds and their motivations for participating are different, but a personal sense of creativity was always an important reason to put effort in. Bitzer et al. (2007) call this the play value or the *homo ludens* payoff. These intrinsic motivators are important because when people are fully engaged in an activity, they can experience a “flow state” where they may, for instance, lose the feeling of time and self-consciousness. People experience a flow state when the challenges required by a task and skills possessed by the actor are in relation to each other. A flow experience is a state in which people usually feel at their happiest (Csikszentmihalyi, 1990). This keeps them coming back to the task even though the external rewards might not be high, because they have an internal motivation to do the task. This could mean that OSS developers are somewhat similar to entrepreneurs in the sense that they are mostly intrinsically motivated even though there are great extrinsic motivators present and what they do defines the spatio-temporal role they are in.
The fact that software engineering is more often considered a design science and almost an art form rather than engineering (Brooks 1995, Pressman 2000) reveals something about the people who feel most at home in the field. Most likely these are individuals that are somewhat creative and open to experiences, rather than process-oriented and who thrive on routine task completion. With this in mind, software engineering could be considered more people- than process-driven, although software processes are important, especially as organisations grow larger. This is closely related to the hacker ethic that is a major part of software culture. Peer recognition, seeking new challenges and the chance to create something novel in the job are factors that motivate software people and create part of the software culture.

4.2.6 The management of software firms

The role and composition of management is often emphasised in discussions of business planning and venture performance (Hoch et al. 2000). Software firm managers often have an engineering background that can shape the whole work culture of the company. This engineering culture can lead to an ignorance of the marketing function in product development and financing decisions, for example (Workman 1993). These technical entrepreneurs have the technical or scientific knowledge necessary to notice a business opportunity. However, success often lies in the ability to develop business management skills with which to exploit such expertise (Oakey 2003).

The role of technology strategy

For new technology-based ventures, a technology strategy can be an important part of the strategy process. Zahra & Bogner (2000) have identified several dimensions of technology strategy, notably pioneering posture (whether pioneer or follower), number of product introductions, use of internal and external R&D resources, proportion of applied and basic R&D, amount of R&D spending and use of patents. Based on a survey of 116 US-based software ventures, they found that a formal technology strategy is positively and significantly associated with the venture’s performance. Of the technology choices made by the companies, the radicality of the firm’s new products (especially in dynamic markets), frequent product upgrades, and the use of external technology were found to increase the performance of the ventures. Furthermore, the use of patents and copyrights had a
positive effect only on growth of market share, not on return on equity. Because this differs from previous research results found in other industries, the researchers conclude that this indicates that patents play a different role in the software industry than in other industries. The lack of significance of patents in the software industry is probably due to the dynamic nature of the market. Because the market changes constantly, an innovation might be out of date by the time the protection comes into effect and have less value added by the patent than expected in the beginning (Zahra & Bogner 2000).

_Venture creation in organisations_

The issues described above emphasise management’s role in understanding how opportunity creation happens and how important it is for management to understand the domain in which the company is operating. The management needs to acknowledge where the industry is heading, how changes are affecting the competitive space, and what opportunities might be created from these changes. While it might be possible to play on the “retro” factor in the furniture or fashion industries, in software this tends not to work. Old technologies lead to incompatibility with new solutions which eventually leads to decline in sales.

Because software is diverse by its very nature, different types of software companies are required to develop their organisations into different forms. For software product companies targeting consumers or operating in dynamic environments, software development speed is often the most important factor on which to focus. For new ventures focusing on business critical software products or software with high security demands, quality and software process issues come first. However, it is difficult for a start-up to reach a high level of process maturity. Process maturity is based on repeatability and management, which can be hard to implement because of the short history. New and changing conditions are experienced continuously, making it hard to develop a stable process (Sutton 2000).

Vähäniitty (2003) identifies five key areas upon which the management of a small software product company should decide. These areas are:

- portfolio management: dividing between product and service strategies and the release strategies and business models related to them
- organisation: organisational design, roles and responsibilities, team staffing, competences, etc.
development model: development process, intended release strategy and communication mechanisms

product management: technology selection, requirements engineering and release management

quality strategy: deciding what is “good enough”, risk management, testing and documentation.

Although the approach in Vähäniitty (2003) is more managerial than entrepreneurial and approaches venture creation from a product standpoint, it includes important issues for a new software service company to consider as well. The issues raised should be considered because they define the credibility and legitimacy of a software company within its peers. Most of the decision points raised might not be the first points that an entrepreneur would normally consider. For example, process development, team building and communication issues might not be thought of as important in the beginning if an entrepreneur is not familiar with the software industry. However, these are issues commonly considered to be the success factors for software development work. The study also concludes that although the dynamic nature of the business is pushing companies toward more agile approaches in product development (Abrahamsson et al. 2002), small software product companies should plan a longer term product strategy. This planning process can help with understanding the situation better and evaluating different options.

Finally, financial decisions are among the key decisions that have to be made in any company. In software business, this area also seems to have some distinct characteristics. At the end of the 1980s among M.I.T.-based start-ups, a large part of the initial funding for high-tech companies usually came from personal savings. A 74% share of these start-ups was initially financed in this way from personal savings. Software firms tended to have smaller capital investment needs in the initial stages than hardware companies (Roberts 1990). It is unclear whether the companies in the research were focused on tailored software or on product business. For software product businesses, the initial capital needs should have similarities with hardware businesses because of the R&D effort needed to develop the products. For tailored software, the needs are likely to be lower because the customers participate closely in the development and are paying the bills as the work progresses. However, while the world has changed in 20 years, Roberts’s (1990) research shows one fundamental finding: software ventures are initially started with few resources, usually with personal savings. This is
probably even truer today, now hardware costs have come down and a skilled workforce is more widely available.

**The importance of human resources**

When it comes to the key success factors in software business, human resources are usually considered to be the most important. For service companies providing tailored solutions, engineering capabilities are the most important success factor. For product companies, sales capabilities become more important (Hoch *et al.* 2000). The competitive volatility of the software business is often considered to be one of the key characteristics of the software domain. Sometimes entrepreneurs themselves consider these external factors to be the limiting factors for growth and development. However, at the same time they consider the most important factors to be internal, namely lack of human resources (Igel & Isam 2001). When there are these rapid environmental changes and competitive volatility, human resources become more important. If they have capable and sufficient human resources, companies can take benefit from the changing competitive environment.

One special case among software companies is that of open source software (OSS) companies. These often base their business model around source code that can be used by anyone by offering additional services or company-specific integrated solutions. This type of open behaviour is quite uncommon in other high-tech fields, which are often driven by patents and other forms of proprietary intellectual property.

While OSS companies can be seen as a niche or a glitch in the market, they typically draw some of the most skilled talent towards them. The intrinsic motivations often stated by OSS companies include participation in the OSS community and fighting against proprietary software. However, preliminary studies show that OSS companies rarely act as they say they do. Italian OSS firms were found rarely to give away their code, but frequently to adopt code from other sources, according to a recent study (Rossi & Bonaccorsi 2005). Therefore it could be proposed that the OSS paradigm is often claimed by companies only in order to gain access to the source code base and to the open source network. Participation in the OSS movement is therefore mainly a business decision, rather than a social decision.
The development of software firms

Nambisan (2002b) offers a theoretical model for software company evolution from an innovation-orientation perspective. He proposes that companies move from the design and coding-focused “start-up”, through incremental improvements to become a “star” that experiences development and commercialisation and has radical products. The evolution into a “star” happens through either a “utility-developer” or an “expert-coder” stage. This model is based on the assumption that a software company is trying to grow into a “star” position in the market. Although Davidsson (1989) and Autio (1995) have both showed that this is not always what companies are trying to achieve, it is a general assumption made in the management and academic literature. Nambisan (2002b) divides the innovation-orientation of internal stakeholders into two categories: individual (software developer) and organisational (top management). He further proposes that a software developer’s self-innovativeness, self-esteem and perceived difference of their own firm from other software firms, and top management’s attitude towards technological leadership, attitude towards external networks and attitude towards process rigour are the contributing factors to software firm evolution.

4.2.7 Summary

As we proceed in contextualising the a priori model of venture creation, we can conclude from the previous section that the software industry brings its own flavour to venture creation. Software as a product is complementary and shares some of the characteristics of information goods. In new markets it can be useful to try to gain market share “at any cost”, because once the market has been established these issues make it hard for customers to change from one piece of software to another once they have made their choice. These issues are particularly relevant for software product firms. For service companies that offer tailored solutions they are something that should be considered in terms of the interoperability of software.

The management of software firms is mainly about people management. Software developers are also sometimes called hackers (in the original – positive – sense) as they are highly motivated to do something for little or no pay. Managing these types of people who have high intrinsic motivation is different
from managing people “on the production line”, where personal performance and motivation matters little to job performance.

Software production today is changing because users are starting to influence development more than ever before. Users start requesting more customised solutions and get involved in the development early on, through beta testing. The Internet has enabled a direct communication channel between producers and consumers of software.

4.3 Regional and social aspects in the formation of software clusters

As discussed above, in Section 3.5, entrepreneurship and business are integrated with the regions in which they are based. These dense regional concentrations of industries (clusters) allow partnering with other companies and access to knowledge resources that benefit companies operating in the area.

Various research streams focusing on geographical economy and regional development issues have studied the formation of high-tech clusters. These are dense regional areas in which many companies operating in the same or related industries do business. One of the most famous clusters is the high-tech area of Silicon Valley near San Jose, US. For decades this has been a place from which computing-related innovations have derived. The formation dynamics of these clusters are quite different in different industries. For example, India’s software industry has flourished due to the fact that India has the human capital necessary thanks to its education of large numbers of software engineers, whereas without the crucial protection of product patents, India’s pharmaceutical industry is less supported by the regional dynamics (Patibandla & Petersen 2002, Patibandla & Petersen 2004).

The formation of software clusters

Clustering in the software business has its own formation logic that is related to the business dynamics of the industry. Software service businesses that create customer-specific software are more dependent on local customers. Hence, growing a service business to other geographical areas usually requires opening up offices and recruiting local development staff. Although globalisation has shown that some software work can be outsourced overseas, there should remain some form of local presence near the customer if software projects are to succeed.
When it comes to software products, little or no local customer presence is required. Sales channels can be used to offer product support, but development activities can be carried out away from the customers.

The phenomenon of production and consumption of innovations and its effect on the formation of innovation clusters has been found in other studies as well (e.g. Simmie 1998). This formation of clusters is due to different factors in different industries. While media and Internet companies are looking for creative individuals and access to high speed broadband, ICT outsourcing companies might look for suitably sized companies from non-ICT industries as customers. High-tech companies are usually looking for high speed Internet access, fast transportation facilities and most of all access to a skilled workforce (Moriset 2003). The emergence of clusters is partly dependent on the general urbanisation of an area and partly on the concentration of the skilled workforce itself. The urbanisation of an area brings greater demand for ICT services, which creates a market for a skilled workforce (Searle & Pritchard 2005).

Tsang (2005) found that software clusters are often formed in cities because the sharing of tacit knowledge requires physical proximity. This physical proximity permits knowledge spillovers from higher education institutions as well as from other software firms. She also found that the entrepreneurs belonging to these clusters are motivated by financial gains because extravagant software company sales are a part of the industry.

Employee perspective on clustering

Clusters are also defined by the employees that work within a certain domain. Power & Lundmark (2004) have analysed the movement of labour in the ICT cluster of Stockholm in the period 1990 to 1995. They found that the cluster was characterised by higher rates of labour mobility than typical of the rest of the region. The intensity of the movement was found to be higher inside the cluster than towards the outside. The results show that clusters have specific borders and that movements of labour are one way of defining a cluster’s borders. From a new venture creation point of view this indicates that the boundaries of a domain are not often crossed by employees and that they need to be crossed somehow before one can do business within a domain. A new entrant coming from outside a domain will be likely to find it more difficult than an entrant emerging from within a domain.
As an ICT sector-specific phenomenon, Power & Lundmark (2004) also found that interfirm movement was higher in ICT firms than in the rest of the labour market. This could mean that new ICT firms are better able to attract new employees from other companies than firms operating in other fields. Therefore, during new venture creation, acquiring new employee resources in terms of quantity may be a less significant issue for ICT firms than for other firm types.

This probably has to do with the fact that the possibility to scale a product business into a multi-million Euro business is always present when one runs a software company. The experiences of the dot-com boom, exits done by young entrepreneurs, and stories of successful entrepreneurs like Bill Gates of Microsoft, Steve Jobs of Apple, Larry Ellison of Oracle or Larry Page and Sergei Brin of Google enforce this idea of making a fortune out of your software company. These experiences might also reinforce the view that a software entrepreneur should sell his company at some point in time. It could also be argued that software companies know how to benefit from web-based publicity better than their industrial age counterparts. The company exits that occur in the software industry are quite often valued tremendously highly, compared to the value of the company sold at the time. The valuations are often based on the ability to scale up a business rapidly.

Benefits and drawbacks of clustering

Access to financing, be it angel investments, public financing or venture capital, is one of the important components in the formation of clusters. It is extremely important for new ventures that are aiming at substantial growth. Research has shown that Internet-based clusters have been formed around geographical areas that had venture capital available (Zook 2002). These areas often have other high-tech companies, universities, research facilities and available financial capital. Zook (2002) also contributes the important notion that financial capital is not in itself the key issue. It is how financial capital, business plans and skilled individuals create an ecosystem that creates successful ventures. This ecosystem often benefits from spatial proximity even though financial systems have experienced tremendous globalisation over the past decade.

The formation of clusters can also have negative impacts for some entrepreneurs. When an area has a strong intention to focus on creating a science-based cluster in a certain domain, the possibilities for entrepreneurs to pursue other types of opportunities can be limited. City officials, incubator staff,
financial backers and other businesses might be too closely focused on the one particular domain, which might lead to such actors disregarding other domains. For example, the biotechnology cluster of Oxfordshire in England (Smith 2004) has witnessed a similar growth pattern to the ICT cluster in Stockholm (Lundmark 2004) or the ICT cluster in Helsinki (Roper & Grimes 2005). All of these areas had a science base, a knowledgeable workforce, customers, entrepreneurs and available financing for the cluster to be formed. However, it would arguably be more difficult for an entrepreneur from a domain other than the cluster’s “main areas” to get an opportunity started in the area because the supporting structures are likely to be weaker.

National differences in software clusters and software development

Cultural differences have been found regarding new product development and product introductions, for instance between Germany and the US. German firms tend to be more focused on uncertainty-reducing behaviour, such as carrying out market research (Simpson et al. 2002). This implies that US firms tolerate more uncertainty. Simpson et al. (2002) also found other cultural differences between the two countries. Germany’s more hierarchical and authoritarian role of top management was found to reduce product success the more top management got involved. They also found that the technically, detail- and quality-oriented German firms spent far more time on proficiency in the initial stages than in the launch phase. Simpson et al. (2002) proposed that this was due to “more features are better” or “a good product will sell itself” ways of thinking. These findings strengthen the need to understand the contextual environment around a new venture creation process. This might also explain why Finnish software firms often “build their products in a lab” before releasing them to customers, only to find that they do not fulfil the customer needs.

Patibandla & Petersen (2002) show that the formation of India’s software industry has partly been due to transnational companies relocating to India. Knowledge spillovers from these companies have created a dynamic local market. These spillovers are “more effective when transnational companies operate at higher end of technology and build backward linkages with local firms and institutions in a developing economy” (Patibandla & Petersen 2002).

Because software business is a knowledge-intensive business, global organisations achieve smaller-scale advantages through regional concentration. Local businesses that know the institutional and cultural context can achieve a
competitive advantage over global companies by building software that fits better into the local context (Yeh et al. 2006).

Software ecosystems in Finland

The Finnish and Israeli high-tech clusters have been compared to each other on many occasions (e.g. Roper & Grimes 2005, Tekes 2007). The national economies are approximately the same size and both grew substantially during the nineties. Roper & Grimes (2005) compared these high-tech clusters along with the Irish software sector. The main focus of the Finnish cluster was around Helsinki, that of the Israeli cluster around Tel Aviv and that of the Irish cluster around Dublin. In terms of entrepreneurship and new venture formation, there are a few interesting points to consider in the comparison between Finland and Israel. First of all, diversity in knowledge creation has been higher in Israel than in Finland. Israel focused more on R&D activities in various high-tech markets (telecoms, software, computing and other electronics). The Finnish cluster was formed around Nokia, while the Israeli cluster was based on military technology and university R&D. Finland’s focus was on whole value chain activities (R&D, production and marketing, and distribution), focusing on telecom-specific markets. The local indigenous industry was found to be strong in Finland and weak in Israel, but entrepreneurial activity was found to be vice versa (Roper & Grimes 2005).

The heavy telecom focus and indigenous industry in Finland have shaped the software industry such that it might be harder for software companies to experience significant growth if they are outside the telecom value chain. This is because of the social and human capital that is likely to focus around the telecom domain, making it hard to break from the status quo. Although the study by Roper & Grimes (2005) was focused around the Helsinki cluster, the findings can be generalised to the other high-tech clusters where Nokia has a strong position in the local economy.

This shows that new venture creation in software business is a social process that is not only about entrepreneurs and their activities, great business opportunities, financing or the availability of customers. It is a combination of several components that create the sense of belonging to a social system that is affecting – whether helping or hindering – the creation of these ventures. This social process, where software innovations are complementary and build on each other, benefits from spatial proximity and a shared mindset.
4.4 Summary of software business fundamentals

As we end this chapter on the software industry, we can draw a few conclusions. First of all, software business as part of the high-tech industry is an industry that is dynamic and constantly changing. History reveals that what started as a purely scientific and engineering domain just over 50 years ago has evolved into an industry that affects all of our lives and in which most of us can play a part as an active participant. While software development is still an art carried out by the few, content creation has become available to everyone. Even software development has become easier as everyone has access to the tools. All it takes to develop a piece of software is the time required to learn the skills.

The software industry itself is highly networked. This is an inherent characteristic of software because it operates using pieces of other software. This in part creates barriers to entry through network effects and switching costs.

Copyright has been the traditional method used for the protection of software. Patenting has seldom been used as the method of protection. I think that this reflects the spirit in the industry, which has been meritocratic and based on peer recognition. Those who are the most skilled individuals are also the most productive ones. Individual performance is directly related to the skills of an individual, unlike in a traditional factory, where the level of production is largely determined by investments in equipment. High individual production differences bring about challenges for management. The fact that skilled employees are most often intrinsically motivated and in part self-taught adds to the complexity of management.

New venture formation most often happens in software clusters where pre-existing talent and resources are available. The most commonly cited example of this is the Silicon Valley area in the US. These areas make it possible to change jobs and therefore exchange knowledge between individuals.
5 Tentative research framework

This chapter presents a tentative research framework which is used in the analysis. The framework is constructed around Csikszentmihalyi’s (1999) systems view of creativity. As has been discussed throughout this thesis, this systems view offers an intriguing perspective on venture creation.

This chapter is divided into two parts. First I will integrate the previously discussed issues (new venture creation and software business) into the research framework. Then in the second part of the chapter I will focus on the \textit{a priori} processual nature of venture creation when viewed through the systems model.

5.1 The \textit{a priori} view of new venture creation in software business

It should be clear by now that the lone entrepreneur approach to entrepreneurship has its drawbacks. It can offer only a limited perspective on the enormously complex social phenomenon of venture creation. In this chapter I will provide a contextualisation of the entities in the triadic systems model in the software business and entrepreneurship contexts. First I will focus on the cultural and domain characteristics, then on the social and field components and finally on the individual. I will go through each of the hypotheses presented by Csikszentmihalyi (1999) and how they are reflected in the software business during venture creation.

\textit{How software business is intertwined with other industries}

One way to look at a business opportunity is how it changes the memes in the industry. The memes in the software industry might be the ways products are developed, who buys the products and where from, how products are used, etc. The memes cover both the supply and demand side and also production opportunities.

\textit{Storage of information:} Today information about software (and software business) is stored in several ways. Information about the latest development methods and tools is commonly available on the Internet for free. Research on the topic is also carried out within academic circles, but since new software innovations are mainly based around implementation of new solutions for market demand (rather than new technological innovations), there is a low barrier to entry in terms of getting information (Zahra & Bogner 2000). While information
About latest developments might not always be documented, it is almost always freely shared among professionals (Himanen 2001). Before the Internet, information about software was much harder to get. Books and magazines on the topic were published and relatively easily available, but getting access to development tools was much harder. Compilers, database software and operating systems were mainly proprietary software and information about these was not widely distributed (Cambell-Kelly 2003). Business information is to some extent stored in written form, but the majority of such information is stored as tacit knowledge by actors in the domain.

**Accessibility and availability of information:** What used to be a profession for educated academics has become a domain in which virtually anyone can participate as long as he has the skills and motivation to learn the basics (Hoch et al. 2000). Today millions of software professionals are educated in universities worldwide, and children in India are pursuing a career in software as a way out of poverty. The gatekeepers to the industry are mainly universities which select who will be accepted to study the industry. Despite this, getting access to the industry does not require a university degree, an appointment by someone, or membership of the right family. Some of the most famous examples of industry professionals have no university degrees, let alone research under their belt (Gladwell 2008). If one wants to become a top-notch professional, one must get connected with the right people and gain access to the latest software tools (Oakey 2003). The availability of information in Finland has also been relatively good, thanks to the country’s widely available and free public library and education systems.

**Differentiation of the culture:** The software domain is at the same time differentiated and united. It is differentiated in that each customer segment has their values, traditions, language and benefits that need to be understood (Sallinen 2002, Hoch et al. 2000). For example, developing software for the healthcare sector is different from developing software for the telecom sector. The software domain is, however, united in that software development is virtually the same across the globe. The language is commonly Java or C, the methods used are waterfall, spiral or Scrum, and the tools employed are usually Visio or Visual Studio. These are all shared by most software professionals across the globe (Pressman 2005).

**Integration of the culture:** Because the software domain is tightly integrated with other domains such as customers (e.g. healthcare, telecom, etc.) and financing, the innovations are partly determined by these integrated domains (von Hippel 1988, Bridges et al. 1991). Technological innovations, however, are not
limited by other domains, although quite often they have to provide benefits to the
customers or users of the software. Job movement inside the domain has become
increasingly common, facilitating innovations. Since the late 90s the ICT sector in
Finland has had a telecoms focus (or Nokia focus). While this has created a great
deal of jobs and prosperity (Hyry 2005), it could be argued that it has also limited
what can be done in the software domain. It could be said, somewhat
provocatively, that if a new innovation could threaten the position of Nokia, the
domain would be reluctant to accept it (Sabel & Saxenian 2008).

Openness of the culture to other cultures: The dominant position of Nokia
has probably also affected Finland’s openness towards new innovations. While it
has created an ecosystem that can support the birth of new innovations, and taught
international business skills to many individuals, it has also arguably hindered the
acceptance of some innovations (Spilling 1996). For example the “Web 2.0”
application boom experienced over recent years has mainly bypassed the Finnish
software scene (Hintikka 2007). One reason for this could be that the ecosystem
needed for creating web-based applications is not the same as one required for
making cell phones. Furthermore, it could be argued that prior to the arrival of
Nokia in such a dominant position, the situation in Finland had been somewhat
more open toward new innovations because there were no dominant companies
defending their position. Being in the middle of eastern and western economies
also allowed the country to trade with both parties and benefit from innovations
coming from both sides.

The software business domain

What follows is a thorough analysis of the domain-specific characteristics in the
systems model.

Recording of information: Information about software development is
recorded in written form and published in books and on the Internet. Software
itself also acts as a storage device as it holds its functionality within itself. This
source code can also be used in other programs to deliver similar functionality
(Vendelo 1997). The software business used to be a domain limited only to
professionals who knew how to write programs and had the resources to acquire
hardware. Nowadays it has grown into a domain in which virtually anyone can
participate. A university degree is not a prerequisite for becoming a software
professional since most of the information and tools to develop software are
accessible via the Internet.
Integration of information in the domain: As the domain has grown, new sub-domains have emerged. What used to be solely a domain for professionals building software for professionals is now a set of domains sharing common characteristics (Hoch et al. 2000). Developing a small software application is relatively easy and inexpensive but professional software products are still expensive and time-consuming to produce (Cambell-Kelly 2003). Other domains, such as media and entertainment domains, also use software to produce novelty in their domains. This creates a set of interrelated domains that share a set of memes but are still different from each other. Common application interfaces in software allow the programs to be used by other programs (Nambisan 2002).

Centrality of the domain to the culture: Before the birth of the PC, the software domain used to be strictly a professional domain. After the PC was born, the use of software applications expanded to various other domains and software became more available to the general public. However, the development was still in the hands of the few who had learned the skills and had access to the tools to develop software. Since the birth of the Internet, the software domain has become a central element in most cultures. Software is used virtually everywhere and the development of software has become somewhat easier, with even teenagers being able to build their own small applications relatively easily. (Blum 1996, Cambell-Kelly 2003.)

Access to the domain: The spread of the Internet also means that the domain is accessible by virtually anyone. The hacker spirit of software development also means that information is not controlled by any authority. Changes in the memes are based on meritocracy, not on a specific position or title (Himanen 2001). Globalisation that is mainly due to the spread of information networks aided by software means that the software domains across the globe are similar. A software professional can work anywhere in the world because the lingua franca in the domain is English and the tools and methods used in software development are similar if not the same (Hoch et al. 2000).

Autonomy of the domain: It could be argued that the autonomy of the software domain has decreased as it has become more interrelated and central to the culture. Changes are harder to make as the domain is more integrated and changes have a wider scope. On the other hand, the rise of the domain has meant that software is widely used and novelty is created by large numbers of researchers and entrepreneurs (Hoch et al. 2000, Mohr 2001). Quite often this novelty is also accepted and rejected by other domains because they represent the end-user organisations (Messerschmitt & Szyperski 2003).
Table 4 below summarises the main characteristics of Finland’s software domain and how it affects new venture creation.

<table>
<thead>
<tr>
<th>Cultural characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage of information</td>
<td>Written form, transmitted through education or self-motivated teaching, relationships</td>
</tr>
<tr>
<td>Accessibility of information</td>
<td>Available to everyone regardless of background or formal education</td>
</tr>
<tr>
<td>Availability of information</td>
<td>Information widely available for everyone who has the motivation to gather it</td>
</tr>
<tr>
<td>Differentiation of the culture</td>
<td>Common software development techniques across all industries but customer industries are differentiated</td>
</tr>
<tr>
<td>Integration of the culture</td>
<td>Domains are independent: innovations in different domains are not controlled by other domains</td>
</tr>
<tr>
<td>Openness of the culture to other cultures</td>
<td>Relatively open to new innovations although centred around mobile technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording of information</td>
<td>Technology knowledge in books, Internet, software itself as a storage medium; business practices transmitted in oral form</td>
</tr>
<tr>
<td>Integration of information in the domain</td>
<td>Several sub-domains, and their number is increasing (web-based software, PC / server applications, PC / server infrastructure software)</td>
</tr>
<tr>
<td>Centrality of the domain to the culture</td>
<td>Central but not dependent on other domains</td>
</tr>
<tr>
<td>Access to the domain</td>
<td>Basic software development skills are easy to acquire; establishing a company is affordable</td>
</tr>
<tr>
<td>Autonomy of the domain</td>
<td>Autonomous within technology development; limited by customer organisations (other domains) in terms of business development</td>
</tr>
</tbody>
</table>

The relationship of the software industry to the rest of the society

The aspects presented above are important factors when considering entrepreneurship in a domain. However, for change to occur in a domain the change must gain the support of experts in the domain, and this process is in part affected by society at large. Society takes a long time to change and an individual entrepreneur often has a limited role in this process. Two important questions that an entrepreneur should be concerned with are those of who constitutes the field
and what it takes for a new meme to be accepted into a domain. Once we accept the importance of the society in the creative or new venture creating process, we notice that the individual’s relationship to the field becomes important. If the same creative solution is introduced to a domain by two individuals – one close to the field and one distant from the field – it is likely that the solution presented by the individual closer to the field will get accepted into the domain. The solution introduced by the individual further from the field might not be considered creative or the individual might be considered insane. History has shown that individuals who introduce new innovations might be burned as witches if the field does not support their ideas. Next I will go through the characteristics of the society that affect new venture creation in software business. I will go through each of the hypotheses presented by Csikszentmihalyi (1999) and how they are reflected in the software business during venture creation.

Availability of surplus energy: The availability of resources and energy is one of the key characteristics of a society’s ability to accept new innovations. Finland has been in a good situation for a long time in that it has not been involved in any wars and the economy has been stable and growing (Statistics Finland 2010). Free education and the welfare system aim to guarantee that everyone has a chance to make their own luck, regardless of their background.

Valuating and encouraging creativity: The software ecosystem is mainly supportive of new innovations (Himanen 2001, Hoch et al. 2000). The domain uses common interfaces between different pieces of software to allow interoperability, and software almost without exception requires other complementary software to run (Nambisan 2002, Messerschmitt & Szyperski 2003). These are quite clear signs that the domain itself is supportive of change. The Finnish public and private sectors have also been relatively supportive of change. The government has had numerous agencies that aim to support (technological) innovations, such as Tekes, Sitra and VTT. For example, between 2006 and 2010 Tekes spent 120 million Euros on the development of new software in the Verso (Vertical Software Solutions) programme (Tekes 2010). Before that, even in the Eighties, the FINPRIT (Kankaanpää 1988, Lång 1988) and FINSOFT programmes (Saukkonen 1991, Guy et al. 1991) aimed to improve methods and tools in the Finnish software sector with investments of 120 and 72 million Finnish Marks respectively. The Finnish population has had the one of the highest number of patents per person for a long time (WIPO 2009), a sign that creativity (at least technological creativity) is valued within the society.
Openness of the society to change: The institutional environment in Finland could be described as largely meritocratic and democratic. One example of this is the fact that the right to vote was granted to women in 1906 (Finland being the first state in Europe to do so), which has laid some of the foundations for a democratic society. Especially in the software business the industry is based on individuals’ own achievements because there have been very few software professionals that could have “lifted you up” because of your family background or inheritance. While there are some positions in the society where it helps if one can get a foot in the door because of one’s background, these have been getting scarcer.

Mobility and conflict in society: Mobility in and out of Finland has been fairly limited. The number of immigrants has been among the lowest in Europe (Statistics Finland 2009) and foreign investments were limited until the early 90s, when Finland joined the EU (Hyry 2005). How this has helped or hindered new innovations is hard to assess. One effect of this has been that it has created a secure environment where people share a similar background. As mentioned previously there has been more mobility within the software domain than other domains (Power & Lundmark 2004). The competition or “friendly rivalry” between Sweden and Finland has probably facilitated the birth of new innovations as the nations have strived for success.

Complexity of the social system: Finland in general has been quite uniform in terms of socio-economic classes, politics and hierarchies (Hofstede 1994). This uniformity has probably limited more than encouraged the motivation of software professionals to build new ventures. It could be argued that the lack of examples of high growth firms and knowledge of the safety nets of society can demotivate some individuals by giving the impression that new ventures are not worth the risk.

Customers and other developers as the selector of new ventures in software business

For new ventures to get developed, they must be accepted by someone. In software, the fields that select whether novelty is accepted or not are constituted mainly of the customers that use the product and other software developers who must create interoperable solutions. Software is mainly based on ecosystems where each company produces a part of a solution that is delivered to a customer (Messerschmitt & Szyperski 2003). This requires the support and participation of
several parties. The following section describes how the field-related characteristics of software business affect new venture creation.

Obtaining resources from society: Until recently, developing software has required large amounts of resources. While it has been mainly a knowledge and design effort (compared to building buildings which also requires a capital investment), it has required machinery that has been relatively expensive (Johnson 1998, Sawyer 2001, Haigh 2002, Cambell-Kelly 2003). Until the late 1990s, Finland’s economic production rested mainly upon forestry and steel. Knowledge-intensive industries started getting more attention and support when the technology boom made the headlines (Hyry 2005). Recently the high technology sector as a whole has obtained a fair amount of resources from society (Tekes 2010).

Independence from other fields and institutions: Novelty in software is mainly valued in terms of technological advancement and customer value. Of these the technological advancement component is easier to determine than the customer value, which depends on the other actors’ perceptions about what is valuable. The software domain has always been closely connected with the customer industries that use the software (Sallinen 2002, Hoch et al. 2000). However, these have not to a great extent limited the possibilities of companies to innovate, as long as the companies and their solutions have provided benefits to the customers. The complementary nature of software (Nambisan 2002, Messerschmitt & Szyperski 2003) could be seen as a limiting factor for the domain because new innovations must guarantee interoperability with old solutions. The main institutions that have been lacking in the Finnish software domain have been the financiers or venture capitalists that would have provided the resources for extensive growth, and the industrialists that could have bought or formed a partnership with start-ups (Carlsson & Eliasson 2003, Sabel & Saxenian 2008).

Constraints of the domain on the judgements of the field: The institutional pressures on new software ventures come mainly from the business side rather than the software side. For new ventures it is common to write a business plan, even when the company management does not plan to use it as a planning tool (Honig & Karlsson 2004, Delmar & Shane 2004). From the software side, de facto standards provide technological and design requirements for new innovations (Warren-Boulton et al. 1995, Pae & Hyun 2006). If an entrant wants to change these standards he must provide high value to customers because they are likely to experience high switching costs if they change to a new solution.
Institutionalisation of the field and support for change by the field: The important influencers are other software developers who are often innovators trying the latest software simply because they like to try new things (Rogers 1962, Moore 1991). On the other hand, the field consists of the customers who use the software. As discussed previously, one of the few factors that limits entry on the technological side are the de facto standards to which one must adhere. From the business perspective, there is an obvious benefit if you are known by your peers (i.e. other software developers) (Vainio 2005). But in the software industry this is probably needed less than in some other industries where technologies and companies have stayed the same for a longer time. In software the gurus of tomorrow are often the young entrepreneurs of today.

Table 5 on the next page summarises the main characteristics of society and the field that affect new software ventures.
Table 5. How society and the field affect new venture creation in software business.

<table>
<thead>
<tr>
<th>Society characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy</td>
<td>Resources available to everyone; government supported education even to higher degrees</td>
</tr>
<tr>
<td>Evaluation and encouragement of creativity</td>
<td>Government supportive of technological innovations; individuals have high number of patents</td>
</tr>
<tr>
<td>Openness of the society to change</td>
<td>Relatively democratic and based on meritocracy; software a new domain with little institutionalisation</td>
</tr>
<tr>
<td>Mobility and conflict in society</td>
<td>Trade based on exports but little mobility and conflict between individuals has arisen</td>
</tr>
<tr>
<td>Complexity of the social system</td>
<td>Uniformity is the norm, for example taxation aims for equality and uniformity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtaining resources from society</td>
<td>Education and R&amp;D support received fairly well; skilled employees have been available</td>
</tr>
<tr>
<td>Independence from other fields and institutions</td>
<td>Software is intertwined with other industries, which limit innovations to some extent. Purely technological innovations are easier to make</td>
</tr>
<tr>
<td>Constraints of the domain on the judgements of the field</td>
<td>Interoperability with old systems limits novelty creation; totally new innovations do not encounter these threats</td>
</tr>
<tr>
<td>Institutionalisation of the field</td>
<td>Meritocratic promotion of individuals; de facto technologies limit possibility for innovations</td>
</tr>
<tr>
<td>Support for change by the field</td>
<td>New technologies and individuals are widely accepted if they bring higher value</td>
</tr>
</tbody>
</table>

**Background of the individual in software business**

The final component in the systems model is the individual. Without the active participation of active individuals little novelty is introduced to society and few new ventures are created. In terms of novelty creation in business, personal background and childhood experiences are not likely to be as important as they are in novelty creation in arts. Many business skills are gained later in life. In terms of conformity for novelty creation at a general level, however, childhood plays a role. I will go through each of the hypotheses presented by Csikszentmihalyi (1999) and how individuals affect venture creation in software business. As with the previous components, I will start with the background characteristics.

*Availability of surplus energy within the family and community:* When it comes to the background of an entrepreneur, the availability of surplus energy is
in some ways a double-edged sword in new venture creation. On one hand, if the entrepreneur is struggling with survival, he is not likely to start a new venture. On the other hand, the availability of too many resources can restrict the need for innovations. This is what often happens in existing firms where the status quo is taken for granted (Christensen & Bower 1996). At a personal level the availability of resources can be limited by one’s family situation. Personal resource constraints can result from the need to support a spouse or children, for example.

Respect for learning and culture: Gaining sufficient knowledge about the domain requires learning, gaining experience and trying things out both in the fields of management and in domain-specific tasks. While outside support for learning at an early age might not be as important in business as in the arts, there should be encouragement that does not hinder the trying out of new things. A lack of support for trying out new things and learning could lead to the development of managerial skills rather than entrepreneurial skills (Swiercz & Lydon 2002).

Introduction to the domain at an early age: Education and work experience are the primary ways of gaining domain-specific knowledge. The individual’s previous knowledge has been shown to have one of the greatest influences on entrepreneurship. The opportunities that are discovered and the ways that they are exploited are mainly determined by the knowledge that we have about a domain (Ronstadt 1988, Ardichvili et al. 2003, Davidsson & Honig 2003, Westering & Koster 2007). Knowledge about how things are currently done, what benefits users get from current solutions, and the core activities which need to be done in an industry is all a result of domain-specific knowledge (Nonaka 1994). In software entrepreneurship the domain is the software domain but also the business domain, which includes knowledge about how to lead people. This will in part positively affect execution (Choi & Shepherd 2004). While early role models no doubt have an effect on whether an individual becomes an entrepreneur and how they become one, once again support for this does not necessarily have to come at an early age.

Connection with the field from an early age: Social capital has been shown to have significance for entrepreneurship. Support from friends and family and knowledge of “who’s who” both help in venturing activities (Ardichvili et al. 2003, Davidsson & Honig 2003). Even though software business is a relatively young and dynamic domain, the ability of a family to introduce an individual to a field arguably has significance. The fields in this case are the customer segments to which the solutions are offered. Because the field of software developers is
relatively open, there is little need to introduce someone to it: anyone can “just enter it”.

Support for conformity or innovation: Finally, research has shown that an existing organisation can in fact push an individual into entrepreneurship if it fails to value the person and his contributions. If an organisation does not support change and innovation, an innovation-driven individual is likely to seek a new organisation where innovations and ideas are valued more (Lee & Venkataraman 2005). On the organisational level, independence of workers and teams supports the creation of novel solutions that break the status quo (Van den Ende & Wijnberg 2003). On the other hand, Sapienza et al. (2006) have postulated that the growth and survival of firms is a double-edged sword. While companies need to grow in order to stay competitive, they can risk their survival if they start growing too rapidly. Staying in one place too long can also be harmful to long term survival as this leads to inertia in the organisation.

Characteristics of the entrepreneur in software business

Finally, I will go through the characteristics or traits of the entrepreneur. As in any form of novelty creation, the individual has a history and background that affects the individual. Entrepreneurship arguably differs from general novelty creation. With novelty creation in general, the role of parents is arguably more important. For an individual to create novelty in the arts or sciences, he must have the relevant traits and get several years of training from a young age. In new venture creation, the experience can be gained at an older age and therefore the role of parents is not that important.

The individual’s special talents: Pretty much anyone can establish a company; this is certainly agreed by many. What is of greater debate is the degree of special talents one needs to become successful. Research is starting to show that for an entrepreneur to be successful he must be able to deal with uncertainty, have high risk-taking ability, and have an eye for new business opportunities (Sarasvathy 2001, 2004). While these skills can be learned, some people seem to have them integrated into their DNA.

The curiosity, interest and intrinsic motivation of the individual: Because entrepreneurs must often create change within the current status quo, they must have the imagination to envision how such changes could occur and what the world would look like after the change (Ardichvili et al. 2003, Lee & Venkataraman 2005). Because change is often a long process with multiple
adversaries, the actor must be internally motivated to make this change happen. The entrepreneur should also see the increased value for the customer, not merely the technological change as is often the case in the software business (Saemundsson & Dahlstrand 2005).

The discovery orientation of an individual: A change of the status quo requires the ability to question the rules and break them (Christensen & Bower 1996, Cliff et al. 2006, Zhang & Arvey 2009). The actor must be motivated to create various versions and go through multiple iterations to discover what works. If the entrepreneur is too locked into the initial vision, the innovation might not get accepted in the market (Spilling 1996). The entrepreneur must be able to either change his own vision about an innovation or change the perception of others according to his vision about what is valuable. If the new venture creation is taking place in an existing organisation, the organisational culture must support the search for new innovations (even small ones) rather than focusing only on the production of existing products (Dana et al. 2003).

Having relevant personality traits: Much controversy has been cast over the traits approach in entrepreneurship. While current studies on entrepreneurship have a limited understanding of who an entrepreneur is (Gartner 1985), there is consensus on the fact that entrepreneurship can be taught at least to some extent (e.g. Fiet 2001, Fayolle 2007). A need to achieve and the ability to absorb changing information and make rapid decisions are the most common personality traits or abilities of an entrepreneur that have been identified. To what extent these are learned and to what extent they are in the DNA is still uncertain.

Table 6 on the next page summarises how the characteristics of an individual and on the other hand his background affect new venture creation in software business.
Table 6. How the entrepreneur affects new venture creation.

<table>
<thead>
<tr>
<th>Individual background characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy within the family and community</td>
<td>Young adults tend to have more resources available than older ones who have a family to take care of</td>
</tr>
<tr>
<td>Respect for learning and culture</td>
<td>Important if one wishes to break the status quo</td>
</tr>
<tr>
<td>Introduction to the domain at an early age</td>
<td>The domain is relatively easily available to anyone who has the motivation to learn the skills</td>
</tr>
<tr>
<td>Connection with the field from an early age</td>
<td>It is important to get introduced to the field; a connection is relatively easy to establish if one is talented enough</td>
</tr>
<tr>
<td>Support for conformity or innovation</td>
<td>Inclination to innovate and break the status quo is important for venture creation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual trait characteristics</th>
<th>How this shows in software business</th>
</tr>
</thead>
<tbody>
<tr>
<td>The individual’s special talents</td>
<td>Ability to withstand uncertainty and ability to handle risks and make decisions are required. Few genetic talents required</td>
</tr>
<tr>
<td>The curiosity, interests and intrinsic motivation of the individual</td>
<td>High internal motivation to change current status quo is required</td>
</tr>
<tr>
<td>The discovery orientation of the individual</td>
<td>Ability to change status quo is a must-have. However, changes can be small and incremental</td>
</tr>
<tr>
<td>Having relevant personality traits</td>
<td>A need to achieve and an ability to gather information and make decisions are needed. However, these “traits” can be learned</td>
</tr>
</tbody>
</table>

This section has described the *a priori* components of the systems model of venture creation in software business. In the following chapter I will focus on the *a priori* processes that exist in venture creation.

### 5.2 A priori processes of new venture creation in software business

In this section I will focus on the processes of venture creation. Whereas the previous section was built around the hypothesis proposed by Csikszentmihalyi (1999) regarding the components (the ends of the triangle model) in the systems model, this chapter focuses on the processes through which new ventures are created (the lines between the components of the triangle model).

According to Csikszentmihalyi’s (1999) systems view, there are three processes that constitute novelty production: transmission of information, novelty stimulation and novelty selection. In the systems model these processes represent
the dialogue between the individual, the domain and the field. In entrepreneurship and venture creation the processes that are often identified are opportunity discovery and opportunity creation processes (Sarasvathy et al. 2002, Davidsson 2004). These processes cannot be transferred directly to the systems model as such because they approach the phenomenon from a different direction. They are temporal descriptions of the processes rather than functional as in Csikszentmihalyi (1999). However, similar processes can be identified in entrepreneurship research that can be incorporated into the systems model. Based on the literature on entrepreneurship, I have identified three processes that describe the creation of new ventures: Actualisation, Socialisation and Emergence processes.

These processes are dialogical and consist of observation and action activities. The actions are not direct responses to observations – although they can be – and they can be initiated from sources external to that specific process (i.e. actualisation activities can be initiated by observation activities in the socialisation process, not only by observation activities in the actualisation process).

Actualisation

Actualisation refers to the activities involving the entrepreneur and the domain. Through the actualisation process the entrepreneur learns about the domain and changes it. This includes, for example, learning the explicit and tacit rules of the domain, in other words, becoming familiar with the symbolic system. These activities include, for example, learning to use the tools and language of the industry, knowing what the business models are, searching for information about new opportunities, understanding what can be done with different technologies, and knowing the history of the industry. This also includes the production of new artefacts in the domain, i.e. changing the symbolic system.

Actualisation activities can be passive or active (Alsos & Kaikkonen 2004), they can be predefined and based on the logic of causation or happen through the less defined logic of effectuation (Sarasvathy 2001) or they can be based on a new offering, becoming a new competitor or expanding the market geographically (Davidsson 2004). The actualisation process is a dialogical process in which the entrepreneur constantly observes the domain, in other words learns about the domain, and introduces changes to the domain. As time passes and the entrepreneur gains experience of the domain, he starts to see opportunities for
innovation in the domain (Ronstadt 1988). Learning and previous experiences in the domain mediate what the entrepreneur does with the opportunities he perceives (Shane 2000). Experienced entrepreneurs often exploit the tactics of affordable losses and explorative behaviour (Sarasvathy 2001b) when implementing the changes. These are ways to gain experience quickly but with low investment and commitment as to how the novel innovations will fit the domain.

Examples of actualisation activities in the software industry include developing new software, changing the value networks of the industry, and establishing a company. The decision to implement new software solutions is made more easily if the solution is technologically advanced (Shane 2001) or is considered to be enabling technology (Choi & Shepherd 2004). In software, enabling technologies would be solutions that are at the beginning of the software value chain or are infrastructure solutions (Messerschmitt & Szyperski 2003). In the software domain, one way to gain experience about the acceptability of a solution is to use beta versions.

If we oversimplify a little, the actualisation process can be thought of as the process of learning how to write software, and writing the code.

Socialisation

Socialisation is the process that happens involving the entrepreneur and the field. Socialisation includes the activities through which the entrepreneur learns what the field wants and thinks, and those by which he convinces others about the new venture. Activities that constitute “learning” include networking with other people, and learning about who would be a good customer, where to get the best supplies, etc. From the perspective of this study, the field includes not only individuals but also the (latent) social behaviours that mediate our choices and preferences.

Similarly to the actualisation process, socialisation can be an active or a passive process (conscious or subconscious) (Alsos & Kaikkonen 2004). Participating and expanding in professional or business networks will allow the entrepreneur to see new opportunities and gain social capital. If the entrepreneur decides to proceed to actualisation, the networks can be used to discuss the opportunities and possibly as a source of customers (Davidsson & Honig 2003, Myint et al. 2005). One identified source for opportunities is a previous employer.
Some ways of getting commitments from potential customers are pre-announcements and sales activities (Sarasvathy 2001b, Yli-Renko et al. 2001, Pae & Hyun 2006). These provide information about the venture or product to potential customers and reduce uncertainties (Christensen & Bower 1996, Choi & Shepherd 2004). One way to reduce the uncertainties experienced by customers and financiers is to show entrepreneurial and professional experience (Shane & Gable 2002). One common way to communicate about the venture is to write a business plan (Delmar & Shane 2004, Honig & Karlsson 2004). If these socialisation activities show positive results, in other words customer valuation is positive, it is likely that the entrepreneur will exploit the opportunity through actualisation (Choi & Shepherd 2004).

Clustering of similar companies and professionals often results in more innovative solutions being produced. Clustering allows people to exchange information with each other, which results in knowledge spillovers that can be used by several entrepreneurs (Carlsson & Eliasson 2003, Myint et al. 2005, Tsang 2005). While clustering has its benefits, there are some drawbacks to the socialisation process. Breaking the status quo seems to be more difficult if one is at the centre of the social system (Cliff et al. 2006) or has a close customer relationship with a previous employer (Westerings & Koster 2007).

The term socialisation has also been used in sociology and psychology (Parsons & Bales 1956, Clausen 1968, White 1977). It commonly refers to the process of an individual learning the rules, values, behaviour etc. of a society. The socialisation process described here has some similarities with the definitions described in sociology but has no roots in sociology. Contrary to the sociological definition, socialisation here is a two-way process in which the individual also tries to change the rules, values, and behaviour of society according to his own.

Examples of socialisation activities in the software industry are similar to those in other industries: sales, writing a business plan, listening to customer expectations, predicting demand, etc.

Continuing the simplified example, this process is about learning what people want to do with software and telling people that you have a great new piece of software that they should try.
Emergence

Emergence is the process that involves the field and the domain. Through the emergence process individuals other than the entrepreneur learn about new ventures (or products) in the market and decide whether or not the ventures should be included in the domain and passed on through time. Thus, the entrepreneur sees the opportunity as being made real (emerging) through the activities of the field. The entrepreneur receives feedback from the emergence through either the domain or the field and can only influence the domain or field. The entrepreneur cannot directly influence the acceptance of the new venture.

To become accepted, the new product must be accepted by the field. To achieve this, the product should be morally acceptable by its customers (Brenkert 2009). While introducing new and innovative products is generally considered a good thing, products which are too innovative can be negative for growth because customers might not “get it” (Moore 1991). In general, a new product should use innovative technology to address a customer problem (Ruokolainen 2005). Acceptance of new products often relies on the existence of a business ecosystem and a technical ecosystem that support and complement the new products (Carlsson & Eliasson 2003, Messerschmitt & Szyperski 2003). One thing that seems trivial from a functional perspective is the age of the organisation (new or established firm). However, new firms often experience the “liability of newness” problem, which means that customers might not trust a new organisation as much as they trust an established one (Dew et al. 2004).

The emergence and acceptance of new products is also affected by the dialogue within the field. Peer pressure can form to accept or reject a product depending on the entrepreneur’s status in relation to the field (Shane & Gable 2002).

Signs of emergence in the software industry are the presence of paying customers, the development of complementary products, and integration of the new software into existing software. As has been discussed above, software is complementary and usually has certain switching costs. When these barriers have been crossed, it is quite safe to say that the software has been accepted into the domain.

To put it simply, the emergence process is about people learning that there is a new piece of software available and people choosing either to use the new software or to continue using an old program.
Figure 5 below presents how the processes of actualisation, socialisation and emergence are related to the other components in the venture creation model.

![Diagram of venture creation processes]

5.3 Summary of the a priori research model

In this section I will briefly present the whole a priori research framework used in this study. The components and processes have been presented earlier in detail, but at this point I want to provide a complete picture of the model for the reader.

The research model is constituted of three components (individual, domain and field) and three processes (actualisation, socialisation and emergence). The components are not made up only of one entity (e.g. domain = software business or field = customers) but instead from multiple parallel entities. The processes are dialogical in nature. They include both observation and action activities.

The individual or actor is the clearest component to define, as this component represents a single actor, for example an individual or firm. In this study the individuals are the case entrepreneurs and firms. The domain consists of two main domains: the software business domain and the industrial domain. Both of these domains have an effect in the venture creation process. Their relative importance depends from case to case. In addition to these domains, there may be other domains that have not been identified at this point. The field consists of two main fields: the customers and other software developers. Customers are the more important of these groups. However, as software is complementary in nature, it is
important to convince other software developers as well. In addition to these fields, there may be other fields that have not been identified at this point.

The process of actualisation refers to the activities that the entrepreneur carries out with regard to the offering. The offering here includes not only the product, but also the business model and management issues which are more related to the industry as a whole. The process of socialisation is mainly comprised of activities regarding the relationship between the entrepreneur and other individuals. The emergence of a new venture is ultimately determined by how well it gets accepted by customers. This process of emergence happens as the relevant individuals (other than the entrepreneur or firm) decide – consciously or subconsciously – that the new venture is to be accepted as part of the industry.

The components and processes and their relationships are depicted in figure 6 below.

Fig. 6. A priori research model of new venture creation to be used in this study.

The study will be carried out by interviewing the software entrepreneurs. The components, processes and the context are therefore analysed only from the perspective of the entrepreneur.
6 Research design

In this chapter I will go through the philosophical underpinnings and methods used in the study. This covers discussion about ontological considerations, explains the research process, and provides case descriptions of the case companies and their evolution. These considerations are of great value and importance when considering the significance of this study.

The aim of this chapter is not to provide the right box or label for the methodological considerations. Instead I will outline this study’s position in relation to previous discussions about the methodological issues. As will be shown later, this study combines several aspects from different streams of scientific methodologies.

6.1 Philosophical background

The main philosophical aspect that is usually considered in a piece of scientific research is the ontological question. Ontology usually refers to knowledge of and consciousness about reality. Two opposite extremes can be identified, namely realism or objectivism and constructivism or subjectivism. The realist sees the world as existing as such regardless of human consciousness, whereas the constructionist sees the world as being constructed by individuals and their consciousness (Raunio 1999).

In this study, I view business opportunities as socially constructed within the critical realist paradigm (for example Bhaskar, 1978, 1979, 1983, Raunio 1999, Raatikainen 2004, and Parrish 2007). This takes a stand somewhere in the middle of the two extremes. Even though I presume business opportunities to be socially constructed they are not totally independent of the material world. The material world (e.g. atoms, cells, electric forces, apples, chairs) that most natural sciences focus on I consider as existing independently of any subject. Business opportunities are considered as emerging on top of this material layer. Without the material layer there would be no business opportunities. This emergence happens through cultural, political, economic and other forces having effects within the society. Hence business opportunities are culturally bound to the environment. A business opportunity that is valid in one society and culture might not be valid in other cultures because of the differences in individuals. Hence, the existence and validity of opportunities is determined by other individuals and therefore opportunities as such are impossible to determine or measure objectively.
This is part of a discussion about whether opportunities are objective facts and therefore recognised, or subjective creations of individuals (Alvarez & Barney 2008). The objective view presented in Gaglio and Katz (2001) or Shane and Venkataraman (2000), for example, presents the view that opportunities could be recognised by anyone with sufficient information. However, differences in individuals are so huge that the information held by individuals is almost impossible to compare. Hence a sufficient level of information is impossible to achieve because each individual has a unique “knowledge pattern”. It is possible that different individuals may recognise similar business opportunities. However there are always differences in the way they see the opportunities, arguably making the opportunities unique. Furthermore, there are differences in opportunity evaluation and creation, making the opportunities subjective creations rather than objective facts. This is a view also shared by Ardichvili et al. (2003) and Gartner et al. (2003). If the opportunities were present in the environment as objective constructs in a similar manner to atoms, apples and oranges, any individual should be able to recognise them. I, however, believe that this is not the case.

This ontological view is also reflected when individuals evaluate the opportunities they have discovered. Opportunities which are recognised by an individual are initially evaluated by that individual. The individual makes a subjective evaluation about whether or not he or she should pursue it further. If he or she decides to share the opportunity with others, the other individual also makes a subjective evaluation about the opportunity. If opportunities were present in the environment in a similar manner to atoms, apples and oranges, any individual should be able to evaluate them in the same way one can evaluate objects in the physical world. While there are ways to calculate the chances of success for an opportunity (e.g. profit margins, demand, supply), these calculations are usually based on assumptions about how the business opportunity will or will not be created. These assumptions are often made by individuals based on their own experiences, rather than on the experiences of others.

This ontological view is further highlighted during the creation of opportunities. Because of the issues presented above, new venture creation research should talk about opportunity creation, rather than opportunity execution or exploitation. Opportunities are not executed because execution means “The action of carrying into effect” (Oxford English Dictionary Online). This refers to a rather straightforward way of doing things according to a previously decided plan. Exploitation means “The action of exploiting or turning to account;
productive working or profitable management” (Oxford English Dictionary Online). This refers to management and productive working as the result of “turning (e.g. the opportunity) to account”, which suggests a simple process of executing an action on a pre-existing thing (e.g. a resource). However, the process of transforming a business opportunity into reality requires more work than this. They cannot simply be executed or exploited by an individual. The act of creation, on the other hand, refers to active participation and starting the process more from a *tabula rasa* perspective: “The action or process of creating; the action of bringing into existence by divine power or its equivalent; the fact of being so created” (Oxford English Dictionary Online). This is more in line with Venkataraman (1997) who states that “An entrepreneurial opportunity, therefore, consists of a set of ideas, beliefs and actions that enable the creation of future goods and services in the absence of current markets for them”. The decision making space can be considered to consist of an infinite number of possible decisions. This type of uncertainty is described as Knightian uncertainty (Knight 1921). In this kind of situation there are no instructions to follow and no logically best solution to select. The entrepreneurs cannot evaluate the decision making space without first entering it. Hence, the only way they can proceed in making the business opportunity into reality is by starting to create it. If opportunities were present in the environment in a similar manner to atoms, apples and oranges, any individual could carry out actions that would create these opportunities in reality.

Therefore, as I see the world to be constructed as presented above – as socially constructed but consisting of real “things” – I see no option but to approach the research task with a qualitative research approach. The meaning of business opportunities to the individuals must be considered before we make elaborate judgements about their success or failure. The process of new venture creation must be seen from the perspective of the individuals in order to comprehend its meaning to the individual. Finally, we must understand the social environment that affects the individuals and the opportunities they pursue.

### 6.2 Research methods and process

One of the key decisions in a research process is the choice of a research method. This is reflected in the whole research work as it shapes the research question, data gathering efforts, data analysis and interpretation of research results (Eisenhardt 1989, Yin 2003, Silverman 2005).
In this study, a qualitative approach was chosen to seek answers to the research question. Qualitative methods consist of various techniques that aim to get an in-depth view on the phenomenon and understand it, rather than explain it through causalities (Miles & Huberman 1994, Yin 2003, Silverman 2005). Furthermore, the research combines research tradition from case study and process research methods which will now be described in more detail.

6.2.1 Case study method

Case study research is a method where a single or multiple instances of a phenomenon are examined at an in-depth level in a non-laboratory or experimental setting. Case study research acknowledges the role of context and one-time events in constructing knowledge. The method is most useful when the research question is formulated as “how” or “why”, when controlling behavioural events is difficult, and when the focus is on contemporary events, in other words, real life as it is happening. (Yin 2003, Silverman 2005.)

There are many guides available for conducting case studies. One of the most noteworthy is by Yin (2003), in which he provides a systematic way of designing the case study and gathering and analysing the data. Another noteworthy paper is Eisenhardt’s (1989) in which she proposes nine steps that should be followed in any case study, ranging from getting started to reaching closure. The steps do not differ greatly from any other research process. The biggest difference is the iterative nature of the inductive case research process and the way it is deeply rooted in data.

Yin (2003) provides four different classifications for case studies depending on the number of cases and the units of analysis. These create a two by two matrix in which the different fields are holistic or embedded case study and single or multiple case study. Of these types, this research represents a holistic multiple case study. The unit of analysis in the cases is the venture creation process; hence it is a holistic rather than an embedded approach in which multiple units of analysis would be analysed. The three cases represent literal replication (as opposed to theoretical replication), where cases 1 and 2 are from one geographical area and case 3 is from a different geographical area, but with the same expected results.

The strengths of the case study logic include the likelihood of generating novel theory which is not affected by researcher bias because of the dialogue with real data, the way that the theories generated have measurable constructs and
testable hypotheses, and that the theories are likely to be empirically valid (Eisenhardt 1989).

Some problems associated with case studies include the generalisation of results, sloppy research, not following a systematic research procedure, and the biased views of the researcher affecting the research process (Yin 2003, Silverman 2005). Some of these problems arise from misunderstandings of the case study method. Firstly, generalisation should not be perceived in the same way it is perceived in quantitative studies. Instead of generalising to statistical probabilities, generalisation should be done to theory and “beyond the material at hand”. Therefore extrapolation is a better word that should be used here (Alasuutari 1995, Yin 2003, Ketokivi & Mantere 2010). Secondly, sloppy and unsystematic research processes can be a problem in any research. The way to tackle this problem is to provide an accurate description of the research process and data so that the research can be assessed accordingly. Thirdly, biased views of the researcher can affect the research process in any research but can be a particular problem in qualitative research. This can be avoided by providing low-inference descriptors of the research data (Silverman 2005), being aware of the values held by the researcher (Healy & Perry 2000) and by making alternative interpretations of the results (Langley 1999).

This study does not fully follow the case study method in the traditional sense. For example within and cross-case studies are not done. The cases in this study provide the material for analysis and building the research model.

**6.2.2 Process research method**

While this study uses a case study method to gather and analyse the empirical material – as presented above – the study also uses process research method to explain the pattern of events that leads to the creation of new ventures. Understanding how these events create patterns is key to developing process theories (Langley 1999). A brief description of process philosophy was introduced earlier in Section 2.4. This section continues the same discussion but focuses more on the analysis of process data.

According to Pettigrew (1997) the essential components of process research are embeddedness, temporal interconnectedness, explanation of context, holistic explanation of processes and finally a link between process analysis and the location and explanation of outcomes.
Two of the central concepts in the study of processes are generative mechanisms and events (e.g. Van de Ven & Poole 1995, Pettigrew 1997, Dooley & Van de Ven 1999). The events in the data are the outcome of generative mechanisms and a process researcher should be interested in understanding the generative mechanisms. Dooley & Van de Ven (1999) have categorised generative mechanisms into four categories depending on the “dimensionality of the causal system, and the nature of interactions between causal factors”. Different types of generative mechanisms help to explain what causes the events and how different factors are related to each other.

Munir (2005) on the other hand takes a different stand by arguing that events themselves are not interesting because they do not change anything as such. The agents that interpret (in a process of theorisation) the events and act based on the interpretations create the meaning for the events. Change occurs not because of the events, but because of the reactions of agents to those events. Hence, the theorisation process becomes more interesting than the events or generative mechanisms themselves. The relationship and interaction between the concepts is represented below in figure 7.

![Diagram](image)

**Fig. 7. Process research concepts and their relationships.**

**Gathering process data**

The research process should be iterative, moving back and forth between theory and data (Orton 1997). Similarly to case study logic, Orton (1997) positions (iterative) process research between inductive and deductive research. The research of process data varies between data, theory and analysis, where none of
these are fixed. This inherently means that there should be the possibility of changing the research agenda as the research progresses.

One problem associated with process research and qualitative studies in general is the problem of outsidership. A researcher can have difficulties gaining access to interesting data if he is an outsider in an organisation. Dawson (1997) proposes that researchers should immerse themselves in organisations by “getting their hands dirty”, carrying out longitudinal data gathering, and by using different data collection techniques. This essentially means that the researcher should spend a lot of time at the organisation and participate in the everyday life of the organisation. Total immersion like this can be difficult for a researcher who also has to carry out other academic endeavours such as teaching.

In this study the process research ideal is not followed to the fullest extent. Immersion in a company would mean that the number of companies examined would have to stay small. However, in the research projects (described in more detail in Section 6.3) from which the data was gathered, the interest was to help a number of companies. In addition, it was considered important to have the possibility of carrying out cross-case analysis; hence a larger number of cases was preferred.

**Analysing process data**

One of the main challenges of using process data lies in the data itself. It is often complex, has many events (some trivial) and is often rich in detail. To make this useful to others, the researcher must be careful to make it simple enough without losing its richness. Langley (1999) has identified seven strategies of sensemaking from process studies:

- **Narrative strategy:** Construction of a story from the raw data. Sensemaking focuses on the meanings and mechanisms of these stories.
- **Quantification strategy:** Finding interesting events in the data that can be quantified and analysed using statistical methods. Sensemaking focuses on patterns and mechanisms.
- **Alternate templates strategy:** Proposing several alternative interpretations of the same events based on *a priori* theoretical premises. Sensemaking focuses on mechanisms.
– Grounded theory strategy: Developing categories of incidents which are rooted (grounded) in the original evidence. Sensemaking focuses on meanings and patterns.
– Visual mapping strategy: Representation of data in matrix or graphical forms. Allows simultaneous representation of large number of dimensions in a dense form. Sensemaking focuses on patterns.
– Temporal bracketing strategy: Representing processes over time (periods), without the periods necessarily representing developmental logic or phases. Sensemaking focuses on mechanisms.
– Synthetic strategy: Producing predictive models (or theories) that are based on holistic processes and regularities in data. These models are based on variables rather than events in the raw data. Sensemaking focuses on prediction.

These strategies vary in their accuracy, simplicity and generality. The clearest trade-off that has to be made is between accuracy and simplicity. The more accurate a theory is, the less simple it will be. The classification does not explain which strategy is best to choose. It is left to the researcher to select the best way to make sense of the research data and to choose a strategy that best explains the theory to others. (Langley 1999.)

Finally it should be noted that processes do not have to be structured and path-dependent with fixed or predetermined phases and stages. The researcher should therefore be open to the possibility that some processes will be open-ended, discontinuous or non-linear. (Pettigrew 1997.)

6.2.3 Research quality

Controlling the quality of qualitative work has been the subject of some debate over the years. Some have even argued that it makes little sense to think about quality in qualitative research because social phenomena are always in a state of change, therefore making replication impossible and useless, and research instruments obsolete (Marshall & Rossman 1989). This study does not take this strict approach.

One thing that should always be considered in a scientific study is the question of whether the research question is in line with the research methods (Silverman 2005). In this research the research question is: How are new ventures
created in the software industry? This means that the phenomenon should be looked at as a holistic phenomenon and from a longitudinal perspective.

In this study the selected research methods, case study and process research, aim to provide a longitudinal perspective on the phenomenon. While the research data was gathered at a single point in time, it covers the lifetime of the company and a vision for the future. The research framework was constructed in such a way that it does not limit the study only, say, to the entrepreneur, but it takes a holistic look at the development of a company. Hence, the research question is well aligned with the research methods.

In addition to the broad concern of whether the research question is in line with the methods, the two main quality questions for any research are reliability and validity (Yin 2003, Silverman 2005). These should be evaluated at every step of the research process, from research design to interpreting the data analysis.

Reliability

There are at least a few definitions of the reliability of qualitative research that can be identified from the literature. Reliability can be seen to refer to the consistency of how instances of same phenomenon are assigned to a category by different observers, or on other occasions by a single observer (Hammersley 1992). Documenting the coding and analysis procedure and showing that categories have been used consistently will also help the reader to assess the quality of qualitative work (Silverman 2005).

Yin (2005) defines reliability through repeatability. The objective is for other researchers to be able to follow the same research process and come up with the same results. This means that the research procedure should be accurately documented and even the researcher himself should be able to repeat his own work based on these documents.

One way to improve reliability is to provide low-inference descriptors of the data (e.g. actual interview transcripts), instead of high-inference descriptors (researchers’ reconstructions of what respondents said). This allows the reader to draw his own conclusions from the data (Seale 1999).

Another way to assess the reliability of a qualitative research is by looking at the way respondents have understood the concepts they are talking about. Obviously there will be problems if the respondent interprets some key concepts differently from the interviewer (Silverman 2005).
In this study the aim is to describe the research process as accurately as possible considering the length and depth of the thesis. In addition to the research process described here, the projects in which the data was gathered had project plans, which describe the research project in more detail. This will provide information to researchers wishing to repeat a similar study.

The concepts used in the interviews were rather common business concepts such as strategy or business plan. Although some of these concepts can be interpreted in different ways, they should have a fairly clear meaning to entrepreneurs. The research data also showed that the respondents had little or no difficulty in answering the questions. The interviewers had to make only a few clarifications during the interviews. In addition, the transcripts of the interviews showed no signs of long pauses that would indicate lengthy thinking time or hesitation by the respondents.

Validity

The validity of a piece of research refers to its truth; are we really seeing the social phenomenon that we claim to be studying (Hammersley 1990). Are we looking at all the evidence or just anecdotal examples of data that might not be at all representative (Silverman 2005)?

Yin (2003) proposes three categories through which validity should be examined (where internal validity is applicable only for explanatory or causal studies):

- Construct validity: establishing correct operational measures for the concepts being studied.
- Internal validity: establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships.
- External validity: establishing the domain to which a study’s findings can be generalised.

Healy & Perry (2000) have proposed that the validity and reliability of qualitative research within the realism paradigm should be evaluated through different criteria: ontological appropriateness, contingent validity (ontological criteria), multiple perceptions of participants and of peer researchers (epistemological criteria), methodological trustworthiness, analytic generalisation and construct validity (methodological criteria). Ontological appropriateness should be
considered when selecting the research problem. Typical research problems in the realism paradigm should be based on “how” and “why” questions and should deal with complex social science phenomena. Contingent validity is needed because the research focuses on generative mechanisms rather than direct cause-and-effect relationships. In-depth questions, emphasis on “why” issues and descriptions of the contexts of the cases help in achieving this goal. Multiple perceptions of participants and of peer researchers are needed in order to achieve a value-aware research process. This can be done by carrying out multiple interviews, providing supporting evidence and being aware of one’s own values. Methodological trustworthiness can be achieved by reporting relevant quotations and metrics that summarise the data and by providing accurate descriptions of the research process. Analytic generalisation is the opposite of statistical generalisation and should be considered when formulating interview protocol. Construct validity can be ensured by using prior theory, case study databases and triangulation.


Finally, one way to improve the validity of any research is triangulation – looking at different data, taken with different instruments and from different viewpoints. While Silverman (2005) does not fully agree on its usefulness to qualitative studies, this research does also look at more objective data (for example, the financial information of a company available from public sources).

6.3 Data gathering

The typical data gathering methods in qualitative research are interviews, observations, ethnographic methods where the researcher becomes a part of the community he or she is researching and video and text analysis (Silverman 2005).

In this study, interviews were chosen as a data gathering method for three main reasons. Firstly, the phenomenon under study (new venture creation) is a long process. Therefore it is important that the researcher has a view of the whole process, rather than just a short period of the process. Total immersion in the phenomenon would be rather difficult and time-consuming, and observation techniques – real-time or video-based – capture only a brief moment in time. Interviews provide a method of getting data from a rather long period of time (years) in a relatively short time (hours). Secondly, the study is also interested in the entrepreneurs’ view of the process, rather than observing the objective truth
about what is happening. Merely observing or carrying out textual analysis of memos or similar documents does not reveal the hidden motives that the individuals have. Thirdly, the interview technique provided a chance to discuss different themes when interesting information was received from the interviewees. This would not have been possible if surveys or observation techniques had been used.

The research data was gathered in two research and development projects: Creadis and CreaTOL. Creadis was focused on developing ICT companies in the Southern Oulu region and CreaTOL had the same aim in the Kainuu region. A total of 18 ICT companies were interviewed in the two projects over the two-year lifetime of the projects between 2005 and 2007. All of the selected case companies were participating in the above-mentioned university-led projects at the time of the interviews. The companies did not participate in the project financially but they had the opportunity to receive consultation for free if they participated in the interviews. This could have had some effect on the answers of the respondents. They might have wanted to show a polished face of the company at the interviews, even though their answers had nothing to do with whether or not they would receive the free consultation.

Of the 18 companies that participated in the projects, three were selected as case companies in this research. The selection criteria were that all of the companies had to be in the software business, and the research data should be gathered from the three interviews (not all companies participated in all data gathering).

Data gathering was carried out through semi-structured interviews. The interview themes were constructed around the evolutionary path of company development, namely formation of a company (the past), leadership in a company (the present) and renewal in a company (the future). These themes were split into separate interviews, making three different interviews. In addition to these three interviews, some of the participants were also interviewed about their personal history.

The interviews that were excluded from this research show that entrepreneurs did show the true state and development of their businesses even though this was at times rather negative. This indicates that the interviewees did answer truthfully in the interviews. The use of company performance data available from public sources also controlled the effects of positive polishing. If the interviewees told the story of a dynamic innovator, but the numbers depicted a lumbering dinosaur, the interview data was interpreted more carefully.
6.4 Data analysis

Once the data was gathered, it was transcribed. The transcription was carried out by a third party at a conversational level, including marks for laughter, sighs and other non-verbal cues. However, data analysis was not done at a discourse analysis level and therefore did not include these non-verbal cues.

Data was coded with QSR NVivo into different nodes. The coding tree was designed based on the research framework presented in Chapter 5. In total there were 33 coding categories that were based on the research framework. Of these 33 categories, three were the process categories of the research model (Actualisation, Socialisation, and Emergence), 11 were based on cultural and domain characteristics, nine were based on the entrepreneurs’ background and traits and finally ten were based on field and society characteristics (based on tables 4, 5 and 6).

Data analysis was carried out mainly following techniques described in Miles & Huberman (1994), Yin (2003) and Silverman (2005). The data was coded in several rounds. In the first round a broader approach was taken towards the coding categories. During this round, coding was applied loosely, and the same items of data were hence often coded into several different categories. The subsequent rounds of coding included more careful selection of which data snippets belonged to each category. This was carried out in conjunction with the data analysis.

The amount of data in the categories varied quite a lot in the first round of coding, with most data being categorised into the entrepreneur’s background and traits categories, which contained 239 references. Cultural and domain characteristics and field and society characteristics received 52 and 97 references respectively. Of all the processes, actualisation and socialisation had the most data, with 222 and 184 references, while the emergence process had by far the least data of all the categories, with 69 references. This was due to the fact that the informants were the entrepreneurs and did not know how exactly their customers made the decision to accept or reject their ventures.

The characteristics in the model were analysed mainly through cross-case analysis, and their analysis was based on the predefined coding categories. Each case’s situation was compared to the other cases within each coding category. This was the easier part of the analysis process because the nodes were clear from the start, and analysis was carried out in two rounds: first the coding round, then a verification round.
Analysis of the processes was a more complex task and was undertaken over several rounds of analysis. At first the coding was done for the high-level processes (actualisation, socialisation and emergence). After this the data in these processes was analysed and categorised into the two sub-processes under each process. After this the data was once again analysed to identify the generative mechanisms underlying these sub-processes. This was an iterative process which took around four to five rounds of coding and sorting of the generative mechanisms. Finally, the generative mechanisms were identified and summarised as the mechanisms which will be presented in the results chapter (Chapter 7).

Based on the results, a revised model of venture creation is presented and this is compared with previous theory. Finally, based on the discussion and the revisited model, implications for researchers and practitioners were assessed and conclusions were drawn.

6.5 Industrial environment: Kainuu and Southern Oulu regions

As was described previously, the research data was gathered in two research projects, one in the Kainuu region and the other in Southern Oulu region.

The Kainuu region

Kainuu is a province consisting of nine municipalities and located in the eastern part of Finland, 200–250 kilometres east of Oulu. The centre of the province is Kajaani, a city of 38,000 inhabitants. The Kainuu region is traditionally known for its forest industry. As globalisation has hit the Finnish forestry industry, the province has selected three target industries that it aims to develop, namely ICT and electronics, travel, and natural resources. (Kainuu.fi)

The Kainuu region has a decreasing population, with an annual decrease of about 700 inhabitants per year between 2000 and 2009. In 2008 the four biggest sectors for employment were the public and defence sector (about 9900 jobs), retail trade and logistics (about 5700 jobs), the manufacturing industry (about 3100 jobs) and professional, scientific and technical activities (about 3100 jobs). The information and communications sector represented about 400 jobs. (Statistics Finland 2010)
The Southern Oulu region

The Southern Oulu region is an area around 100–150 kilometres south of Oulu. It consists of 14 municipalities and has a population of around 90,000. It was established as an educational, research and development network and there had been cooperation between the municipalities before the establishment of the official area infrastructure. (OulunEtelainen.fi)

The Southern Oulu region has a decreasing population, with an annual decrease of about 500 inhabitants per year between 1990 and 2009. In 2008 the four biggest sectors for employment were the manufacturing industry (about 6600 jobs), healthcare and social services (about 5100 jobs), the agriculture, forestry and fishing industry (about 4900 jobs) and retail trade (about 3200 jobs). The information and communications sector represented about 300 jobs. Compared nationally, the agriculture sector is a significant industry in the area because close to 5 per cent (in terms of number of offices) of Finland’s agricultural companies are located in the Southern Oulu area. (Statistics Finland 2010)

6.6 Case company data

All of the interviews took place in mid 2006. All the interviews were done as face-to-face interviews. The interview subjects were all founder CEOs of the companies. The amounts of data gathered from the companies varied slightly. Altogether, 24 hours of research data was gathered from the three companies, in four interview types. This section provides a short introduction to the case companies, the entrepreneurs and the development of their business opportunities.

6.6.1 Case 1 – history

Case company 1 was founded in Kajaani in 1983 by four employees who were previously employed in the IT department of a dairy firm. The interview was held with an individual who was in the founding team and was the CEO at the time of the interview. At the time of the company’s establishment, the CEO had no previous experience of entrepreneurship nor did he have close relatives with entrepreneurial experience. Probably because of this, the decision to become an entrepreneur was rather difficult and took some time to make. Before the company’s establishment the team had talks mainly with each other but also with
a few IT equipment manufacturers who were potential partners, and with CEOs and the communal trade promoter.

The motivation for establishing the company was that the previous employer was reducing the size of the IT department which meant that some of the employees were to be fired. At the same time, the entrepreneur saw very few opportunities for career development with the previous employer. Another motivation was to provide jobs for other friends working in the IT department. This gave the idea and incentive to establish a company that would provide services to both the previous employer and other companies in the same domain. As it later turned out, the previous employer was hostile toward the new entrant and it took almost ten years before they even spoke to each other.

The first customers for the company were dairy firms (not the one of which the new company was a spin-off) and a local telephone company. The company did software development work for these companies. The work was mainly resource hiring. The company has since then carried out software development for various other industries including healthcare, forestry and construction sectors. The main shift has been toward software that is operating system and device independent.

At the beginning of the 2000s, the company started to develop their own product platforms, which would enable them to secure a more steady income stream and would enable faster development of solutions. Other than this, the renewal of the company has been focused mainly on technological renewal through learning new technologies.

6.6.2 Case 2 – history

Case company 2 was founded in Kajaani in 2000 by a group of people who worked in the IT department of a larger company. The interview was held with an individual who was the founding CEO of the new firm. Some of the owners of case company 2 had sold their earlier company to this larger company, which essentially also formed the basis for case company 2. The entrepreneur had prior experience from two other software companies that he had founded. Because of this experience, founding the third company was easy and involved discussions with co-founders and customers of the company. The co-founders also involved a few individuals who had a lot of ideas, which made the establishment easier for the entrepreneur.
At the beginning of his entrepreneurial path the goal was to gain freedom and to be able to “get out of the box” set by a corporate environment. Later he saw entrepreneurship as a more interesting way to be in the business compared to being employed by someone else.

Case company 2 employed 10 people at start-up, which was possible because they had relationships with previous customers, were able to make contracts with them prior to establishment, and had previous experience from similar companies. At first the company carried out software development for traditional systems for the large customer, and thought that they would eventually come up with their own products. At first there was another site at Jyväskylä but this was soon spun off because they worked on web-based software development, which was not considered to be the core focus of case company 2.

After a few years of software subcontracting, they were able to start the development of a product platform in a customer project. After two years developing the platform, the company started moving to a more product-oriented organisation.

6.6.3 Case 3 – history

Case company 3 was founded in Nivala in 2000 by a single entrepreneur. The entrepreneur had previous entrepreneurial experience from childhood as his uncle was an entrepreneur. He had also established one other company (focusing on gardening and newspaper delivery) prior to this company, in his late teenage years. Later, during his engineering studies, he had talked about establishing a company in various settings and therefore thought that he was slightly obligated to establish the company when the time came to graduate and enter the job market. At the end of his studies the entrepreneur wrote his B.Eng. thesis for a company operating in the telecoms sector, and started talking to the company executives about his desire to establish a company. After a few rounds of discussions with the company they decided that it would be best if the company outsourced some of the software development work to a company that was to be established by the entrepreneur. For him it was a rather easy decision to start the new business. The entrepreneur had a few discussions with his family and some relatives, and decided to establish the company. He became the major shareholder with the rest of the stock owned by a few relatives.

One of the motivations for the establishment was the need to establish the company in Nivala (Southern Oulu) where the founder had previously lived and
where his family still resided. At first case company 3 employed two people and carried out software development for the telecoms and agricultural sectors, with telecoms being the more important sector. The company was able to start doing business with the telecoms company immediately after its establishment, due to the previous relationship that the founder had with that company.

Case company 3 continued to grow steadily and after four years in operation it employed roughly 20 employees in two sites. During this time the company hired an external CEO to do more sales and the founder moved to a more technical position. But after about a year, this was cancelled and the founder returned to the position of CEO. At this point case company 3 also started merger negotiations with a larger company and after over five years in operation the company merged with the larger company. The reason for the merger was to get more resources which would allow them to do larger and more demanding projects.

After the merger the environment in case company 3 changed. The previous environment had been close and personal, but after the merger it changed to become more hierarchic and less encouraging to new innovations. Previously, case company 3 had based its business on long term relationships and creating new innovations alongside its customers. After the merger, its business fundamentals changed to gaining short term profits rather than long term benefits.

6.6.4 Summary of case information

Table 7 below summarises the information about the case companies. This includes information about the interviews as well as brief descriptions of each business and entrepreneur. This information is presented here to give the reader a glimpse of the amount of data and an idea of the backgrounds of each case company and their founders.
6.7 Summary of the research design

This study has its philosophical roots in the critical realist approach. It sees opportunities as socially constructed through interactions between individuals. From this it follows that the research should employ a qualitative approach to the phenomenon. In order to understand the social construction of new opportunities, this study combines case and process study methods.

Using the the case and process study methods, the study aims to discover the generative mechanisms which create the events that result in the emergence of new ventures and the interpretations that the entrepreneurs create of these events. By understanding these generative mechanisms one can understand what it is that creates the events that eventually make the opportunities “come to life”.

The data for the study was gathered in two research and development projects and consists of three software companies, located in two rural regions. This data consists mainly of research interviews that focused on the creation, management and renewal of the companies. Analysis of the research data was done following
the *a priori* research framework described in the previous chapter and the analysis methods described in the research literature.
7 New venture creation in software business

This chapter focuses on analysing the case study data. The analysis is divided into two major parts: the components of the systems model and the processes of the systems model.

As was presented earlier in the a priori research framework, the components of the systems model of venture creation are the software and customer domains in which the venture is being created, the society and individuals that participate in the process, and the entrepreneur who is the actor in the process. Analysis of the components in the systems is carried out through the characteristics presented in the a priori research framework.

As was also presented earlier in the a priori research framework, the entrepreneurial venture creation process can be defined through three processes: socialisation, actualisation and emergence. This chapter focuses on analysing these processes in more detail, and examining how they are represented in the data. The events and actions in the data are analysed in order to identify the underlying generative mechanisms.

In the following sections I will first go through the components of the systems model (Sections 7.1, 7.2 and 7.3), then present an analysis of the processes and underlying generative mechanisms (Sections 7.4, 7.5 and 7.6). Finally I will present a summary of the findings.

7.1 Culture and software business

In this section I will focus on the characteristics which create the cultural context for venture creation. First, culture is seen as a collection of different domains, and then the individual domain of software business is further analysed. These determine one part of the context in which the venture creation activities take place.

The characteristics of culture are divided into storage of information, accessibility of information, availability of information, differentiation and integration of the culture and openness of the culture to other cultures. When focusing on an individual domain, in this case the software business domain, this can be characterised by recording of information, integration of information in the domain, centrality of the domain to the culture, access to the domain and autonomy of the domain.
It is important to understand how this cultural context affects the venture creation process for two main reasons. Firstly, what works in one context might not work in another. Therefore it is important to focus also on understanding where the venture creation happens. Secondly, understanding the context also makes it possible to understand why venture creation has been done in a certain way.

I will first go through how culture affected new venture creation in the companies and then discuss the role of software business in relation to other industries.

7.1.1 Culture and how it affects venture creation

In this section I will focus on the role of culture in venture creation. I will go through the different characteristics and how they affected venture creation for the case companies.

**Storage of information:** There are basically two types of information that can be stored – explicit and tacit information. Technical aspects could be regarded as explicit information that can be easily stored, whereas business aspects are often more tacit than explicit. In any domain, technical aspects are often better documented than the business aspects of a business. In software business in particular, the research and documentation of the business side of things started to raise its head to a greater extent only in the late nineties.

Information about software development was stored in books, conference proceedings, in the software itself and finally in documents available on the Internet. The staff in the case companies used all of these methods to keep up with the latest developments and to come up with new opportunities. Other than these forms of storage, tacit information was also shared through interactions with people in different companies. It used to be that there was more tacit information available.

The storage of business information in the case companies was mainly seen as a legal matter. Information about new ideas was stored in people’s heads and discussed with other professionals, and little was written down. Business plans were not updated on regular cycles unless there was a need to share them with financiers or similar parties.

Business plans were the most concrete form of how the case companies stored information about their business aspects. These are of course not available
to the public; hence the possibility to learn from other companies’ business plans is very limited.

Accessibility and availability of information: The availability of information is connected to the storage of information. Technical information about the domain is more widely available than business information. Technical information about software development which is stored in an explicit form is relatively easily accessible and available in public forums. This information is often not controlled by the authorities. Explicit technical information about corporate software and hardware on the other hand is more controlled by the manufacturers.

Most business information is stored in people’s minds as tacit information which is not easily accessible. The accessibility of this business information is limited to the people who are part of the domain. The entrepreneurs often had a personal relationship with people with whom they interacted. This indicates that you have to be part of the business to get this information.

Public business developers in part help in getting this information, but their role is limited. Two of the case companies said that they had benefited from business developers but that the role of these developers was fairly limited and that they did not manage to provide any great help in the founding process. Later on in the life cycle of the companies their role became even more limited, mainly focusing on the role of networking with other companies.

Differentiation and integration of the culture: The culture in Finland could to a large extent be referred to as integrated. There are differences within the country depending mainly on the north-south dimension, but they are relatively minor. The biggest differences in business culture seemed to be that the case companies saw the business culture in the southern parts of the country as more based on job switching than in the rural northern areas.

The case companies described themselves as honest and down-to-earth, which indicates that they might consider businesses in the south to be more dishonest. The case companies also mentioned that they did not do sales and marketing, and referred to these as “talking rather than walking” types of activities, saying that the companies in the south were more focused on these sorts of activities and that these activities did not add value.

Openness of the culture to other cultures: The culture in the rural areas from which the case companies came could be described as somewhat closed to entrants from other areas. The hostile experiences of the entrepreneur in case company 1 with relation to a previous employer indicate that competitors are not
very happy about new entrants. They see them as direct competitors that take away a piece of the pie, rather than as possible partners who could increase the size of the pie.

The lack of job switching in these areas also indicates that people tend to conform to the status quo rather than try new things. These two aspects indicate that the culture tends to lean more toward uniformity than heterogeneity.

7.1.2 Software business and how it affects venture creation

In this section I will focus on the software business domain and the importance of this for the rest of the culture. I will examine how ventures are created in the software business domain and how the domain has affected venture creation in the case companies.

**Recording of information:** Information about different programming languages and techniques is recorded and shared widely. According to the data, there were user groups, seminars and other such places in which information was shared among software industry professionals. The entrepreneur in case company 1 explains:

*There were these communities, they sold books and made some themselves. There were things about programming, telecommunications and suchlike. They were even used as text books in education. And then there were seminar trips on boats, user groups and so on. We made friends with people from different companies.*

Changes have also happened in the industry with regard to how much information a professional worker can handle. According to the entrepreneur in case 1, until the beginning of the nineties, one person could handle almost the entire software program. Since then, programs have become more complex and people have had to specialise in certain areas. As software has become more complex and people can keep less information in their heads, much more is now being recorded. This seems also to be due to people changing jobs more often (which did not happen during the 80s, and still happens to a lesser extent in rural areas).

When it comes to business ideas and new opportunities, though, not many ideas were written down. Most of the idea generation was based on the building of tacit knowledge and on the thinking that if an idea is good, people will remember it. The entrepreneur from case company 1 explains the situation in his company:
We really don’t write the ideas down. Of course we aim to write things down, but it should be an ongoing process. Often we think, “now is a good time to start doing it” [writing new ideas down] and maybe we do it for a month, but then it just gets forgotten.

**Integration of information in the domain:** The software business is constantly changing. New technologies are tried and some of these technologies will eventually fail. This can lead to situations where the information in a domain is not integrated because the entrepreneurs might not be aware of whether a given technology will succeed. The entrepreneur in case company 2 explains the situation:

> Nothing is certain, and it’s been important to learn that this industry is changing more and more rapidly. So you have to have the attitude that everything is going to change, not “is it going to change?” It’s easier to live that way. You never know where the next big thing will come from.

And the entrepreneur from case 3 explains it similarly:

> Everywhere people are being laid off and things are changing. Sure you can worry, and think “what does it all mean?” and “can we do anything in Finland anymore?” But what does it lead to? Nothing. There’s no reason to waste energy on that.

On the other hand, there are software systems that are still in place after twenty or thirty years and which need maintenance. The entrepreneur from case 1 describes a situation which came up just before the interview took place:

> Just yesterday we had a meeting where we had a folder with documents from 1986, and they were all good. So there are systems that have stayed the same and sometimes people just want to do the same thing using new technologies.

The specialisation of work (as described in the recording of information section) has also led to a situation where everyone has more information about fewer areas. As case 1’s entrepreneur explains, there used to be people you could call who could tell you exactly what was wrong:

> I’ve got mad a few times when I’ve tried to call about a printer or something and they connect you to Estonia or wherever. And if you ask them to connect you to someone who knows about stuff, they are not allowed to. It used to be
that everyone had a special contact who they know and who knew everything. You could just call them and you got the problem solved.

Part of the integration of information happened through networking and in a dialogue with customers. It seems that the software business has changed from working with other software developers more towards working with customers who are not experts. The entrepreneur from case 2 explains how their situation has changed:

On the product side it has become a more networked world. We have seen that you have to be in that network if you want to be in business, and evolve with it. When you develop equipment and software you have to be connected to the industry, the environment, and your partners, and you have to know what customers want.

Centrality of the domain to the culture: The software business has become one of the central industries in Finland. In the areas from which the case companies came, the industry was not that central. During the 2000 tech bubble, employees in the southern part of Finland were switching jobs to get higher salaries, but in the rural areas there were fewer options available and employees stayed at their jobs. The entrepreneur from case company 1 explains his view on job switching:

No, not here. In the industry they are constantly switching and getting higher salaries. And we were also wondering whether we should go south. But there was something – I don’t know what – that kept us here.

The software outsourcing business in particular is connected to other industries (customer domains) where outsourcing companies provide their competencies. Lately many of the developments in other industries have come to rely on software-based solutions as a source of productivity increases. This means that the software business is a central part of the business culture.

Access to the domain: Over the years, access to the domain has become easier. When the entrepreneur from case 1 was beginning his entrepreneurial career in the early 80s, he received some hostile feedback from his previous employer. When the entrepreneur in case company 3 established his journey at the beginning of the 2000s, he received help from his employer, who would also become his customer. This could be partly due to the fact that during the 80s the competitive environment was smaller, whereas in 2000s there were more companies and customers in the industry.
It is relatively easy to access the domain as a small firm, but as things get larger, supporting organisational infrastructure is needed, such as lawyers, administration, etc. The entrepreneur in case 3 explains how they have managed their growth:

*I think there is a problem mainly with bureaucracy, growing in size, the amount of bureaucracy and getting it under control. Part of it is that the bigger you are, the more officially you have to do things. Contracts have to be more official, you have to have a lawyer when doing all that legal work and you have to think about all sorts of stuff like that.*

It does not require a lot of capital to get into the software outsourcing business. However, as the case data showed, it often requires customers and relationships to get started. This was the case, at least, for all of the case companies when they started their business. All of the entrepreneurs knew who their first customers would be when they established their companies. The entrepreneur in case company 2 explains how they got started:

*In our industry the capital requirements are not too big, so you can start a company quite easily. So if you believe and you have a hunch about your customers, and how you can start your business, then you don’t really require a lot of capital.*

Access to the domain is also easy from a technical perspective because software is typically designed to be extendable and upgradable. This is implemented through application programming interfaces (APIs) which were exploited in at least one of the case companies. The entrepreneur in case company 2 had established their previous company to build software on top of AutoCAD.

Besides belief and customers, the start-up needs skills and capabilities suitable for the industry. This is probably the biggest barrier to entry in the industry, considering that all other barriers are fairly minimal.

Once a company is established it can gain access to new customer industries through its customers. The case companies mentioned on several occasions how they used their customers as informants about new opportunities in the customer industries.

*Autonomy of the domain:* The software outsourcing business represented by the cases is dependent on the development of hardware innovations which act as enablers in the industry, and on the customer industries in which the software
development takes place. The entrepreneur from case company 2 explained how they keep an eye on developments:

_Whether it’s software or hardware, we have our eyes open. The guys who are responsible, they are looking, scanning the web and different media. That’s one of the most important things. It’s often the case that an industry is waiting for something, like RFID, to develop. We are pretty much ready to take advantage of that with our customers._

Smaller companies seem to be more autonomous than larger ones. All of the entrepreneurs said that part of the reason they wanted to establish a company was because they did not want to be “parts of the machine” in a large company. While this might not directly reflect the autonomy of the domain, it implies how much creativity an individual can use in his job and hence indicates how much an employee in a large organisation is bound by other domains. The entrepreneur from case company 2 talks of how he felt when working at a larger company:

_Quite soon I felt like I maybe shouldn’t have started that job. It started to feel like working at a big company again, just like the old days. It was all about departments and you had to do things their way. Maybe it could have changed if I had stayed there longer, but then again, I had already made my choice._

The autonomy of the software business is also limited because requirements from other industries also tend to come in as the software company grows larger, because the other industries require the software company to act like a large company with lawyers, and layers of bureaucracy (as depicted in the earlier quote: “I think there is a problem mainly with bureaucracy…”).

### 7.1.3 How culture and the software business domain affected venture creation

Cultural characteristics helped the creation of new ventures, rather than hindered them. Technical information was stored to a large extent in written form, allowing it to be transferred over time and between people. Business information, on the other hand, was in more tacit form and hence storing and transferring it was more difficult. While much of the basic technical information was available to the general public, more software-specific information was less accessible and available. Public business incubators tried to help in getting access to business
information, but their role in this was fairly limited. In terms of differentiation and integration of culture, it could be described as fairly similar everywhere in Finland. Differences exist between different domains but their relevance in terms of software development was not seen in the data. The biggest differences are in organisational behaviour between city and rural areas, but these differences are by no means stark. In the rural areas the culture was somewhat closed to other cultures. The culture in rural areas tended to prefer uniformity rather than heterogeneity.

When focusing on the domain of software business, we can see the domain itself as a fruitful starting point for new ventures. Information about software development is recorded and shared between the professionals in the industry. Specialisation of work has also led to the recording of more information in explicit form, which makes it easier for new entrants to get into the domain. Although new innovations act as a source of opportunity, they also disturb the integration of information in the domain. Information in the domain could however often be called integrated; hence, professionals know what to consider an innovation. The software business has become increasingly central to the culture as a business area in its own right but also through the use of software in other businesses. Access to the domain is mainly limited by knowledge resources. The capital requirements for developing software are not high, but at the start a software entrepreneur often has to have the knowledge and skills to develop software. The autonomy of the domain is restricted, especially in the software outsourcing business. This business operates in close connection with the customers for whom the software is being developed. The development and prevalence of hardware technologies also impose their limits on what can be done within the domain of software.

Table 8 below summarises how the characteristics of culture and the software business domain showed in the data and their effect on venture creation.
Table 8. How culture and the software business domain affect new venture creation.

<table>
<thead>
<tr>
<th>Culture characteristics</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage of information</td>
<td>Storage of technical information helped venture creation; lack of storage of business information hindered venture creation</td>
</tr>
<tr>
<td>Accessibility of information</td>
<td>Access to basic information is easy; access to business-specific information more difficult</td>
</tr>
<tr>
<td>Availability of information</td>
<td>Available through public resources (libraries, educational facilities) and though businesses</td>
</tr>
<tr>
<td>Differentiation of the culture</td>
<td>Differences between city and rural areas laid the foundation for the ventures but their effect on venture performance was unclear</td>
</tr>
<tr>
<td>Integration of the culture</td>
<td>Some differences between what was considered valuable in the north and in the south but basic core values were the same</td>
</tr>
<tr>
<td>Openness of the culture to other cultures</td>
<td>People’s preference for uniformity over heterogeneity helped venture creation for some of the case companies, and hindered it for others.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain characteristics</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording of information</td>
<td>Information recorded in explicit form; software itself serves as a recording device</td>
</tr>
<tr>
<td>Integration of information in the domain</td>
<td>Domain is constantly changing but changes do not often shake the foundations of the domain; changes are often more evolutionary than revolutionary</td>
</tr>
<tr>
<td>Centrality of the domain to the culture</td>
<td>Domain has become more central over recent years and attracted talent</td>
</tr>
<tr>
<td>Access to the domain</td>
<td>Easy to enter; knowledge of software acts as an entry condition. More difficult to gain a significant position</td>
</tr>
<tr>
<td>Autonomy of the domain</td>
<td>Innovations are restricted by customers. Other than that there are no domains or institutions which limit innovations</td>
</tr>
</tbody>
</table>

7.2 Society, customers and other software developers

In this section I will discuss the role of society and focus on the individuals within the software business domain. The most relevant stakeholders in software which create the field are customers and software developers.

The society can be examined through different characteristics. In this study I will focus on availability of surplus energy, valuing and encouraging creativity, openness of the society to change, mobility and conflict in society and complexity.
of the social system. In the case of an individual field, the characteristics are obtaining resources from society, independence from other fields and institutions, constraints of the domain on the judgements of the field, institutionalisation of the field and support of change by the field.

To understand why venture creation happens the way it does, it is important to understand who all the other individuals involved in the process are. The society and field create one part of the context and this context in part affects the process of venture creation.

Next I will go through the characteristics of society, followed by the characteristics of the individual field.

### 7.2.1 Society and the software industry

In this section I will focus on what society is like and how it affects the introduction of new ventures. These characteristics are similar in all venture creation situations, although their emphasis may vary depending on the domain.

**Availability of surplus energy:** During the 80s, not many companies were being formed in the ICT industry, but around 2000 there was a boom that resulted in the formation of many new ICT companies. This indicates that there has been surplus energy available which has resulted for example in new companies being formed. The fact that there have been public incubators and grants given to new companies also indicates that there are resources available.

The entrepreneur from case company 3 emphasised that a new venture should not only take from the customer relationship but that it should also be able to give something back to the customer. This also indicates that there are resources available for innovative activities which might not always result in successes.

> At the start we did not have anything really new here. But since then, of course, the business has required us to be innovative and to give something back to the customer, so that we are not only in a taking role.

**Valuing and encouraging creativity:** The creation of new businesses is something that is perceived favourably in the areas from which the case companies came. For example, large companies that have cut jobs have often helped ex-employees who hoped to establish their own companies, as entrepreneur 1 describes in terms of the beginning of their business:
Usually when firms downsize, they help the companies that get started. Here in Kajaani we have plenty examples of this – often the companies helped the new ventures significantly, but not in our case. In our case they tried to make leaving as hard as possible. ... The CEO said that he would do all he could to ensure that our company would not succeed.

For the two other case companies, the effect of previous employers was more positive. Previous employers formed customer relationships and helped finance the case companies.

For society, business incubators are often the way creativity in business is encouraged. The case companies did not fully agree with this because the role of incubators was seen as less important and they were seen in part as self-sustaining organisations.

**Openness of the society to change:** There were signs that the government’s administrative system in Finland during the 80s was not that favourable toward change. Case company 1 got started by buying a previously established limited-liability company but it took a long time to get legal changes carried out in the company, as the entrepreneur explains:

*At that time these things with the National Board of Patents and Registration were really strict. It took almost two years before we got it to this new name and everything else was really slow too. We had to go through registration of business and everything.*

However there were also public business advisors who helped in establishing the companies, and society has provided grants for investments and research and development, which indicates a positive attitude toward change.

**Mobility and conflict in society:** The rural areas from which the case companies came can hardly be described as hubs attracting people from around the globe to trade. The areas were local hubs which people would come to, rather than leave, but they were not growing much in size and did not offer significantly greater ground to build new innovations.

The mobility of employees between different firms was very limited in these areas. This was one of the reasons some of the companies were formed: to create a place where the founders could work, rather than to create growth businesses. This lack of mobility has however helped the companies to build customer relationships and networks, as case company 2’s entrepreneur explains:
We have been seeking reference customers through which we could really show what we can do. I think it is one way we can differentiate ourselves from southern Finland because there they have unhealthy job switching, and relationships are harder to build in the long run.

Conflicts happened only at internal level for one of the companies (case 1) when they were starting their venture. For the two other companies, society was favourable toward their new ventures. External conflicts within society happened between nations as part of economic competition, but because the case companies were local companies, it did not have a direct effect on them. One indirect effect of this could be the public business developers and the grants and loans that they provide.

**Complexity of the social system:** The social system in Finland is mainly based on meritocracy. There are hierarchies but no clear class structures that bind people to their backgrounds. The entrepreneurs came from working class backgrounds and had managed to progress in their careers. In their previous jobs the entrepreneurs had progressed in their careers but felt that they were doing things “in a box”, controlled by their titles rather than what they could do. This indicates that hierarchies are an important part of work life (or at least that they used to be in the 80s).

The social system in these areas is much like that in the rest of Finland. What may be slightly emphasised in rural areas is that people tend to know each other better than in cities. This can hinder the progress of people who come to the social system in rural areas from outside of it.

### 7.2.2 Customers and other software developers

In this section I will focus on the field constituted of the relevant individuals for the software business. I will discuss how this part of the society affects new venture creation and what constraints the domain and society impose on new ventures.

**Obtaining resources from society:** In the 80s the role of the software business was less important for Finland’s economy, but lately it has taken on a more central position. This is in part due to the decline of traditional industries, but also because of the rise of the ICT sector as a whole. This has meant that national innovation agencies like TEKES and Finnvera have been giving more resources to people in software businesses.
The software business has also received support from society which provides a skilled workforce by supporting the education of software developers. Part of this trend has been that companies have also been able to educate software developers for their own needs. The entrepreneur from case company 2 has himself set up some adult educational courses:

*I’ve been organising adult education, to get more software developers, where people from different industries are educated in software development. I think I’ve been involved with these courses in all of the companies I’ve been involved with. Some of these people work for us, some have gone into other companies. And so they know us there already – it is like having a living business card there.*

Society has also formed services that aim at placing people and companies in the same industry in networks. One example of this is IT-Pooli in Kajaani, a service that aims to bring ICT companies in Kajaani together. Both of the Kajaani-based case companies had taken part in IT-Pooli activities, but their usefulness was considered somewhat mixed. Case company 2 had found some benefits in the service as a discussion partner, but case company 1 was more sceptical of its benefits.

**Independence from other fields and institutions:** The software outsourcing business is highly dependent on customers in other fields, and these customers limit the innovations that can be achieved with software. There is some outsourcing work that can be done within the software industry itself but most work has to be done outside of it. The closest field is formed by the customers in the ICT sector, which in fact formed a large customer base for all of the case companies. There were other fields for which they also did work, but the ICT sector was the largest one.

The limitations that these other fields pose come from business aspects, but also from more technical aspects such as limitations in the hardware that is used in the industries. All of the case companies described the customer as the one who makes the decisions about what these outsourcing companies do.

In terms of institutional independence, there were no significant institutions that were mentioned in the data. During their establishment, all of the case companies had used the help of public officials to some extent but the use of these resources was voluntary. To establish a company one needs to deal with the National Board of Patents and Registration but it is seldom a hindering factor in the process.
Constraints of the domain on the judgements of the field: When considering the judgements of the field, there are some quantifiable and measurable metrics within software, such as speed, memory use or accuracy of calculations, that can be used to determine the performance of software. If certain requirements are not met, the field is unlikely to judge the software to be innovative. However these are not the only measures that determine the judgements of the field. Softer, and harder to quantify measures like usability, connectivity of software with other software or cost of production are also domain-side constraints which affect whether or not software succeeds.

Within the software industry, there are certain systems in the domain that have a standard-like position in some segments, like the Windows OS in desktops. These are however often not limiting factors for innovation because these systems are also designed to be interoperable so that software can exchange information with them. The interdependence of software does however constrain what can be regarded as valuable. If software does not operate with previous software (which will often have been used in storing data that should continue to be useable), it can easily be judged not to be valuable. Case company 1 experienced this when a customer of theirs changed owner and the new owner changed the customer’s computers to ones similar to those used in its other facilities:

Yes, it was as if the owner just said “yes, now we’re changing equipment.” People were very bitter in there because we had just managed to get everything working. Then it would have to start all over again.

The value network of the software ecosystem and competitive positions also pose some constraints on what the field regards as important and valuable. If the new entrant threatens the position of current market players, they can try to hinder the new entrant. This was the situation with the previous employer of the entrepreneur in case 1, who tried to hinder the progress of the new entrant. The previous employer was operating in the same field but was not in a directly competitive situation with the new entrant.

Institutionalisation of the field: It is relatively easy for a new entrant to enter the software market. Forming the relationships that are the basis for getting software outsourcing work does take time, but there are few reasons a new entrant could not create these relationships.

There are only a few institutionalised relationships, individuals or companies in the field. For the case companies, entry to the domain had been easy and the new ventures did not have to get acceptance from other individuals or companies.
According to the data, the biggest barrier in terms of institutionalisation comes when the size of the customer grows and the supplier (the software company) is expected to act in a similar way to the bigger company.

The biggest companies in the field at the time were Nokia and Tieto. These companies did also use outsourced resources and did not operate in any hostile way limiting competition. Hence there were no large companies that could monopolise the industry completely, and smaller companies could operate alongside the bigger companies.

One form of institutionalisation came from inside the organisations. The motivation for establishing the companies was that the entrepreneurs wanted to secure jobs in the regions in which they resided. This indicates that the case companies were not too keen on growing their business as this could threaten their existence. This was especially seen in case company 1, which had tried to grow a few times but had not succeeded.

We’ve aimed for growth a couple of times, but there have been these issues: the recession in the nineties and then this tech bubble in the 2000. At the beginning of 2000 we meant to grow but then we’ve always had to break off. The timing has just not been right. I guess we haven’t been too ambitious in terms of growing this company.

Support for change by the field: The customers helped the case companies to get started, which indicates that the field was supportive of change. The entrepreneur in case company 3 explains how the previous employer and a would-be future customer helped his venture get started:

We discussed and sought what would be best for my skills and role. I didn’t really have much experience then, was just about to finish school. So we discussed, went through different possibilities – software, electronics etc. – and maybe the customer directed the process more than I did.

Cases companies 2 and 3 did not experience any great hindrance from competitors or customers. The entrepreneur from case company 2 describes how the new venture was perceived by competitors and customers:

We didn’t really see competition back then. We have more or less tried to get customers based on our own skills and tried making those relationships deeper. We haven’t really seen competition. Of course if we started a
relationship with a bigger company, then there would of course be competition.

Case company 1’s early days were hindered by the previous employer as has been described earlier, but helped by their customers in a similar way to case companies 2 and 3.

Another part of the field is the community of software developers. They are made up of both internal staff and external software developers. One example of the relevance of a good team that supports new ideas comes from the early days of case company 2, when they were just starting the company:

The idea came from a friend from the project that we were doing and then my eyes started opening. I started asking people who were technically oriented, and we started by forming a team of three that bounced ideas around. So I had the marketing and market vision and these guys were more the innovators. ... We had a similar way of thinking and although they were not entrepreneurial types, they did want to change things for the better.

As the companies matured, the customers were positive toward innovations. Customers wanted the companies to follow fads, even though the companies themselves did not see opportunities there. The customers also provided ideas about how to improve the companies’ current products and what competitors were doing in the market.

7.2.3 How society and field affected venture creation

It is hard to label the role of society in the venture creation process as either a help or a hindrance. Society clearly had both helping and hindering effects, and these seem to balance each other. There were a large number of public institutions and a high level of resources, which indicates that there was surplus energy available. Encouragement of creativity and openness to change were also positively affected by these public institutions, but some other companies in the same areas had a negative effect on this dimension. The public administrative system, especially during the 80s, also seemed to hinder innovation. While there were no concrete external conflicts within the society, the mobility of talented individuals was limited in the rural areas. This lack of mobility might have hindered the introduction of new innovations but it helped the formation of long-
term relationships. The social system at the time was based mainly on meritocratic principles, helping individuals to introduce new ventures.

When it comes to the field’s effect on venture creation, the field’s role, like that of society, was mixed. It had both helping and hindering characteristics and it is difficult to place it clearly on one side or the other. Software professionals have gained resources from society, ranging from education to direct investment grants. There have also been publicly funded services that have helped the field to strengthen its position. The independence of the field was limited by the customer domains, which would ultimately determine what would be a useful innovation for them. The development of hardware technology also limited what could be done by the field. There were some clear metrics in the domain that acted as constraints on the judgements of the field but there was also room for innovation outside of those metrics. There were only a few dominant companies within the field that could be called institutionalised companies, but their role was fairly limited when it comes to small companies. The dynamism of the domain means that organisations tend not to become institutionalised. Finally, the field was quite supportive of change. Customers helped the case companies in getting their businesses started and in creating new opportunities in the long run. There were, however, some examples which indicated that competitors were not always too happy about the new entrants and tried to limit their chances of survival.

Table 9 below summarises the society and field characteristics of the system model and how they affected venture creation.
Table 9. How society and the field affected new venture creation in software business.

<table>
<thead>
<tr>
<th>Society characteristics</th>
<th>How venture creation was affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy</td>
<td>Public organisations helped venture creation through education and subsidies; failed ventures would not lead to personal catastrophe</td>
</tr>
<tr>
<td>Evaluation and encouragement of creativity</td>
<td>Public organisations were mostly favourable but also displayed some hindering characteristics</td>
</tr>
<tr>
<td>Openness of the society to change</td>
<td>Other companies were not always supportive of change; public organisations mostly supportive, though not always</td>
</tr>
<tr>
<td>Mobility and conflict in society</td>
<td>Society in rural areas lacked mobility in job switching; no conflicts were described that hindered innovations</td>
</tr>
<tr>
<td>Complexity of the social system</td>
<td>The social system allowed individuals to advance in their careers and to change position in society</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field characteristics</th>
<th>How venture creation was affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtaining resources from society</td>
<td>Education and investments were supported by society</td>
</tr>
<tr>
<td>Independence from other fields and institutions</td>
<td>The software field was dependent on hardware innovations and customers who bought the software development work</td>
</tr>
<tr>
<td>Constraints of the domain on the judgements of the field</td>
<td>Some clear metrics to evaluate innovativeness but also room for more creative innovations</td>
</tr>
<tr>
<td>Institutionalisation of the field</td>
<td>The dynamism of the domain hindered institutionalisation; new ventures were easy to establish</td>
</tr>
<tr>
<td>Support for change by the field</td>
<td>Customers were supportive but competitors also showed both helping and hindering characteristics</td>
</tr>
</tbody>
</table>

7.3 The background and characteristics of the entrepreneur

Finally I will focus on the background and characteristics of the entrepreneur. This is the part of the systems model which often acts as the initiator of venture creation, and therefore it is important to ascertain who the actor in the process is.

The background of the entrepreneur can be divided into different characteristics: availability of surplus energy within the family and community, respect for learning and culture, introduction to the domain at an early age, connection with the field from an early age and support for conformity or innovation. The characteristics of the entrepreneur that affect the creation of new ventures are the individual’s special talents, the curiosity, interest and intrinsic...
motivation of the individual, the discovery orientation of an individual and having relevant personality traits.

It is important to understand these because they make up the final part of the context in which new ventures are created. The data shows clearly that individuals and their backgrounds are different and these differences affect the creation of new ventures. Without understanding these differences, it would be difficult to understand why the venture creation processes have turned out as they have.

I will first go through how the background of the entrepreneurs affected venture creation and then focus on the characteristics of the entrepreneur.

7.3.1 The background of the entrepreneur

The background of the entrepreneur is a matter that has often been studied, with the focus on education and previous experiences. In this study, however, I will focus on the background more from the perspective of the systems model and how the background supports or hinders venture creation.

Availability of surplus energy within the family and community: The lives of the entrepreneurs were in a steady state when they established their companies. All of them were married and had children. The entrepreneurs in cases 1 and 2 also had houses and had worked in the industry for around ten years before establishing their companies, and the entrepreneur in case 3 was just about to graduate. The ones who had worked more had also saved a little more money, so their financial situation was more secure than that of the entrepreneur in case 3.

For the entrepreneur in case 1, his family ties meant that he had to have more discussions about how he would arrange his free time and his company time:

Life was quite normal then. A young family – one of my daughters was ten and the other one was a bit younger – and I had my own house. I had those things so I didn’t have to worry too much, but it was tough at the beginning. Often on Fridays you would have to think where to get the time for the weekend, which was often spent working. But it was good that I had [business] partners with whom I could discuss and arrange things.

The situation was similar in case 3 as well:

I had just graduated, was married and had a child, and we were living in an apartment. It was a challenging time then but I don’t think it had much effect on business. Yes, it took compromises, but we survived.
This indicates that large amounts of energy and resources were not available, but on the other hand, the situation was safe enough that it allowed the entrepreneurs to make the leap to entrepreneurship.

**Respect for learning and culture:** In this context, a more accurate term for “culture” would probably be business or technology in general. A respect for culture in the individual’s background in terms of the arts or literature is not likely to help an individual’s success in business.

The entrepreneurs in cases 1 and 2 each had a vocational qualification and the entrepreneur in case 3 had a bachelor’s degree. These are common qualifications for individuals of the entrepreneurs’ generation. This would indicate that the entrepreneurs were more interested in hands-on activity than in formal education.

The entrepreneur in case 2 commented that his family had really noticed his absence from assisting in their farm work when he was obliged to be away in order to carry out military service. This indicates the importance of practical, hands-on work to him, and is in line with the other data, which indicates that the entrepreneurs were more doers of things than “researchers. All of the entrepreneurs saw work experience as more important than formal education with regard to success in business. Formal education was seen to offer support and the ability to reflect on the creation of new opportunities, but work experience was seen as the source of those opportunities. This quote from the entrepreneur in case 1 describes his views on this:

> I think the seeds have come from education. It's given the ability to see things. Then of course the experiences, times when you have seen things – that is where the opportunities come from.

The entrepreneur in case 2 continues in a similar way:

> The more you have of both, the easier it is to make the decisions to become an entrepreneur, and you can see where you are going better. You can theoretically analyse what you are going after and if you have the experience, then you can balance them and see if you are going after the right things.

**Introduction to the domain at an early age:** None of the entrepreneurs described being introduced to the domain at an early age. The earliest experiences that they had with software development were in cases 1 and 2 at work, after their 20s, and for the entrepreneur in case 3 around his 20s.

The introduction to entrepreneurship happened earliest for the entrepreneur in case 3, whose uncle was an entrepreneur. He was therefore exposed to
entrepreneurship at a very early age. Because he also established his first firm at an early age, he got entrepreneurial experiences from that:

It all started when I was under 18 and started that distribution business. That was where the spark for entrepreneurship comes from. That was actually a coincidence because originally I applied for a newspaper delivery job. But the owner of the paper suggested that I should establish a delivery firm and take responsibility for distribution as a whole.

Other entrepreneurs mentioned that they did not have clear entrepreneurial role models in their family at young age. However, it could be said that the others (in cases 1 and 2) were also familiar with entrepreneurial and intrinsically motivated lifestyles because they were from farm houses where they had helped with farm jobs. They also mentioned several times during the interviews that they considered themselves to be hard-working, which could have its roots in working on the farm at an early age. According to the interview, the first encounters with software entrepreneurship came for the entrepreneur in case 1 after having worked in the industry for around five years, and after that doing freelance software contracting for several companies:

We were working in the IT department of a dairy firm and there was an IT manager who had done some side projects and had his own company for taxation purposes. I also did some work through that company and there were others in the department who did the same. I think that was the basis for getting to know entrepreneurship.

For the entrepreneurs, most of the experience they gained from the domain was through their experiences of work. The entrepreneur from case company 2 describes how the experiences he has gained helped him in seeing the opportunities for his own business:

I got quite a few different views of our industry over a short period of time in the jobs that I had. I saw it from a basic industry company, working in a paper factory developing enterprise planning systems for the first ten years, then working at a small company that grew rapidly, and then a short time at an IT firm. That gave different views of the world, from programming at a fixed location to attracting customers in a small company, finding them and making them believe in you.
Connection with the field from an early age: Connecting with the field has similarities with connecting with the domain. The entrepreneurs did not take on a family firm that would have allowed them to get connected with the field of software professionals at an early age, nor did they get connected with their customers before they were of working age.

The most important way to connect with the field was also through previous experiences of work. These gave a relationship with the field and an idea of the preferences of the field. The entrepreneur in case 3 felt that because he had been in close contact with the customers, he was able to make good strategic decisions:

Strategic planning, also in a technical sense, have gone quite well and we have succeeded quite well in them. I think it’s because we’ve had a good opportunity to listen to the development of the industry and follow the network – we’ve had good relationships in the right directions and so we’ve managed to keep going.

Previous experiences also offered them a way to know what exactly the customers were looking for and in part influence their decisions. The entrepreneur in case 2 was even able to get a representative of the customer as a board member, which certainly made things easier for them. Prior to establishment they saw through their previous business that there was a need for software developers in their area, and they were able to make preliminary deals with customers and recruit programmers:

We had a pretty clear idea that there were certain opportunities, because of a large customer whom we knew, and we knew that they needed software developers badly. We knew that that would be our first client and that we could start with that because they were a big customer. Then we started thinking more [about the opportunity] because we had a foundation with a good customer relationship and we knew we could get more customers.

Support for conformity or innovation: The preferences of the entrepreneurs varied. The entrepreneur in case 1 was clearly more comfortable conforming than innovating and the one in case 3 was clearly more comfortable in innovative settings. The entrepreneur in case 2 was somewhere in the middle of these two extremes. The entrepreneur in case 1 explains how he sees himself:
Maybe I’m a bit too cautious. And in my opinion I’m responsible and provide room for new ideas and I do welcome them. But I’m not an ideas guy – I’m pretty flat in that sense, more like the guy who signs things off.

The entrepreneur in case 1 had a 40-year history of work and had experienced more than the entrepreneur in case 3, who had a five-year history of work. The experiences of the entrepreneur in case 1 meant that he was not too keen on building new innovations, which are inherently more uncertain. When asked about new trials and new opportunities the entrepreneur in case 1 relied on sticking to the core business:

We focus more on these basic things, rather than on new business. In a company this size, we have to stick to the basics. ... We have tried a few things over the years – I can’t really remember any now. Usually if we try new things we aim at covering our expenses.

These entrepreneurs could also be affected by the company’s position in the software ecosystem, as case company 1 was in a subcontractor position. As the entrepreneur described, their ability to affect their own future was limited; rather, they were like “puppets on a string”.

The entrepreneur in case 2 was clearly more inclined towards a preference for innovation. He was more comfortable taking risks and had left his previous job because it was not innovative enough:

In business there are always risks – you can’t operate without risks. If it was risk free, everyone would do it. I have taken risks and sometimes they have come true, but I’ve learned from them as well, so I haven’t regretted them. The world is full of surprises and even larger companies cannot avoid them.

He also said he considered himself to be creative and liked making things with his hands. He had also written poetry and song lyrics but was not doing it actively due to time constraints. When asked about his relationship to creativity and innovativeness his response shows a somewhat pragmatic approach towards them. They are positive things but somehow the realities of business do not seem to support the creation of new opportunities:

Yes, my relationship is basically really positive towards all of these things like creating novelty, and activity like that, but as I’ve gained experience, I’ve come to realise that we should not be pioneers in everything. ... When we think about how we have been doing business, it has been about grinding
away. If we want to make art out of this [i.e. being innovative], then we have to have an engine behind it to create these artistic visions. If we had that engine and wanted to be like that, then it would be ok.

Case 3’s entrepreneur was clearly the most inclined toward innovation of the three. He had formed his own company as a teenager when faced with a choice of working for someone or doing the work through his own company. He also described himself as being ready to grab an opportunity when one came along. These points indicate that he was not afraid of changing his position from a comfortable to an uncomfortable one. He also relied more on intuition than the two other entrepreneurs. He did not need to make clear plans before executing his vision or slavishly follow plans he had made:

_I have always tried to come up with a yearly budget. I’m not sure if I’ve managed to follow it but that might not be that important. I’ve made goals but those are not the most important thing. They are there and we either reach them or we don’t, but they cannot constrain us too much. They guide us but do not constrain._

Also a similar, although not completely comparable example can be found in his holiday routines. While this might not be fully generalised to the way the entrepreneur makes decisions in the business field, it gives some indication of the fact that he is comfortable with uncertainty:

_Well everyone always plans something, for example now our summer vacation, I haven’t thought about what we’ll do. If we feel like travelling, we hook up the caravan and go. And we go when we feel like it, we don’t think about that too much. Maybe we’ll go to a country fair because we have relatives there. Of course you have to plan and think about things like that but nothing too deep._

7.3.2 The entrepreneur and their characteristics

This section focuses on the characteristics of the entrepreneurs. The entrepreneur ultimately determines whether or not ventures are created, and the characteristics of the entrepreneur determine how the creation of the venture happens. The data shows clear differences between the different case entrepreneurs in this regard.

_The individual’s special talents:_ There were no special natural born talents that the case entrepreneurs displayed that could be said to have an effect on
venture creation. They were all more or less “normal” in terms of their talents. None of them were highly technical programmers or especially mathematically gifted.

It could be speculated that had some of the individuals in the study possessed some special talents, they could have ended up creating a company that was much more successful than the case companies studied. The case companies studied, after all, were not highly innovative and did not create totally innovative businesses.

Had there been entrepreneurs in the data with special natural talents, these would probably have been related to high intelligence or other non-physical talents. These types of talents are likely to help in acquiring the skills needed to succeed in the software business, for example software development and business skills.

The curiosity, interest and intrinsic motivation of the individual: As a motivator for establishing the company or developing it further, none of the entrepreneurs mentioned that they were interested in seeing how a certain software program could be built or whether an algorithm would work. This would indicate that they were not motivated by software development in itself. The entrepreneurs were more interested in the business aspects of things, developing their professional careers to be more diverse, and securing jobs.

The interest in growing the business had clearly changed over the years for one of the companies. The experiences of the firm in case 1 had affected the interests of the entrepreneur so that he did not feel motivated in expanding the company any more. This can be seen when the entrepreneur talks about his interests in growth:

At first there was an idea that we would grow a little bigger. That was the desire, but then there were these two examples, recession [in the early 90s] and this bubble [in late 90s] which knocked us right down. In the beginning we had the idea of getting a few more people in, but growth as such hasn’t been an aim for us.

For the two other cases, the motivations concerning growth and developing the firm had stayed roughly the same throughout their history.

Being internally motivated, for the case entrepreneurs, meant not wanting to spend their professional lives in a nine-to-five job. They wanted the entrepreneurial freedom that would allow them to go beyond their job titles, at times working constantly on a project and at times taking days off from work
when they felt like it. The entrepreneur in case 2 describes what he feels is important in entrepreneurship and why he chose it over his previous job:

    *I think entrepreneurship is about freedom, which is of course an illusion because you don’t have freedom. But I think that was what drew me to this. I had worked for ten years in that paper factory and it was all about titles and work descriptions and it didn’t suit me. I wanted to work in a smaller firm and so I changed to a smaller firm for a while, and the next step was to form my own company.*

Later he describes himself as an entrepreneur and explains what he thinks have been the most important abilities that have been driving his actions:

    *Well, we are responsible and try to develop the business by not taking risks and by making sure there are jobs for the staff – and for me as well. But it means that if there is a recession, we will have to be ready to cut jobs. Not at first: first we’ll put everything else in order and then we’ll resort to cutbacks if necessary.*

The entrepreneurs also had a strong internal motivation in terms of staying in the region. This indicates a sense of responsibility and connectedness with the region. The entrepreneur in case 1 explains his motivations for establishing the firm:

    *It was to secure jobs for my co-workers here in Kainuu, because they wanted to stay here. And when we saw that the thing we were doing was not reflecting our wishes, there were no challenges, it was all about following routines, trying to survive from one day to another – that was also a motivation.*

For the entrepreneur in case 3, the need for internal motivation and constant development was an important factor in recruiting and new product development as well:

    *I would say [it's important to have] a healthy passion or desire for work, not that you work through the night, but a healthy interest. I think it's important in terms of development that most mornings it's nice to come to work. If you come in full of ideas and desire, then you’ll also develop because you are getting information and solutions.*

**The discovery orientation of an individual:** The entrepreneurs were interested in developing software and software businesses but they could be described more as
doers who come up with ideas and execute them than as “researchers” who try
consistently to develop a better solution to a given problem.

All of the entrepreneurs said that they usually think about business-related
issues in their free time as well as at work. Some entrepreneurs even said that that
is when they come up with their most innovative ideas. The entrepreneur in case 3
describes his view on this:

*I’m not too bothered about the phone ringing in the summer cottage. In the
cottage, I’m usually thinking about business matters anyway. Of course not
always – I can switch off the phone as well – but usually when I’ve got free
time I get good ideas.*

The entrepreneur in case 1 describes his attitude in a similar way:

*I think it’s a lifestyle. A whole lifestyle, that you think in your spare time, work
and think about solutions, think about what you still need to do, and go
through that stuff. They say that you are free when you are an entrepreneur but
to be honest, you are like a puppet on a string.*

**Having relevant personality traits:** As mentioned previously, there were no
special talents that could be identified in the entrepreneurs. They had a greater or
smaller amount of skills or personality traits that had helped them in succeeding
in their ventures.

First of all, the entrepreneurs showed varying degrees of risk-taking ability.
All of them described themselves as having low risk-taking ability, but the
entrepreneur in case 3 had been convinced by his peers that he had a higher risk-
taking ability than most people individuals. However what is important is that
none of them felt that they were making high risk decisions. This is supported by
the fact that of the three entrepreneurs, he was the one who most clearly made his
decisions based on intuition. The entrepreneur in case 2 displayed a fairly
moderate level of risk-taking ability, going in part with intuition but relying on
calculations before making decisions:

*Well yes, calculated risks, those that don’t feel like a lottery because there are
calculations behind that [decision], some research about what are the worst-
and best-case scenarios for the investment.*

The entrepreneur in case 1 displayed the lowest level of risk-taking ability:

*I’m pretty bad at taking risks. Of course I make some decisions but we
usually go through the hardest decisions with other owners and board*
members. And there are no people who are willing to take risks on the board. There are examples of previous companies which have grown and then failed, like this one company which grew and grew, and I don’t know if it was the growth or what but then it ended – it lasted for maybe five years or so.

While none of the entrepreneurs made a total leap into the unknown (all of them knew who their first customers would be), they did leave a fairly secure nine-to-five job in exchange for a less secure entrepreneurial venture.

Persistence was one of the traits that seemed to connect all of the entrepreneurs. They had not given up easily, even though all of them had experienced difficulties during their venture creation. The entrepreneur in case 1 said that their way of working and innovating is all about grinding: grinding until the job gets done. The entrepreneur in case 2 explains the kind of traits he feels are necessary when establishing and running a new venture:

> Entrepreneurship and entrepreneurialism is something that can be disappointing because in the end some people might not have those abilities. You only get to find out in practice: when you’re in real situations you have to squeeze a little harder, work a little later and so on, so maybe it [the business] should be built through patience so that first there is labour and then the benefits start arriving.

The entrepreneur in case 3 describes his abilities as a motivator and a “doer”, which also shows his persistence:

> I think I’m pretty good at getting people excited about work and if necessary I’m ready to do a lot of work myself in order to get the job done.

Having ambitions about wanting to do something bigger in one’s professional life was one motivation for the individuals wanting to become entrepreneurs. The entrepreneur in case 2 describes the reasons why he felt he should start his own business:

> I had a few experiences of working for others and it bugged me that you couldn’t do what you had the skills for but instead had a title which said what you could do. So if you were able to do something outside of that you weren’t allowed to. You had to hold it back, and I’ve always wanted to do things I have the skills for and so benefit everyone, which motivates me.

This also reflects another trait that the entrepreneurs displayed: the ability to take the initiative. All of the entrepreneurs created their ventures from nothing,
although they all had a team to support them. Some of the entrepreneurs relied more on intuition when taking the initiative and some relied more on calculations, but they were all able to “make things happen”. The entrepreneur in case 3 describes his version of what was important in shaping the venture:

Well I think it was positive thinking that caused me to drift towards entrepreneurship, and in a way grabbing the opportunity – I think that was important because that's what it takes, that you grab opportunities. They don't ask you twice if you decline the first time. So I think that is one of the most important things.

Behaviour which questioned authorities or the status quo seemed to be present in all of the entrepreneurs to some extent. This seemed to be partly because the entrepreneurs had an internal motivation to do things and felt that they did not need someone to watch over them, feeling that they knew how to do it by themselves. Case 2’s entrepreneur describes his time doing military service which describes his relationship to authority:

I think it was one of the first cross-country skiing competitions. Despite being an athletic type, I waited somewhere on the route for a while watching the others pass me by. Then I would ski to the goal whenever I felt like it. And then there was this one thing where we had to throw logs. One time I was there throwing logs and someone came yelling behind my back. So next time it was my turn, I got out of it somehow. Because I felt there was always someone watching behind my back, and I was used to doing things without that.

After a while, when he got something to do which motivated him personally, his behaviour changed:

Then one time there was an engineer who told me to go and build a sauna for the officers with him. So I went. Didn't tell anyone a thing. The people at my normal position were wondering where I had gone. I was there building that sauna for the summer. And then a friend and I started building an exercise track in our free time. I don’t remember how we got the equipment, a tractor and everything. We used weekends and everything, got trees from the forest, drove them to the barracks. We did what we could and filled a field with that equipment.
7.3.3 The role of the entrepreneur in venture creation

When looking at the backgrounds of the entrepreneurs, it is easy to find both helping and hindering factors that affected venture creation. Because all of the entrepreneurs came from agricultural and working class backgrounds, they did not receive a free pass into software entrepreneurship. Despite this, they have managed to create ventures that have survived and provided jobs for employees. Their families and communities did not have too much surplus energy available at the time when they established their ventures. However, there was enough that they did not have to worry about immediate survival. Respect for learning in terms of formal education was not highly valued in their background; rather, the entrepreneurs had learned to rely on work experience. The introduction to the domain and field did not happen at an early age. They did get introduced to working life at an early age but their connections to the software business were made later in life. This did not help the success of their ventures but it is also hard to tell whether it hindered their progress. Once they did get introduced to the domain and field, they started innovating new ventures. The preference for conformity or innovation seemed to matter a lot to what kind of ventures the entrepreneurs pursued. This was also shaped by the entrepreneur’s experiences during their working lives.

Different traits of the case entrepreneurs also affected venture creation in a considerable manner. The differences here show that the differences in individuals do affect venture creation and therefore are an important area to focus on. In the domain of software business, it is hard to imagine any natural-born talents that would help in venture creation. Probably because of this, there were no talents that could be identified among the entrepreneurs. What seemed to be more important were curiosity, interest, and intrinsic motivations. All of the entrepreneurs were motivated by the entrepreneurial freedom and by the possibility to stay in their native region as a starting point for their entrepreneurial careers. This indicated that having an internal motivation towards something and keeping it for the course of one’s career is an important indicator of innovativeness. All of the entrepreneurs described entrepreneurship as an overarching lifestyle, indicating their discovery orientation. However, they were more inclined to do things rather than to seek unanswered questions to solve. Of the relevant personality traits, there are a few that can be identified. High risk-taking ability, persistence, ambitious thinking, and the ability to take initiative were traits that most clearly arose from the data. The entrepreneurs displayed
varying degrees of these traits and those that displayed high degrees were also the ones who had created more ventures. Questioning of the status quo arose clearly in only one of the cases but the two other cases also displayed an attraction to the entrepreneurial lifestyle where one takes control of one’s own decisions.

Table 10 below summarises the characteristics of the entrepreneur and how they affected venture creation in the case companies.

### Table 10. How the entrepreneur affects new venture creation.

<table>
<thead>
<tr>
<th>Individual background characteristics</th>
<th>How venture creation was affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy within the family and community</td>
<td>Enough energy and resources available to allow focus to be shifted from thinking about immediate survival to creating a new uncertain venture</td>
</tr>
<tr>
<td>Respect for learning and culture</td>
<td>Low level of respect for formal education, high level of respect for work-based experiences and learning</td>
</tr>
<tr>
<td>Introduction to the domain at an early age</td>
<td>Introduction was done through experience of work</td>
</tr>
<tr>
<td>Connection with the field from an early age</td>
<td>Connections were made through experience of work</td>
</tr>
<tr>
<td>Support for conformity or innovation</td>
<td>High variance, affected the kind of opportunities and how the entrepreneurs pursued them</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual trait characteristics</th>
<th>How venture creation was affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>The individual’s special talents</td>
<td>No special talents were noticed that had affected the creation of new ventures</td>
</tr>
<tr>
<td>The curiosity, interests and intrinsic motivation of the individual</td>
<td>Strong intrinsic motivations, target of motivation varied</td>
</tr>
<tr>
<td>The discovery orientation of the individual</td>
<td>Entrepreneurs had an entrepreneurial lifestyle where they constantly thought about their businesses and how they could be improved</td>
</tr>
<tr>
<td>Having relevant personality traits</td>
<td>High risk-taking ability, persistence, ambitious thinking and ability to take initiative were favourable to venture creation</td>
</tr>
</tbody>
</table>

### 7.4 Actualisation process

The process of actualisation represents the activities which take place between the entrepreneur and the domain. It involves the entrepreneur learning about the domain and introducing new ventures into the domain. It represents the transmission of information from business domains to the entrepreneur and creation of new ventures into the business domains. There can be a large number of business domains involved, as is typical in the case of software ventures. There are two sub-processes that can be identified within the actualisation process.
The discovery of supply-side opportunities represents one aspect of the actualisation process. The process of venture creation in software business often starts from the discovery of new opportunities. There are basically two directions from which these opportunities can arise: either from the technology side (new things that can be created) which in these cases is represented by the software domain, or from the customer side (new things that need to be created, described later, in Section 7.5.1).

The other aspect of actualisation is the creation of these opportunities. The sub-process of opportunity creation involves, for example, the software development, legal, and other actions that are involved in making the opportunity happen. It represents the actions through which the opportunity inside the entrepreneur’s head turns into products or services that can also be seen by others. It also represents the activities that are involved with growing the business.

The division of the actualisation process into two sub-processes is depicted in figure 8.

![Fig. 8. Sub-processes in the actualisation process.](image)

The generative mechanisms that can be identified as underlying these sub-processes are the generative mechanism of technological change, the generative mechanism of market scanning and the generative mechanism of experiential learning in the supply-side opportunity discovery process. In the opportunity creation sub-process the underlying generative mechanisms are the generative mechanism of passion, the generative mechanism of expansion and the generative mechanism of becoming an entrepreneur. Next I will go through these sub-processes and the generative mechanisms underlying them.
7.4.1 Supply-side opportunity discovery sub-process

The supply-side opportunity discovery sub-process reflects the kind of opportunities from the software or customer domain side that can be realised. Supply-side opportunities are the perceptions of the entrepreneur about opportunities that could be offered to customers. They are based on technological knowledge or on knowledge of the customer domain about what can be done. The generative mechanisms that can be identified as underlying this process are the generative mechanism of technological change, the generative mechanism of market scanning and the generative mechanism of experiential learning.

Supply-side opportunities differ from demand-side opportunities (to be discussed later, in Section 7.5.1). Supply-side opportunities do not arise from customer demands as demand-side opportunities do, but rather from the knowledge and perception of the entrepreneur.

Generally speaking, supply-side opportunity discovery can happen at any level of an organisation. In the case companies it was found that people at all organisational levels and positions found technological opportunities and ways of using technology. Hence, it would be a cliché to say that engineers only think about technology and executives only think about business. There was evidence that when the discovery process overarches the whole organisation, the discovered opportunities have a better chance of being created (rather than being left as ideas).

The generative mechanism of technological change

The generative mechanism of technological change is caused by development of both new software and hardware technologies and the application of new technology in a customer domain. These changes generate opportunities for the entrepreneurs in the domain.

The data revealed that the technological landscape has changed a lot over the years. Previously it was possible for a single individual to create a piece of software, whereas nowadays it requires the participation of several individuals. Technological complexity has also advanced as more devices have been introduced and they have started interacting with each other.

One reason for this change is in part in the software domain itself. The domain is somewhat keen on continuous change and adopting the latest
technologies. The entrepreneur from case company 1 describes how he has had to explain why they are using somewhat old technologies:

_We need to make some decisions now about technologies. Because the truth is that if we are in the market with these technologies, they are not the most current and trustworthy ones. You might have to explain your technologies, but if the customer is just looking for a solution, it doesn’t matter what it is done with, as long as it works. A working solution._

Changes in underlying technology can provide opportunities for change. Case company 1 was faced with a change in its underlying technologies which could have been costly to implement and provide little benefit for customers. As a result of this, they decided to make their software device- and operating system-independent, which would help in maintaining the software in the future.

In the same company, technological change also affected the change in customer needs. As new technologies emerged, customers wanted to benefit from the possibilities and this put pressure on the company to renew its products.

Many of the case companies based their opportunity on technological knowledge. New knowledge building and new opportunities were seen mostly as a technical issue, arising from education and learning new technologies, not from customer demand. As the entrepreneur in case 1 explains:

_Well, that was the key: technical knowledge – that is the starting point. Of course everything else too, but that is something that not everyone needs to know, after all. This “talking” business [selling, talking to people], I’m the one doing it. It is possible that those [employees] could do it, but they would not have the desire to talk that much._

When technological knowledge has lead opportunity discovery it has often meant that companies have come to the market too early and have had trouble attracting customers for their innovative products. The entrepreneur in case company 1 describes their first efforts to make hardware sales at the beginning of the 80s:

_Then we started selling these microcomputers. We did marketing pushes in these areas, contacted potential customers in Ämmänsaari, Kuhmo, Kajaani and asked them to try the computers and software. We sold a few units back then but came to the conclusion that at that time and in this region they did not understand IT at all, so people did not know how to use the equipment, and on the other hand, it_
was still hard to use, with software coming on diskettes that you had to keep changing.

Despite the fact that the companies were based on technological opportunities, it seems that as they have matured, they have been moving away from technological domain knowledge toward business domain knowledge. To some extent, the changes in the technological domain have resulted in the diminishing value of their technological knowledge.

In one of the case companies it was seen how their knowledge has also expanded from technological and business domain knowledge to process knowledge. The company realised that they should improve not only the quality of their technical processes, i.e. how they build software, but also the quality of their business, i.e. how much their profit margins should be and what kind of measurements there are for success. The entrepreneur in case company 2 explains the difference between his first company and his latest company:

*That technical know-how was the basis in the first firm: it was clearly product knowledge.*

Whereas in the current company:

*That was more based on markets – certain basic knowledge about the markets. We knew there was demand for software developers and when we knew how other companies were doing things, flying high. We knew that our technical knowledge would work in that type of market, just keeping our feet on the ground.*

It seemed that a lot of the opportunities were based on technological development and how this development enabled the creation of new software and devices. Demand-led development was not so common in the companies and it seems that demand was not always verified with potential customers. The entrepreneur in case company 2 continues:

*In terms of products, we try to find open gaps in the markets. For example, our latest product is a sort of product that didn’t seem to exist in the market at the time. Our first goal is the know-how and professionalism in that market and customer satisfaction.*

One aspect of the generative mechanism of technological change is the choice of customers. This was very important for discovering the latest technologies. One of the cases had world class core knowledge in a niche technological area but
gaining this expertise would have not been possible without the customer. They did not have a huge team but according to the customer they had knowledge of that niche technological area which was the best in the world. If they had been working for any other customer (who were behind in terms of technological know-how), it is likely that they would not have gained this level of expertise. The entrepreneur from case company 3 explains:

Strategic planning, also in technical sense, have gone quite well and we have succeeded quite well in them. I think it's because we've had a good opportunity to listen to the development of the industry and follow the network, that we've had good relationships in right directions and so we've managed to keep up.

In other cases it can also be seen that customer selection determines what the company is able to do. If the customers of a company are not world class leaders in their field and do not let subcontractors build additional value into their core functions, it is hard for the subcontractor to gain excellence.

Sometimes it seems that this continuous technological change is in part self-inflicted. One of the case companies had worked on a long-term software development project for one of their customers, had just finished the project, and the software was functioning well for both the customer and producer. After this there was a change of ownership in the customer company, which meant that the system was to be abolished and replaced with a new one, based on the technologies of the new parent company:

Yes, it was as if the owner just said “yes, now we’re changing equipment.” People were very bitter in there because we had just managed to get everything working. Then it would have to start all over again.

The generative mechanism of market scanning

The generative mechanism of market scanning generates actions that give an understanding of how the given domain works, what competitors are doing in the market, how the market is changing, what choices customers are making and so forth. The mechanism is not limited only to scanning technologies but also involves scanning the competitors’ and customers’ actions.

All of the entrepreneurs had worked previously in the domain in which they established their companies. Their previous experience of work provided a
starting point for understanding how the technological and customer domains operate.

The companies understood the need to scan the market but they did not always find ways to actualise this. The employees were more focused on technological development, and the role of sales was seen as “talking rather than walking”. This would indicate that talking to customers is something unreal, something that does not take the company forward but is instead a waste of time, even though the companies said that understanding customer needs is important.

Scanning the market, the generation of new ideas and the assessment of what can be achieved with new technologies were not undertaken with a very conscious effort. Instead, pieces of information were gathered and combined in an ad hoc manner. This is similar to most other generative mechanisms, which were subject to similar behavioural patterns. There also seemed to be a lack of technology roadmapping or other strategic tools and methods in the companies, which indicates that there was not a need to carry out market scanning at specific intervals to verify the roadmaps or other plans.

The most common way market scanning was done in the case companies was by using internal resources. The entrepreneurs talked to their employees about what was going on in the market. The employees were considered to have the relevant information especially about where the technologies were heading.

In general, there was a conflict between what was being said was important (understanding customers) and what was being done (developing technologies). It was not considered important to follow the competitive environment. Companies were more interested in focusing on building their own competencies than in analysing competitors. The entrepreneur in case company 2 describes the role of market scanning and technology development in their company:

*We do some scanning and maybe the best situation is when you go round an exhibition or trade show or surf the net to watch for some competitor starting to create interest, a competitor that somehow pops up somewhere, from a bidding process or from a customer [telling us about a new competitor]. But the first thing is to keep our own product and knowledge in good shape. We have to start from there. If they are not in good shape then it’s useless to scan the competitors.*
The generative mechanism of experiential learning

The generative mechanism of experiential learning reflects the learning that occurs when entrepreneurs create opportunities. Experiential learning generates changes in the behaviour of the entrepreneurs through the actions that they carry out in the venture creation process. This seemed to be the working method for most of the case companies.

This was demonstrated in case 1 when they started selling computers and related equipment (diskettes etc.) in addition to the software they were creating. They soon realised that it was too early to sell computers in the Kainuu region, and that selling computer equipment was a totally different business compared to software.

How the generative mechanism of experiential learning works is rather ambiguous. It is not a conscious effort where the individual or team simply start innovating and come up with great opportunities or formally analyse what they could improve and how they could do so. It seems that this mechanism is partly a conscious effort of gathering information and partly a subconscious effort of processing that information.

Most entrepreneurs said that their ideas come when they have free time on their hands and they are not engaged in a work-related activity. These kinds of situations might be things like doing sports, hunting or just lying around at the summer cabin. Those who reported doing innovative work this way were also not bothered by this invasion of their private time. The entrepreneur in case 1 explains what it means to him:

Some ideas can come from having a good customer and an aim for areas to develop. But quite often we come up with random ideas that we collect in our heads and then when a good situation comes they are reinforced and an idea might emerge that you can build on. ... This is not systematic activity, nor can it be. We don't have... this is not just an ideas shop. We don't have the resources to constantly develop products and create new products. It's not like that – it can't be like that. .

As the quote above depicts, learning spans a period of time. Only one of the companies clearly stated that they understood the processual nature of developing a business. They said that they established the company with only one big customer in mind, but realised that as they did good work for this customer, they
would eventually get more customers which would lead to a better understanding of the market, which in turn would lead to new customers.

One part of the mechanism of experiential learning is failure. What seemed to be important was how the entrepreneurs reacted to these failures. There were basically two ways in which the companies considered failures. The ones who had a negative approach to failure also had less ambitious goals. It almost seemed as though they had given up hope of ever succeeding in building something new. In these case companies failures were seen as having negative connotations. They did not see many positive things coming out from the failures.

The one with a positive approach felt that failure was a way to learn, and saw failures as a positive thing. He did not see them as failures per se but rather as experiments that did not work. He felt that employees should not be blamed for failures; instead they should be encouraged to try new things. The one case that considered failures as part of the business, and as one step on a long journey, also had more ambitious goals and felt that they themselves could influence the future of the company. The way to influence your own future was mainly seen to happen through building your own technical capabilities, instead of focusing on analysing the markets or creating customer demand. The entrepreneur from case company 3 explains learning from failures:

*We have tried to consider them as learning opportunities, rather than sweeping them under the rug. To talk them through and try to think what went wrong and how to avoid it in the future. ... We have not encouraged [failures] but the message should never be given to personnel that they cannot afford to fail. That would be destructive. ... Because in my opinion, no two people are the same, and if something does not work for one person, it might still be the best thing for someone else. So there are no right answers. When we’re trying to decide whether or not to do something, we should think about it and pretty quickly we can find explanations for why one person has succeeded and another has not.*

Based on their previous experiences and how they reacted to them, there seemed to be a difference in the entrepreneurs’ courage to try new things and to encourage others to try new things. The companies that had a negative approach to failures also had little courage to try new things. In their case the learning they had received told them that trying new things can lead to bad outcomes. The company that had a positive approach to failures encouraged their employees to seek new ways of improving existing solutions and to come up with totally new
opportunities. In their case the learning they had received told them that trying new things can lead to new opportunities being created.

Finally, customers were an important part in keeping the experiential learning mechanism moving. When new products were developed, the companies tested them beforehand with current customers through tailored solutions, to gain an understanding about whether they were on the right track.

Customer feedback affects how entrepreneurs change their behaviour. Positive signals show the entrepreneur that there is a need for the solution being built and negative ones show that something needs to be changed. However, sometimes positive feedback can also turn out to be negative (i.e. feedback can produce a false positive). For example, this can happen in cases where positive feedback is received from innovative partners or customers who see the technological benefits but are limited in numbers. As one CEO explains the situation from his early entrepreneurial career in the mid 80s:

> Like I said, we were ahead of our time at that time and that was the reason, we succeeded a little too well, built them in advance, but when Nokia got involved and even funded us a bit, that was the key to us starting to get recognition in the market and getting our first pilot customers and public sector customers, city councils and so on, and that [i.e. the product they were developing] was our first idea. We trusted that that positive signal was a sign that if we developed this idea, because there were no existing solutions, there would be space for us in the market, and we would be able to do it.

However, the company later found out that there was no real need for such advanced software.

The case companies that worked in a close relationship with customers also had the most positive attitude towards trying new opportunities. They also did the development for these opportunities in cooperation with the customers. All of the companies had experienced the fact that doing pioneering work requires large quantities of financial capital, partners and time to succeed. Because of this, none of the companies were too keen on building cutting edge solutions. However, they saw that partnership with a customer gave the new opportunities some credibility and provided capital and hence a possibility to overcome some of these issues.

When case company 2 decided to move into product business, they saw that they should build their software as an embedded system, using professional and closed devices. They had seen the rate of technological development in the field of personal computers and realised that there would be too many changes they
would have to make over the lifetime of the product if they used open hardware systems already on the market. Instead, focusing on closed devices would allow them to have greater control over them. This is a good example of the generative mechanism of experiential learning which enables the companies to make better decisions.

**Generative mechanisms in the supply-side opportunity discovery sub-process**

The generative mechanisms presented create dynamism in the supply-side opportunity discovery sub-process. Through these mechanisms the entrepreneurs create the supply-side opportunities they pursue. These mechanisms are mainly responsible for technology- or knowledge-based opportunities, which were also the starting point for the case companies. The process of opportunity generation is often a long one and not a planned one. It operates in an ad hoc manner, being sometimes active, sometimes passive.

The generative mechanism of technological change creates new ways to create new opportunities. Following these opportunities too early can lead to failure because customers might not be ready for the technologies. Following these opportunities at the right time and with sufficient customer understanding seems to lead to favourable outcomes. When these opportunities and changes in technology are within the customer’s core business (as opposed to being simply the advancement of software technologies for their own sake), it is easier to take advantage of the opportunities. Then the customers have a better idea about what to do with the new technologies. The data showed that the background for most of the businesses was in technological knowledge (if not in technological change per se) but the role of this diminished as the companies matured. They started leaning more towards customer-based knowledge and how to take advantage of the technological changes in their customers’ businesses.

The generative mechanism of market scanning did not play a large role in the case companies. There were no formal ways of analysing where the next opportunities would come from or what would be the best choices under the given market conditions. Rather the mechanism operated on the tacit level and through daily interactions with customers and personnel. It created events which guided day-to-day decision making in the companies but did not clearly guide the strategic-level planning or decision making.
The generative mechanism of experiential learning is the most ambiguous of these mechanisms. There was little, if any, formal learning from the experiences that the individuals had gained. According to the entrepreneurs, most learning happened when they had leisure time or though failures they had had. The way these failures affected the behaviour of the entrepreneurs varied. Some entrepreneurs saw them as learning opportunities and a source of a new beginning, while others saw them as negative ends of opportunities. This mechanism is also mostly a cumulative mechanism, whereas the others are more dependent on the present moment. Learning also occurs over time and as the individual himself experiences things, while in other mechanisms there are more outside factors in play.

All of the mechanisms are described in figure 9 below.

![Diagram](https://via.placeholder.com/150)

**Fig. 9. Generative mechanisms underlying the supply-side opportunity discovery sub-process.**

### 7.4.2 Opportunity creation sub-process

The opportunity creation sub-process represents the activities that bring the opportunities to life. This sub-process reflects how the creation happens, where it all starts and how the process of creation progresses over time. The generative mechanisms that can be identified as underlying this sub-process are the
One important part of opportunity creation is that companies have their own internal will and vision of what they want to do and become. It was clear from the interviews that the company needs close contact with its customers to make its products or services relevant to those customers, but that there also needs to be a strong internal drive about what the product or services should be. A descriptive example of this can be found in case company 3 where this meant that they put resources into developing their skills, carrying out internal research, trying new things and doing things with a long-term perspective. After a merger with a larger company, some of these activities were cancelled. This resulted in some of the workforce leaving. Later, a large corporate customer asked what the case company wanted to be and where they were heading. The representatives of the company had difficulty answering this. There should therefore be a clear vision and an internal drive that creates the identity of the company and keeps the process of creation active.

Not only the entrepreneur but the whole team plays an important role in this process. It was important that the members of the team could freely express themselves. Smaller groups were formed inside the team according to personal preferences and job types, to enable fluent communication and a shared understanding about what the team was doing. It also seemed that mutual respect among the team members was important and kept the creation process moving. Even though new business opportunities might be scanned at all organisational levels, implementation is still the management’s responsibility.

*The generative mechanism of passion*

One thing that has great importance in the success of the opportunities is the generative mechanism of passion. This mechanism represents the intensity that the entrepreneur puts into the creation process. This intensity is not only reflected in the results of the creation process, i.e. how new opportunities turn out, but it also affects the emergence process (to be discussed later, in Section 7.6) through the ways in which the other individuals see the entrepreneur.

There was a clear divide into two groups among the case companies. The entrepreneur in case 3 showed the most passion and those in cases 1 and 2 showed lower levels of passion. This could in part be because of the difference in the ages of the entrepreneurs. The following quote describes how the passionate
entrepreneur in case 3 sees the mechanism of passion playing its role in venture creation:

I think it is based on the fact that we got good guys at the beginning who were excited and young, and they have been drawing information out of us more experienced ones. I think it’s down to the attitude towards the job and the interest and effort they put into the job. And then the attitude that when you have a job you do it well and you don’t have to do it alone – there’s someone there to help you and stuff, so you’ve done it together, they’ve looked after work if someone has a problem, they’ve sorted it out. They’ve spread the papers out on the floor and gone through to find the bug which you just couldn’t find in the code – friends have come to help out. And I don’t have to say “come and work overtime and think this through”, but instead they have wanted to help each other out, and of course take the honour of finding the bug, of course in a positive way showing that we have motivation in place and in our firm we can get things done. There is the good of the company beneath it, so they are not just thinking about their own benefit.

Passion and a strong belief in what you are doing were closely related. This meant that the entrepreneurs believed that problems would find solutions. Furthermore, the more passion they had, the more their behaviour was intuitive. One argument was made, explaining the lack of analysis, which suggested that if an entrepreneur really wants to establish a company, they will manage to come up with figures that will “prove” that the business will be profitable. Therefore it does not really matter what the future holds; it is the perception of the future by the entrepreneur that determines whether he will decide to establish the company.

So the generative mechanism of passion closely relates to intuition. As explained earlier, the opportunity discovery process was very much an ad hoc process. Large amounts of information were gathered and an opinion about future direction was formed. The decision was based mainly on intuition, rather than on analytical calculations. When there were changes in the market (as interpreted by intuition), the changes in execution were also made using intuition. Passion and intuition were the mechanisms that enabled the decision to be made and action to be taken. The entrepreneur from case company 3 explains the role of intuition as follows:

Once information about new opportunities is gathered, there should be clear decisions about where to go. The future is unknown, it is created. If there is
doubt about the future, it can be hard to proceed. You don’t know where to go. Painting a picture of the future builds a vision to follow.

Intuition seemed to be the driving force for the entrepreneurs. The more confident they felt, the more they trusted their intuition. The entrepreneur in case company 1 felt that he had needed to see calculations and plans before he could start the venture; he was also the one who had the hardest time jumping on the entrepreneurial wagon. The ones who trusted their intuition had already had the internal debate and had decided to become entrepreneurs. Later, as the entrepreneur in case company 1 gained more experience, he too became more trusting of his intuition. Interestingly, as the other two gained experience, they started doing more planning, although the role of these plans was not restrictive: rather they were used as a flexible planning tool.

There seemed to be a trend that when the organisations were new and young, they acted upon new opportunities based on intuition. When they grew and became more mature, they started implementing more analytical methods and thinking. This was noticeable in both the age of the entrepreneur and that of the organisation. Part of the explanation could also be the size and maturity of the business. As the businesses have emerged, they have become more concrete and easier to analyse. When there are only raw ideas, it can be hard to analyse just these ideas because the analysis is mainly based on the entrepreneur’s perception of the future opportunity.

The generative mechanism of passion is also closely related to creativity and novelty creation. In the case companies the relationship to creativity was a little mixed. In case 2, the entrepreneur valued creativity but only when it was grounded in the work or products in question. The entrepreneur seemed to think of creativity as arts and crafts, related to designing user interfaces, rather than seeing creativity as an all-encompassing way to think about building software. The following quote by the entrepreneur exemplifies this:

Yes, my relationship is basically really positive to all of those things like creating novelty and activity like that, but as I’ve gained experience, I’ve come to realise that we should not be pioneers in everything. … When we think about our business it has been quite systematic in doing things and just pumping – if we want to make some sort of art out of this, it still needs an engine behind it to power that artistic vision … When we are developing a system, it has been decided that creativity is related to the planning phase and mapping different alternatives – it may be related to something visual.
After that we should be very sensible. In this field of work it [creativity] should be related to noticing what opportunities exist in our current business. Maybe it could mean something else, but it’s rare. And we are not always pursuing new products. We should get one product ready and make business out of that.

Passion is also related to having meaning in one’s work. The entrepreneur in case company 3 compared the passion in his company to the passion in Nokia around the end of the 90s, when the lights were on all night long. When his organisation had encountered organisational changes, the passion had also diminished. When there is lack of passion in the organisation, it means that people leave for other jobs more easily, and those that stay become less focused on work, less productive and less innovative.

What is most dangerous is when individual designers start to become passive because nothing is demanded from them. You get that from people who have been working at the company for a long time, who say that when they had 40 people working there was a commitment to the work but not any more.

The generative mechanism of passion is however not always active in a company. This is seen best when business development happens in bursts. All of the companies experienced the way that at times effort was put into product development, and once it seemed as though that work was running out, the effort was moved into marketing and sales. All of the companies identified marketing and sales as their weakest point. The balance between management functions and engineering functions seemed to be extremely hard to find, as all of the interviewees mentioned that they struggled to find the balance. The quote below, from the entrepreneur in case company 3, shows that the target of passion can change as the organisation develops; however, the intensity of passion seemed to stay the same in all of the companies.

Well, our staff growth was along the lines that for one year there was strong growth and there was a more stable year, then we would get our breath back and then go again. That’s what it looks like when you look back over the past.

When the generative mechanism of passion is strong, people tend to survive failures better, they can learn from them more easily and they are likely to discover more opportunities. When there is passion involved, people are more motivated to push their limits if necessary.
The generative mechanism of expansion

The generative mechanism of expansion makes organisations grow and expand. Whereas passion represents the intensity of creation activities, the generative mechanism of expansion represents the breadth of these activities, i.e. expansion into new markets and products.

The generation of new products was affected by this mechanism. It was the opinion of the entrepreneurs in case companies 1 and 2 that it is more important to keep your feet on the ground than your head in the clouds. New product ideas should have a solid base so that there is no chance of losing the product development investments. The development efforts were mainly unplanned and based on obstacles that were encountered during the work. Ideas generation and trying new things was also seen as waste of time, as this quote from the entrepreneur in case company 1 shows:

*They [setbacks] make you think, “Hey, we need to get serious here.” Human beings are so needy of comfort. Now, we need some ideas guys, people who are always on the go – sure, there are people like that who are constantly developing. But here, it’s the daily grind. We don’t have time for that [new ideas / opportunities]. … We don’t go crazy if it seems that [an opportunity] is not very clear, it should have a solid background. We think it through; we analyse what [the opportunity] is all about.*

The willingness to expand seemed to be relatively low in case company 1. The entrepreneur did not want to be seen in the press or advertise a lot. During the interview he gave several examples of other companies which had a more visible public profile but which had failed. Sometimes it even seemed as though he associated drive, or ambition, with failure.

This negative attitude towards expansion seems to be strengthened by negative examples of companies that have tried to grow but failed. The entrepreneurs have interpreted these as examples of growth and what it results in. They seemed to believe that if one tries to grow, one will fall, as the entrepreneur in case company 1 explains:

*We are not necessarily aiming to grow, when you have examples like [Company x], the firm that grew too rapidly. That was like, how many years was it [in operation], and then it went down. That made headlines in the papers. So that was an example for us that if you do what they did, you’ll end up like that.*
However, sometimes this slow expansion seemed to have paid off:

But the recession came, and boy were we happy that we didn’t have many [employees] when we paid the salaries that day... [We were well-placed because instead of lots of new product development] we had [software] maintenance work and those kinds of things. All in all, the workforce was well-adjusted to the recession that we went through.

The entrepreneur felt that in bad economic times this modest expansion has meant that job cuts have not been necessary, and that has created stability.

The lack of desire for expansion seemed also to be noticeable in the self-esteem of the company and in their product release cycles. The entrepreneur in case company 1 continues:

Then I don’t know about the young guys here, but of course when you have a small bunch like this, there can’t be many stars in there. When we make these products, if it had gone like I expected, in my opinion the [new product] should have been ready really a year ago.

In this case, despite the delays in the release schedule, the entrepreneur was relatively content with the situation. This would indicate that the company has reached the real goal at which it is aiming and expanding the business is not among their interests.

The lack of expansion is probably also related to lack of resources. As all of the entrepreneurs had a technical background, they were involved with day-to-day software development routines. It was clear from the data that the entrepreneurs spent most of their time on activities that had clear short term benefits instead of focusing on more strategy-level development. The entrepreneurs who spent more time on strategy-level thinking were also more interested in developing their companies further by improving their quality and finding new business opportunities. It seems that willingness to feed the generative mechanism of expansion comes down to the personal motivation of the entrepreneurs.

The desire for expansion amongst the employees can quickly diminish if there is a lack of support for new ideas. If there is fear and doubt, and new ideas are shot down, then employees quickly learn that new opportunities are not worth developing. The entrepreneur in case company 3 explains his thoughts on the topic:
Well, it is quite hard. Ideas are rare and they get shot down – no matter what the idea, it always gets shot down by the management, it doesn’t matter what it is related to. If it’s about internationalisation, there’ll be one of the three owners saying “no, lots of people have failed in going to Sweden; I think we should stay in Finland.” So they kill it before you have a chance to explain what the idea is, and this is most dangerous when it comes to new innovations.

All of the companies saw that the rural location was an important part of their business. They were in the business not only because they wanted to make money, but because they wanted to provide jobs in the region and for their friends. It is hard to tell whether this is part of the identity of the individuals or the regions. The entrepreneurs explained that the rural dimension can also be seen as a competitive advantage and as a way to restructure the value chain. It is in a way a form of “domestic off-shoring” which brings the benefits of lower costs compared to companies operating in the high-tech hub areas.

The generative mechanism of becoming an entrepreneur

The generative mechanism of becoming an entrepreneur creates the entrepreneurial identity for the individual. Becoming an entrepreneur consists of actions that create entrepreneurial thinking and give ways of doing entrepreneurial tasks. The process of venture creation often only starts when this mechanism has had the chance to change the identity of a person.

Becoming an entrepreneur often starts with an individual becoming alert to an opportunity to become an entrepreneur. The alertness to the opportunity to become an entrepreneur often comes before the business opportunity. In all the cases examined there can be clearly seen either the desire to become an entrepreneur or a desire to change something in the current situation of an individual. It could be said that first there is the desire to change things and become an entrepreneur, and the opportunity becomes the vehicle of change.

In case companies 1 and 2, the initiator of change was to be found at the entrepreneurs’ previous employers. Both of the entrepreneurs felt that they did not want to stay working in the companies in which they were employed at that time. The route from these first thoughts to finally establishing the firm was long and different in each case, but the foundation for change lay in dissatisfaction. Both of these entrepreneurs had discussions at home, and with possible co-workers and
co-founders, financiers and public officials (though these did not function as incubators as such at that time). The path was not a short one because the entrepreneurs had few examples from amongst close family about entrepreneurship, and needed time to think about the change.

In case company 3, the entrepreneur had established his first firm almost by accident. He had applied for a job at a company, but after a few discussions, had ended up establishing his own firm. The path was a relatively short one because the entrepreneur had seen entrepreneurs in his close family and knew that entrepreneurship was a viable option for making a living. Later, after the first firm had become inactive during his studies, he had often said aloud that he wanted to establish his own business. He had also attended various events related to entrepreneurship and business. According to the entrepreneur, after saying and doing all of this, he had no option but to establish his own firm:

*I think in this latter case it was more of a process of drifting that led me to entrepreneurship. As in many other things in my career it has been about being in a situation and grabbing an opportunity or job or whatever. I haven’t had a plan to do something particular; it just comes along in the moment. … In the latter case I had this desire to become an entrepreneur but when you think about the whole thing, I think it’s more about drifting.*

One aspect that defines the generative mechanism of becoming an entrepreneur is how easy it is for an individual to start a business and create new opportunities. The ease of starting the business varied a great deal depending on the histories of the entrepreneurs. Those that had previous experience felt it was easy to start the business, whereas for the less experienced ones this required transformation of the individual from an employee to an entrepreneur. Some entrepreneurs received help in this change from being an employee to being an entrepreneur from entrepreneur training courses. The more experienced entrepreneurs felt that these courses were mostly a waste of their time, indicating that they had already “become entrepreneurs”.

The nature of the process of finding the business opportunity was in all cases a combination of an alert entrepreneur and the collection of enough information to come up with an opportunity. In all the cases examined it was a process which could be best described by the saying “chance favours the prepared mind”. The following excerpt from the entrepreneur in case company 2 describes the process well:
It was about searching, when would an opportunity be found, I had gone through in my head, many think about establishing a company and entrepreneurship, and then there is that certain insight, like in the first firm there was the insight of intelligence behind design. Develop that idea further. It was basically having your eyes and ears toward entrepreneurship and then discovering the meat around the bones, that good idea there. ... I think that if you become an entrepreneur, take a bank loan, establish a firm and think you’ll make it – I think you have to have your self-reflection done, and know “this is what I want”, and through that have courage. Because you won’t have the courage if you haven’t thought it through and if you don’t also have some basic skills. When I was establishing my firm, I thought about the business training and industry experience that I had, “well at least someone in the gang should have it”. That these are the central building blocks before you have the courage. The idea, and the skills to realise it. I had seen some of it already.

After the individuals had “become entrepreneurs”, they did not feel the same kinds of limitations or obstacles in developing new opportunities. They saw more opportunities within the software business and were better able to react to them. Creating the business enabled the entrepreneur to see where the business was going. It is totally impossible to know before this what the situation in the market is.

While the generative mechanism of becoming an entrepreneur can be clearly linked to the early stages of establishing a firm, it also spans over the lifetime of the firm. After establishing the firm, becoming an entrepreneur is represented though renewal of the firm. Entrepreneurship becomes not only about creating the firm but about creating new opportunities and improving old ones.

**Generative mechanisms in the opportunity creation sub-process**

The generative mechanisms in the creation process are mostly related to the actor in the process. The generative mechanisms of passion, expansion and becoming an entrepreneur all stem from the individual and his motivations.

The generative mechanism of passion is about the intensity that the entrepreneur puts into the creation process. This was reflected in the entrepreneur having a strong belief in what they were doing and them relying mostly on their intuition when making decisions. The companies where this mechanism was most active also took a more creative approach to their whole venture creation process.
They were more inclined towards doing new things, creating better value for their customers and in general improving their current position in the market.

The generative mechanism of expansion is mostly related to growing the company and expanding into new markets or products. None of these companies were aiming at growing their companies internationally or nationwide. Rather, they wanted to stay local; hence this mechanism did not play a significant role in the companies. The reason for this was probably in the backgrounds of the entrepreneurs. The image the data built up of them was that they were mostly honest, down-to-earth and somewhat disappointed at working at a big company. This could affect their behaviour so that they had little desire to grow. However, if a company wishes to grow, its focus should be keeping this mechanism active.

The generative mechanism of becoming an entrepreneur is mostly an interpersonal mechanism in which the entrepreneur creates himself an entrepreneurial identity. It generates events that are related to the alertness of the entrepreneur. Through this alertness the individual becomes aware of the opportunities around him. This also relates to the ways of acting which are expected from an individual when he is an entrepreneur. Despite the name of the mechanism, this mechanism is never finished (i.e. one does not become an entrepreneur after doing certain things). The mechanism changes the entrepreneurial identity and what it means to be an entrepreneur throughout the lifetime of the entrepreneur.

These generative mechanisms related to opportunity creation are depicted in figure 10 below.
7.4.3 Summary of the actualisation process

This section summarises and connects the previously described sub-processes to the whole new venture creation process. The actualisation process represents the actions through which opportunities turn into ventures. There are two sides to the process: the supply-side opportunity discovery sub-process and the opportunity creation sub-process.

Within these processes there can be identified generative mechanisms which create events. These events can be minor or major, for example, employees finding bugs in the source code, technologies being introduced or failures in introducing new products.

The supply-side opportunity discovery sub-process is responsible for discovering the new ways that are out there to create new opportunities. These are opportunities that are discovered and are not yet validated through market acceptance. The basis of these opportunities is in domain-side changes and perceptions rather on the customer or demand side. The opportunities can come from events created by the generative mechanisms of technological change, scanning the market or experiential learning.

The opportunity creation sub-process is responsible for turning these perceptions about opportunities into reality. The process is related to the more or
less concrete steps of creating the artefact, rather than on social elements, which are also important in building the venture, and which are covered in the socialisation process covered in the next section. How the entrepreneur creates the ventures is determined by the generative mechanisms of passion, expansion and becoming an entrepreneur.

Table 11 below summarises the sub-processes in the actualisation process, listing what kinds of generative mechanisms there are and how they divide between the supply-side opportunity discovery sub-process and the opportunity creation sub-process.

Table 11. Generative mechanisms in the actualisation process.

<table>
<thead>
<tr>
<th>Supply-side opportunity discovery sub-process</th>
<th>Opportunity creation sub-process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological change</td>
<td>Passion</td>
</tr>
<tr>
<td>Market scanning</td>
<td>Expansion</td>
</tr>
<tr>
<td>Experiential learning</td>
<td>Becoming an entrepreneur</td>
</tr>
</tbody>
</table>

7.5 Socialisation process

The socialisation process represents activities which take place between the entrepreneur and other individuals. Typical activities in the socialisation process are learning about the preferences of other individuals, convincing other individuals and creating a position for oneself in the network of individuals and companies.

The socialisation process can be split into two separate sub-processes. The first sub-process is the demand-side opportunity discovery sub-process. The discovery of new opportunities can happen on the supply side, as was shown in the previous section, or it can also happen through activities with customers which represent demand-side opportunities. This sub-process is about the discovery of new opportunities based on customer demand and expanding the social capital of the entrepreneur.

The other sub-process in the socialisation process is the integration with community sub-process. This is about activities that get the entrepreneur connected with customers. This process is about connecting the entrepreneur and the venture more tightly in the social sphere. It involves getting other individuals interested and committed to the venture in order for the venture to get a chance to get accepted (through a process of emergence) into the domain.

Figure 11 below depicts the relationship of the two sub-processes.
The generative mechanisms that can be identified as underlying the demand-side opportunity discovery sub-process are the generative mechanism of networking, the generative mechanism of demand search and the generative mechanism of demand evaluation. In the integration with community sub-process the underlying generative mechanisms are the generative mechanism of belonging to a community, the generative mechanism of persuasion and the generative mechanism of partnering.

I will next describe the processes and underlying generative mechanisms in more detail.

### 7.5.1 Demand-side opportunity discovery sub-process

The demand-side opportunity discovery sub-process reflects what kind of opportunities should be created from the customer’s perspective. The demand-side opportunities are entrepreneurs’ perceptions about opportunities that could exist in the market based mainly on customer demands about what would benefit the customer and what the customer would be willing to buy. The generative mechanisms that can be identified as underlying this sub-process are the generative mechanism of networking, the generative mechanism of demand search and the generative mechanism of demand evaluation.

Much like the supply-side opportunity discovery sub-process, the demand-side opportunity discovery sub-process is also a mostly ad hoc process. Pieces of information are gathered from various sources and not analysed in any formal
The knowledge slowly builds into an understanding of what is needed in the market through discussions with customers, the management team, employees and other stakeholders. What is important in these discussions is trust, which enables the possibility for participants to talk freely about ideas that at the time may seem random and irrelevant. Finally the knowledge accumulates into an idea about an opportunity and hence a new opportunity is discovered. Most of the demand-side opportunities in the case companies were related to evolutionary product development opportunities, rather than opportunities about revolutionary new products.

The generative mechanism of networking

The generative mechanism of networking creates events that allow new connections to be made between individuals. “Networking” here means merely that connections are created; the term does not mean that there is necessarily any business activity between the individuals.

In small communities like the ones from which these case companies originate, everyone tends to know each other. This was confirmed by the entrepreneur in case company 2 when he was asked about how well he knew the public business developers in the area:

Well yes, in this area everyone pretty much knows each other very well.

Networking was done mainly through personal acquaintances and relationships. The strategy in networking was to network with people who lived in the same area or where there was an existing relationship. It seems that this networking is a mix between strategic and ad hoc networking. The entrepreneur in case company 2 describes how the relationship with the main customers has evolved:

Well for the most part the central partners have come through personal relationships after all. Possibly the majority of them have come through my network. … But for the most part the earliest partners have been a friend of the CEO for many years. There’ve been shared hobbies in the Rotary Club or [both have been members of] IT-Pooli or wherever. We’ve been to educational events together and so on, and that’s how many of these networks start to form.

The role of networking services was not considered to be very important for the Kajaani-based companies. In the region they have the IT-Pooli partner network,
which is a network of ICT organisations. IT-Pooli had little effect in building the networks of case companies 1 and 2. This could be because both of the firms and entrepreneurs had already been in the industry for a long time and had already got to know the individuals in the area during their career.

Case company 3 did not participate in a similar network, probably because there was no such network in the area at that time. However, the entrepreneur in case company 3 did mention that he liked meeting new people and sharing opinions about future developments in the industry with these people. He participated in several of the events held during the lifetime of the project and, as the following quote suggests, likes to participate in events such as this in general:

*But it [networking] is like, if there is a seminar in Oulu, I’ll be very happy to go and talk to Topi Vilmi [a successful person in the Oulu ICT scene] at the dinner table, try to get there and listen to what they think, what is going on and such. And in general, meet new people.*

The generative mechanism of networking was present at all levels of the organisation and this was considered to be especially important in the software business. The analysis showed that the lower organisational levels must be able to talk and connect in order for the business to thrive.

Networking was also important from the perspective of recruitment and team building. This meant knowing the right people and being able to recruit the most talented individuals. Giving responsibility and respecting the current employees was seen as the most important way to gain access to talented individuals. The entrepreneur in case company 3 explains the situation in his company:

*Yes sure, management can talk and network. But to us, many people have come because our people have known the right people [new recruits]. They have talked to them and they have come to us because they have heard good things from our employees. And we have got some really good guys to work for us like that.*

*The generative mechanism of demand search*

The generative mechanism of demand search creates actions aimed at finding new demand from the network of individuals that surround the entrepreneur. The purpose of this mechanism is to find large numbers of possible demands, not to evaluate that demand.
The initial demand and opportunities that the companies were founded upon came from customer work. In case company 2, the entrepreneurs had decided to form a company and the idea was fairly clear right from the start. The foundation for the idea was built upon knowing that there was a need for software developers in the region. This need was recognised by working in a close relationship with their customers. Through the collaboration with the customer they were able to see new opportunities in the market. Through interaction with customers they found ways to differentiate their offering and discovered opportunities to build a more product-based offering. The entrepreneur explains the situation:

*We got a rough overview pretty easily. It came in part through existing customers, and we didn’t start finding competing solutions with these customers but rather gaps that we could fill. ... It was based on professional skills and reasonable pricing. As we developed this business, we were able to analyse these customer markets and how we could position our skills and products. And that was the basis for our product development ideas.*

In case 1, the entrepreneur was able to carry out ad hoc marketing research while working for his then employer. He had done some software development as a freelancer for the customers in his previous job and noticed that there were different kinds of software needs that he could fill.

All of the entrepreneurs talked about the initial opportunity with a few of their potential customers or customers of their then employers. What was interesting was that they did not talk to too many customers or customer segments. It could be said that they did not cover the full spectrum of opportunities; rather they scanned until they could find one or two customers and decided that there was demand in the market. In part this analysis of customer needs was also based on experience of the markets and lack of competition in the market space. When asked about how much they talked about the opportunity to others, the entrepreneur in case company 2 replied:

*Not really at that time. Of course with financiers, you had to open it up a little bit, but it seemed so clear what it was and how we wanted to do it. I knew that there was no such thing on the market. We didn’t do too much research. It might be that we looked at a few products which were sort of similar but we didn’t find any examples of similar products.*

When the companies started expanding their business, they started doing more analytical opportunity searching. The entrepreneur in case company 2 expanded
their business from software outsourcing to their own product platforms, and for this transition they talked to more customers. This was a process that started building up slowly through subcontracting work; hence it was not a clear strategic change of direction.

*It was around that time that we started thinking about these product ideas – we started thinking about whether there would be demand among customers. And we made a connection between our project and subcontracting work. That is how it came to mind. Gaps in the market where we could “make a go of it”.*

If we ignore the initial business idea, most new demand-based ideas came from partners. Partners networked with other companies and received information about market demand. Through these partnerships, the partners were able to see where the world was heading, and gain insight into how things were being done abroad, what kind of products and services were emerging elsewhere and how the partners were planning on building their business. Typically these opportunities were new features for a product or niche applications.

Searching for new demand was mainly informal and unplanned, and based on working with stakeholders. These activities were done mainly in the early stages of product development when new customers and partners were being acquired. The activity could be described once again as an ad hoc activity in which few plans were made as to how to search for demand among partners.

When it comes to seeking information from customers, at first the relationship is often one way: the producer tries to get information from the customer. When the case companies had close relationships with customers, they got information from them more easily and the process became more voluntary, with customers providing information unprompted to the producers. This requires trust to be built, which usually happened over a longer period of time. The entrepreneurs felt that this was an unplanned process that the individuals in the company did continuously but subconsciously.

When the case companies were engaged in a customer relationship and carried out their work passionately, customers were interested in sharing knowledge. The customers felt good because they could be part of something successful and gain reputation and glory along the way.

On the other hand, there did not seem to be a true desire to understand the customers and their demands at an in-depth level, to understand what could be done to benefit the customer and create competitive advantage in the market. One
of the companies even felt that they did not need to spend any more time talking with customers. This was because technologies have developed so that remote work has become possible. They believed that this would replace customer contact for them.

The generative mechanism of demand evaluation

The generative mechanism of demand evaluation creates actions that ensure the value of demand and opportunities. It is an iterative process with the customer to ensure that both parties’ needs are met, not only the customers’ or the entrepreneurs’. It differs from demand search in that this mechanism does not create new demands; it aims at determining the value of already noticed demands.

It is important to note that while listening to customers’ demands is important, this does not mean that a company should become a slave of the customer. Customers seldom even want that. Of the companies interviewed, none were pure slaves of their customers. All of the entrepreneurs interviewed said that they had followed their own path. This requires a relationship with the customer where the customer not only receives but also gives back.

One important part of the valuation of demand is that the producer has to reveal a certain amount of information in order for it to be evaluated. There were some differences in how the entrepreneurs shared their ideas about opportunities. Some were very open and felt that this was the best way to receive feedback for the ideas. Others felt that it was not a good idea to share ideas at an early phase. The latter group also had fewer customer contacts and tended to work on the ideas by themselves before launching them. Unless a new opportunity was considered highly valuable or a threat of information leak was thought to exist, new opportunities were often tested with existing stakeholders to see if they had any value.

A lot of valuation was also done through weak signals and by gathering a large amount of information about demand. The case companies did not usually evaluate specific information, i.e. ask how many units of a certain product the customer would buy. The generative mechanism of demand evaluation could be described as happening in an ad hoc manner, like many of the other mechanisms. It often does not happen in official meetings where the atmosphere may not be as open and talk might not flow freely. Official meetings have their place as a decision making function but they lack the important function of finding out
about new possibilities. The entrepreneur from case company 3 explains how he determined what was valuable:

Well these normal meetings [with customers], when following stuff at steering groups and then there are these meetings which are not held that often where we think about what to do and plan the future together. But the most valuable feedback that I experience is that when I have the opportunity to be involved in the practical work and sense the unofficial signals from there – I think that is the best information.

When the entrepreneurs had discussions with other people about whether they should start the company or not, they had them mostly with people close to them. Most discussions were with the other individuals who were involved in the establishment process. The role of immediate family was in most cases not relevant. It was mostly a question of asking whether it would be OK to establish a company. In all of the cases this was OK, and hence the role of immediate family might seem trivial. Had it not been OK with the immediate family, this might have had a noticeable effect on the data.

A great deal of information valuation was carried out internally in the company. This was done by talking with software designers every day in an informal manner. It involved asking what they thought about new technologies, how they thought the company should proceed in a certain matter, etc. This shows that the interconnectedness of the developers to the other professionals in the field is essential in gaining an understanding of where the field is heading. Information is shared on multiple organisational levels, and entrepreneurs require information from all of these levels to make educated guesses about where the future is heading. The entrepreneur in case company 3 continues:

It’s that tacit knowledge once again: when I when I walk around in there, that’s where it’s gathered, and then we talk, not in official meetings or anything, but just normally. So that if I want to know what is going on with a major customer, I talk with the guys here about what they’ve heard – these guys who are sitting there daily with the the customer’s designers, and talk to the customer about what they have heard. In official meetings I get a pretty narrow picture. When I go to a team leader, go and have a coffee, I get a much better picture.

When the opportunities were just raw ideas that had not yet been stabilised, they were mostly developed internally. This internal development usually involved the
management team. In this process the opportunities often changed in form and eventually shaped into an opportunity that could be discussed with a customer. The entrepreneur from case company 3 explains his view of the situation:

It [an idea/opportunity] can be very raw at the beginning – we then start bouncing it around with a few people. We circulate it via email so people can comment on it, and the idea becomes clearer. If it gets enough plusses, we start taking it forward. It often starts from a very raw idea and develops into a real thing after we think it through and it changes form from what it was originally.

When ideas about new opportunities were received from customers they were considered to be better than the ones that were invented in-house. The ideas from customers were seen as more grounded to demand and hence as having better business potential. Although some of the in-house ideas seemed “obvious”, companies had experience which said that it was better to talk to customers about the ideas before implementing them.

Talking with customers who had also become close friends was considered to be the most important source of inspiration and testing ground for new ideas. Discussing new ideas was seen as a possible way to enhance these relationships. Conversations with these individuals were not necessarily company-specific but were instead broader. Despite this, the entrepreneurs felt they received great help from the conversations. These relationships were based on trust that was gained by having a common past built up over years in business life. The entrepreneur from case company 3 describes the situation in his company:

So there is trust. I think that is the main reason we have a business relationship together with these guys who have worked with us and the projects have gone well… And that leads to open and honest discussions. And it’s pretty hard to measure in Euros, but it is pretty invaluable if you have something like that.

The role of and benefit of public business developers varied depending on the experience of the entrepreneur. Those that received help from them at the beginning of their entrepreneurial career felt that they benefited from them. Those that had previously established a company felt that they did not get any additional help from them.

The most experienced entrepreneur, in case 2, had talked with several public developers, business partners and financiers. He felt that the financiers were the
only party from which he received some help in the establishment process. He also said he received help from members of IT-Pooli, where he could have serious discussions with people who knew something about the industry. The entrepreneur describes his situation as follows:

*There were these organisations, TE-Keskus and Finnvera, and some advisors from there, but I felt that they were more like officials. It was just basic theories and common truths in the things that I heard from them and the ways we discussed, and I really didn’t get much from it. Maybe they allocated us a bit of money, so I guess I managed to get them convinced. So maybe the benefit came in that way: they believed they should give the venture some money.*

**Generative mechanisms in the demand-side opportunity discovery sub-process**

The generative mechanisms in the demand-side opportunity discovery sub-process are related to the interconnectedness of the entrepreneur and other individuals in society.

The generative mechanism of networking expands the network of an individual. It is responsible for new introductions and connections between individuals. It is about getting to know different people, and different people getting to know you. In the case companies, this networking was mostly based on personal connections, rather than on strategic-level development of one’s network. The role of networking services (e.g. IT-Pooli for these case companies) was not very important; however, this could be due to the individuals being old entrepreneurs and already having established their networks.

The generative mechanism of demand search is about getting ideas about what potential customers could be interested in buying. This happens through interactions with customers, partners and other possible stakeholders. In the case companies, the entrepreneurs had a good start because they could search for possible demand while working at a company in the same industry.

The generative mechanism of demand evaluation creates an understanding about how valuable it will be to pursue the opportunities discovered. This is a mechanism that requires dialogue with other individuals. Before the opportunities or ideas are developed, they are often discussed first and foremost internally in a company. After they have been developed further, the opinion of customers is
heard, to evaluate whether there is demand or not. This mechanism also has ad hoc properties because the majority of this mechanism’s working happens subconsciously, listening to weak signals in the market.

These mechanisms are depicted in figure 12 below.

![Diagram](image-url)

Fig. 12. Generative mechanisms underlying the demand-side opportunity discovery sub-process.

### 7.5.2 Integration with community sub-process

The integration with community sub-process represents the mechanisms through which the entrepreneur positions himself in society and creates his value for others. In software business the “others” are mainly customers, other software developers and software entrepreneurs in the ecosystem. They are also the individuals who are part of the geographical community, and this perspective seemed to matter a great deal in the case companies.

The generative mechanisms that can be identified as underlying this sub-process are the generative mechanism of belonging to a community, the generative mechanism of persuasion and the generative mechanism of partnering. Whereas the mechanisms in the demand-side opportunity discovery sub-process created events that unfolded into new opportunities, the mechanisms here create events which close opportunity windows, get commitments from other individuals and hence turn opportunities into ventures.
The organisation of these mechanisms at different levels of the organisation varied. The organisations which had these mechanisms at all or most organisational levels seemed to be more willing to cooperate with customers, whereas those that had them at only one or two levels (typically the management level) typically had a looser relationship with their customers.

The generative mechanism of belonging to a community

The generative mechanism of belonging to a community creates events that make the entrepreneur and the company worthy members of a community. A company has to create its position in the community and ecosystem, and similarly individuals need to find their place.

All of the companies had a strong incentive to stay in the rural area in which they had grown up. For two of the entrepreneurs this meant staying in the region; for the other it meant moving back to the region. For case company 3 there was no significant software ecosystem to be part of in the region. The closest competitors, partners and educational facilities were some 30 to 40 kilometres away in Ylivieska and Haapavesi. For the Kainuu-based companies there was already a small software ecosystem in the 80s. For case company 1 the ecosystem was smaller but by the time that case company 2 was founded (some 20 years later), it had grown larger.

It was clear from the interviews that each region has a story about what it means to live and work in the area. In both of the rural areas, income levels have been lower than the average for the country, and this showed also in the amounts the companies charged their customers. All of the companies mentioned that they provided good value for relatively low costs. The entrepreneurs were also humble, honest and repeated many times that the community was an important part of why they had stayed in the area. It was clearly seen in the interviews that the entrepreneurs were not only after money. The entrepreneur in case company 1 explained the situation prior to when they had established the company:

... Sure, there was a temptation to go south ... But no, not the south, not Helsinki or anywhere like that – it wasn’t tempting. I was immediately thinking, if it is only possible [to stay in Kajaani], and then when there was this opportunity... and then it struck us that we can secure jobs for everyone else, by first securing our jobs, then jobs for others as well.
In both of the Kajaani-based cases the purpose for founding the company was to secure jobs for friends and co-workers. In case company 3 the motivation was not as clearly based on securing jobs. For all of the entrepreneurs, one of the main motivations for establishing their company was that it would enable them to stay in the region. When the entrepreneur in case company 1 was asked about his expectations, values and plans for establishing the company he continued:

In terms of values, it is the customer, be here and honestly earn money. Sure, at the start there was the idea in the back of my mind that I might be able to retire at thirty, or forty, but I don’t know. My expectations were not that high. To be honest, the aim was to get bread on the table and make sure that the work stays in this area – that was the first stage. And then we started thinking about other aspects. But that was the first idea: do my work here, get bread on the table, get to stay here.

Developing the company was considered to be easier in the rural areas because employees tend to stay at the same job longer. Salaries are also lower, which make it possible to sell at lower prices. While the companies were committed to staying in the area, they did mentioned a “longing” to open a branch in the south to get more sales and be closer to customers. However, it became clear that activities to create a southern presence were not undertaken in any strategic way.

Staying in the region and not switching jobs can have drawbacks when it comes to networking with other companies. Employees that switch jobs can be a source of new networks and practices. Staying in a rural region can also diminish a customer’s interest in interaction simply because it takes too long to travel there. The entrepreneurs mentioned that it was also a hassle to go to meet customers because of the distance issue.

The communities in which the case companies interacted differed between the case companies. The Kainuu-based companies had their main customers in the same geographical region, whereas the Nivala-based company had few customers in the same region. It may not, therefore, be important to belong to the geographical community. The community which a company belongs to can also be a professional community, as was the situation with the Nivala-based company in case 3.

There are other ways to integrate within the community apart from doing business. The entrepreneur in case company 2 had educated their workforce in new technologies in order to get connected within the area:
I’ve been organising adult education to get more software developers, where people from different industries are educated in software development. I think I’ve been involved in these courses in all of the companies I’ve been involved with. Some of these people work for us; some have gone to work for other companies. And so they know us there already – it’s like having a living business card there. And public officials have been happy.

The generative mechanism of persuasion

The generative mechanism of persuasion is related to the more conscious activities that the entrepreneur performs to make others see that he is a person with whom they should do business. This is almost analogous to sales but differs from the point of view of the outcome. Sales is often seen as manipulation through which only one side gains. Persuasion, on the other hand, should be seen as a process in which both parties gain.

Taking the initiative is one of the key components in this generative mechanism. The entrepreneur is required to take the initiative in order to “get the ball rolling”. When establishing his business, the entrepreneur in case company 3 just had the idea that he wanted to establish a business, but he had no idea what he wanted to do. He first had to persuade the company in which he was working that he was a trustworthy person on whom they could rely, who could “do the job” and would be able to provide additional value to the company. During this process, the entrepreneur and the company came up with an idea about what the entrepreneur could do in the rural region. So the generative mechanism involves not only persuasion about the business, but also persuasion about the person.

“Acting as if” was an important part of the generative mechanism of persuasion. This means that the entrepreneurs acted as if they had the resources to do a project, even though they were not at all sure about their situation. One of the entrepreneurs explains a situation which arose when they were making a deal about a new software system:

And when I was selling to a major customer, it was hard to swear when someone was asking “Can you really do this?” You had to [say “yes”], you had no idea what it was all about but you can’t confess that. So you had to say “Of course!” and the customer would say “Do you understand what you are promising?” and I said “Yes, I know that if we don’t pull this off, we are screwed.” I said it like that. “But it will succeed – you can count on us”. I
didn’t have a clue how to do it or who would know how to do it but I knew that we had people among our staff who could do it. I knew I could rely on that. So it was a grey area when I was talking to him – I didn’t have a clue if we could really pull it off, but I knew that if our people couldn’t do it, no one could. It takes skill when surprising situations like this crop up: you have to be ready to speak up and not lose trust in the customer’s eyes.

The “acting as if” behaviour is also reflected when the entrepreneurs talked about their goals. Although the goals of the companies varied, they all operated mainly in the domestic market. When there were talks about foreign operations, they said they would go there if the situation arose. They did not have a strong motivation of their own to internationalise. This would indicate that they were trying to be part of the software business by identifying themselves as international and growth-oriented when talking, while in reality they had little intention to internationalise and aim for hyper growth.

Persuasion was not only about persuading customers about the great business opportunities. It was also persuasion that the company would be a capable business partner. The entrepreneur in case company 1 said they had done things pretty much “their own way” throughout their lifetime. This was reflected back when had been trying to form partnerships with other local companies. According to the entrepreneur, they had difficulties convincing others that they were a good and capable company to do business with.

The way the case companies communicated with customers was through technical specifications and documents. The entrepreneurs did not mention selling “the feeling” or seem concerned with such concepts. More than anything else, it seemed that selling was based on facts about the product, technical specifications and interfaces. As was discovered earlier, all of the companies would initially convince their customers through their technological excellence. If the customer is also a technical buyer, this can be sufficient. The customer can figure out what can be done with the technology. But if the customer is not a technical person, it can be hard to see the benefits that can be created with that technological excellence. The entrepreneur in case company 2 explains how they typically establish new connections:

Well, it’s mostly documentation and on top of that interacting with them so that if not everything is there, they can ask. If we’re thinking about device manufacturers or system integrators then it is pretty much PowerPoint presentations and so on, where we tell them about our products and ideas.
and of course the application interfaces must be there if they communicate with another system. Then it must be clear what kind of information is transferred, or if it is built on top of a device manufacturer’s platform then we must know what that is. Then we just define the requirements and manufacturers deliver the gadgets to test, and we see if they work.

Personal networks were an integral part of the generative mechanism of persuasion. All of the companies had close personal relationships with their customers and they were able to convince their customers before they established their company. Personal relationships also played a key role when case company 1 was establishing a service contract with a hardware supplier. Through the entrepreneur’s contacts he was able to make a good deal faster than without the contact. The entrepreneur was also reluctant about cold selling to customers as these quotes show:

The first customers we received came through personal contacts and relationships. ... But our principle has been that we don’t do the cold calling type of selling. We didn’t do that, and we didn’t go to any trade shows. Now that we’ve come up with these new products, we’ve had to change that, so we’ve been to trade shows and we’ve done some cold calling too.

When establishing the companies, the entrepreneurs talked (in varying degrees) to different public and private parties. How passionately the entrepreneurs acted in the founding process was also reflected in how much they talked about the opportunity beforehand. The ones who pushed the venture passionately forward, did not talk to many consultants or seek help or confirmation for the process. On the other hand, the ones who did the most analysis also talked with more people to get reassurance for their idea. Most of the feedback the companies received from the public officials was positive and encouraging, however most entrepreneurs felt that they did not receive a lot of help with the process.

Persuasion in the case companies happened mainly through actions (as opposed to through plans). The role and use of written business plans in persuasion was conflicting. Their main purpose was to show financiers what was going to be done in the new business. They were not written for the company itself as a guideline. It seemed that the business was first planned in the entrepreneurs’ heads and then stabilised by the entrepreneurs writing it down.

As the companies grew they were also expected to do things more professionally. This included drawing up more formal contracts, hiring lawyers to
carry out contract negotiations, hiring middle management and creating more
defined processes than in the beginning. These requirements came from larger
customers who had similar mechanisms in place already.

This mechanism also affects daily interaction with current customers through
the interactions of software designers. While there are interactions at the
executive level as discussed, the interactions at lower organisational levels must
also work. The lower levels are where the implementation work is done, and these
levels are essentially responsible for the deliverables. The entrepreneur from case
company 3 explains how they convince customers:

Well there are many levels. We have the practical, designer-level cooperation
which the software designers do, and they are in some ways the best
marketing people here. But then there is the sales organisation that does
sales. And these bigger policy definitions go through management. These are
really the three main forums for discussion. Designers interact with
customers every day, sales once a month and management once a year would
be the timescale of these.

The generative mechanism of partnering

The generative mechanism of partnering closely relates to the generative
mechanism of networking. Whereas networking is about gathering many
connections, partnering is about creating deep connections. The partnerships that
are created go beyond a normal customer relationship. They involve more
information sharing and co-development of both of the companies.

There were multiple levels to be identified within the mechanism of
partnering. The deepest cooperation was done with the main customers. The level
of commitment with these customers could be best described as co-evolution. The
cooperation seriously affected the future of the case companies and in some cases
the future of the partner companies. For the partner companies the case
companies were commonly only a part of their whole business, whereas for the
case companies, the cooperation represented a major share of the business. Deep
partnerships also involved high levels of trust and commitment.

Partnership with hardware suppliers was also essential for the case companies.
All of them did software outsourcing work close to the hardware. This was more
important in the early 80s in particular, when the number of hardware suppliers
was relatively low. At that time it was also harder to do software development
unless there was a close relationship with the hardware supplier. Hardware suppliers were one of the key types of organisation to cooperate with because software development of the sort that the case companies were carrying out (embedded and tailor-made) often requires an understanding of the hardware as well.

At low partnership levels the cooperation was limited to doing knowledge sharing and software development with similarly sized partners. These lacked the long-term commitment that was involved in the deeper partnerships.

The formation of partnerships is also affected by changes in technology because the evolution of technology has changed work habits over the years. Before the Internet and mobile phones were around it was almost impossible to work remotely, hence you had to stay at the customer’s office. With the Internet and mobile technologies it has become possible to work from your own office and communicate with the customer using email, mobile phones and other non-face-to-face methods. These possibilities have led to fewer customer contacts, at least in case company 1. This has also led to customer relationships becoming looser and partnerships becoming scarce.

The size of the community also affects how companies form partnerships with each other. In small communities the companies form partnerships with each other inside the community as many of the individuals know each other. These networks are similar to Rotary societies, Freemasons’ clubs, or other types of business networks where individuals can develop partnerships with others. Here the common denominator is the region in which the entrepreneurs live and do business. The entrepreneur from case company 2 explains how companies in the region develop partnerships with each other:

It all starts with us seeking opportunities to do stuff together for customers, how we could operate here in Kajaani as a larger group or some of us together – whichever happens to be the best combination at the time. Then we have to open up about what each of us can do and what they’re after. At least for those who are in the circle. Maybe the largest companies aren’t there but everyone else is. And the larger ones get to know what we can do and if it fits their plans then they contact us to say “Hey, there might be something here...”

As interesting as it may seem, according to one firm, partnering has been a way to outsource their customer acquisition process. They operate at the end of the value chain and outsource for only a few customers, who sell their work onwards. This
is an interesting way to consider the sales process, which is normally considered one of the most important processes for a company.

Most often the companies used partnering as a way to expand their business. They had both positive and negative experiences of this. Not all partnerships had functioned as they had planned, and these experiences made the entrepreneurs wary towards new partnerships. After these negative experiences, the entrepreneurs felt that they should do more thorough work checking the background of their partners prior to forming the partnership.

**Generative mechanisms in the integration with community sub-process**

The integration with community sub-process is all about building meaning for the entrepreneur among the community to which he belongs. This sub-process was relevant for the case companies because of the small size of the community. Had the entrepreneurs not been part of the community, it would have been difficult for a service-based company to operate in the region.

The generative mechanism of belonging to a community was found to be a guiding mechanism for the entrepreneurs. They felt that their place was in the region in which they were born, and they wanted to do their business there. Staying in the area meant that they had to do things similarly to other companies in the region: providing value at lower prices, securing jobs rather than growing the company and risking losing some jobs, and committing to keeping employees. In the areas in which the case companies were located, being part of the community also meant that people stayed at their jobs, unlike in the southern parts of the country during the same time period.

The generative mechanism of persuasion is a mechanism through which the entrepreneur creates a dialogue with the members of the field in order to get the field interested in the opportunity. Often this relates to an “acting as if” type of behaviour, whereby the entrepreneur does not really have the knowledge or resources yet, but is convinced he can gather them in order to fulfil his promises. This mechanism is about communication with customers and partners to find the ways through which the opportunity can be turned into a venture.

Finally, the generative mechanism of partnering forms tighter bonds with the network of people that the entrepreneur has. The tightest bonds were with people who were also customers, but other partnerships were also formed. The entrepreneurs formed groups of people which were similar to other social partnerships (such as Rotary Clubs) but informal and unofficial. These groups of
people typically operated in the same area or the same business, and were used to grow the businesses.

Figure 13 below depicts the different generative mechanisms related to the integration with community sub-process.

![Diagram](image)

**Fig. 13. Generative mechanisms underlying the integration with community sub-process.**

### 7.5.3 Summary of the socialisation process

The discovery of new opportunities and the creation of new ventures is not only about discovering new technologies and creating artefacts. There also need to be people who are interested in the new artefacts and who demand to have them as part of their lives. This social side of venture creation happens through a process of socialisation in which the entrepreneur discovers new demands for opportunities and integrates himself into a community.

The demand-side opportunity discovery sub-process is – as the name suggests – about discovering new opportunities that have a more or less proven customer demand. These are opportunities whose basis is in what should be done (unlike supply-side opportunities, which are based on what can be done). Discovering these opportunities is based on knowing different people, talking to them and gathering information from them about where the domain is heading. It is this process which gives the entrepreneur an understanding about which of the
possible opportunities they should focus on. Demand-side opportunities are discovered through the generative mechanisms of networking, demand search and demand evaluation.

Integration with community is needed for the entrepreneur to become a valuable actor among other individuals. Communities are formed among individuals and they might be based on shared location or domain, for example. Without the individual belonging to a community, he would not be able to carry out other parts of the new venture creation process – such as getting information that would lead to the discovery of new demand-side opportunities. The integration happens through active dialogue with individuals, and optimally results in other individuals seeing the entrepreneur as a valuable person within the community. Underlying this integration process are the generative mechanisms of belonging to a community, persuasion and partnering.

Table 12 below summarises the processes in the socialisation process and the underlying mechanisms that create the dynamism within the processes.

<table>
<thead>
<tr>
<th>Demand-side opportunity discovery sub-process</th>
<th>Integration with community sub-process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking</td>
<td>Belonging to a community</td>
</tr>
<tr>
<td>Demand search</td>
<td>Persuasion</td>
</tr>
<tr>
<td>Demand evaluation</td>
<td>Partnering</td>
</tr>
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</table>

7.6 Emergence process

The final part of the process of venture creation is the emergence process. Through this the customers learn about new ventures, and these ventures become accepted and integrated into everyday use. Like the actualisation and socialisation processes described previously, the emergence process can be seen as two distinct sub-processes. The dynamism of these two ultimately determines whether or not a new venture gets added to – and survives in – the domain. This is the part of the new venture creation process over which the entrepreneur himself has the least direct control.

Through the discovery of new ventures sub-process, the field – i.e. customers, other software developers, executives and other related individuals – learns about the new ventures. The activity of the field and the characteristics of the domain are the key factors here. Active members of the field will discover more new ventures, and hence get to select among them. In the software domain, things are
constantly changing and therefore representatives of the field tend to be more alert than in some other fields. The entrepreneur can influence this part of the emergence process (for example, by being active in the community) more than the selection part.

The selection of new ventures sub-process, on the other hand, represents the activities that are undertaken in order to accept the new ventures as part of the software business domain. This part of the new venture creation process is mostly out of the direct control of the entrepreneur. This sub-process is about the other individuals determining the benefits of the new opportunity based upon the activities done by the entrepreneur in the other processes.

The relationship of these two sub-processes is depicted in figure 14 below.

**Fig. 14. Sub-processes in the emergence process.**

The generative mechanisms that can be identified as underlying these sub-processes are the generative mechanism of *being an active member of the community* and the generative mechanism of *marketing* in the discovery of new ventures sub-process. In the selection of new ventures sub-process, the underlying generative mechanisms are the generative mechanism of *the having a positive impact on the economic system*, the generative mechanism of *understanding what to do with the new solution* and the generative mechanism of *accepting the entrepreneur*. Next I will elaborate on these processes and provide a more detailed description of the underlying mechanisms.

**7.6.1 Discovery of new ventures sub-process**

The discovery of new ventures sub-process represents the activities through which individuals other than the entrepreneur learn about the new venture. However, it should be noted that discovery of new ventures does not mean only the discovery of the new ventures created by a given entrepreneur. It also refers to
ventures and opportunities created throughout the domain. These new ventures create an understanding for the customers about what the future looks like and what is valuable. The generative mechanisms that can be identified as underlying this process are the generative mechanism of **being an active member of the community** and the generative mechanism of **marketing**.

**The generative mechanism of being an active member of the community**

The generative mechanism of being an active member of the community creates events that allow the representative of the field to find information about new ventures. These include activities like coming up with new ideas and innovations, exploring the latest technologies or talking with relevant people within the domain.

When a domain is constantly changing, as the technology sector has been in recent decades, people tend to talk more about what is going on in the domain. This gives an opportunity for new ventures to become known more quickly compared to situations where a domain is stagnant. In stagnant domains there is no culture of sharing information about new ventures because there are few new ventures.

One element of custom software development is that the producer also acts as a consultant in the software development process. The software producer provides information about possible solutions to the customer. If a customer is actively seeking new solutions for his business, he will be likely to find out about new ventures in the domain.

Being an active member means that people start talking about the entrepreneur. This can create a positive or negative buzz about a person or a company. Having done work for a customer allows the entrepreneur to use the customer as a reference. It seems that in the software outsourcing business, references are the most important way to convince future customers. The case companies studied here got started with the help of a customer, so they did not have trouble getting their first customer relationship. Their following customer relationships were aided by the fact that they had gained positive references from their first customers. The entrepreneur from case company 2 explains his views on the relevance of references:
Whenever we have a reference and we are allowed to tell people about it, we use it. That is pretty much the only way to convince customers and get to talk with them. We are taken more seriously when we have something to show.

The impact of a positive or negative reputation seemed to be significant in all of the cases. The idea that “a good reputation travels fast but a bad one travels even faster” seemed to be what most of the entrepreneurs were saying. The effect of reputation even within a single customer is seen in the comments of the entrepreneur from case company 3, when he describes how the relationship with a major customer evolved in the early years:

I had extremely good relationships with them, was able to talk with them, and they gave us responsibilities and we did a lot of work at the turn of the century when things were tough. And that gave us the basis. When I think about it, we were really pushing things and grinding away, and it really took an active effort. But it didn’t feel hard at that time because it was really interesting and we got support and encouragement. So I started small and it was hard to convince others at the beginning, everyone thought that such a small player didn’t have a chance. But it took less than a year before we got the managers’ attention, and they started giving their support – which I needed – when they saw how we did things and that we were really aiming at something. Then I started getting the best advice about what to do. So in that sense, when people are talking about what we can and can’t do in Finland, I think it’s all nonsense because you can do anything you want. It’s all about what you want.

This enabled the case company to get access to more work and to become known by more people.

Sometimes the sheer expansion of your network can pay off. Working with several companies and people will make you known to several people. When new opportunities are created, these people often seem to provide references for people in their network. The entrepreneur in case company 1 received a new customer when a partner company shut down their software business operation:

I don’t remember the exact year but at some point we got a major customer and their timber department. We got it though our partner who made a shift in strategy. It was good for them and us. They had that project and because they knew what we did, they moved it to us at the very beginning. And we
have been working with that customer for quite some time now – ten years, I think.

One part of being a new entrant is that you have to get noticed and gain customers. One way to do this is by doing work more cheaply, to get your foot in the door. Sometimes this can even mean doing concept work almost for free to get something that the company can use as a calling card, showing what they have done. Once existing companies know that there is a new entrant in the market, they may also try to take advantage of the situation. The entrepreneur from case company 1 describes the attitude among some of their customers:

It was about creating your own identity, getting credibility and so on. And back then many companies were demanding that we do stuff cheaply to get a reference. They wanted a system but cheaply. “Do this and you’ll get a reference.” A few were real masters at getting that. Later, some have come back and said how stupid they were for constantly bargaining, because they got nothing from it for themselves.

However, being active is not always enough. The entrepreneur from case company 1 experienced the way that it is not enough to be active if the community does not include you in their game. The reasons for this seemed to be that the company had travelled its own road for too long. It could be said that this has created a strong brand image for the company, but it is an image that has turned against the company: an image that depicts the company as sticking to old habits and not learning new ones, as is described in this conversation:

Interviewer: How has it been to find your own path? And have you found it?
Entrepreneur: I don’t know. I think we have been somewhat stubborn when finding our way. And our stubborness still has an impact today, for example in networking: things just don’t seem to move along. Other companies think we are too different. They don’t want to believe that we can change or be of use to them. That’s what I’ve been sensing.
I: I would like to hear more about that.
E: Well they don’t seem to want to consider us, find out what we might have, how we could be of help. I don’t know if it is competition, or that everyone thinks they can do it themselves. I’ve been trying for five years to find a network but I think it’s truly not going to happen.
I: Do you think there is a barrier of some sort, and that other entrepreneurs do not want to let anyone else in?

E: I don’t know because I think we’re not that scary, but I do think we do things very much our own way. Maybe they think that we are such an old firm that we are not even worth contacting. Maybe we’ve been pegged as that. Now that you’ve asked, I think that has been part of finding our own way.

The generative mechanism of marketing

The generative mechanism of marketing is created by the representatives of the field encountering marketing communication created by the entrepreneur. In other words, these are deliberate communications created by the entrepreneur to raise awareness and convince others of the new venture.

The case companies did not seem to put a large amount of resources into external marketing communications. Therefore many of the customers they received did not come through external communications but rather through the interactions that the companies had with other companies. Most companies relied on the power of references and going out to talk to individual customers. This is probably because all of the companies were in the software project business, which is typically less marketing-focused than the software product business. The companies focused on finding the key decision makers and tried to convince them of their skills. At the beginning, for all of the cases these decision makers were already known to the companies, which made it easier for the companies to get their message heard by these individuals.

Following technological trends may be regarded as an important marketing vehicle. Customers, the press and the general public are often interested in companies that are at the cutting edge of technology, even though they might not fully understand the benefits of or buy the products. The late 90s tech bubble is an example of how it might sometimes be useful to follow trends in order to get some public recognition. However, the fundamentals of business should also be in order because the trends may not always be long-lived. The entrepreneur from case company 2 describes how technological trends have affected his company’s development:
When I was watching television then, with people lining up for shares in IT firms, I wanted the earth to open up and swallow us, I was so ashamed. Somewhere inside I knew that there has to be something real that you make, real applications, that not everything can be like that [insubstantial]. ... Some customers said [we should try to “follow the hype” – to grow, and build web and WAP applications], and when we heard that, we felt we should close doors because we weren’t doing that. Well, none of our customers left. Even now that we offer web-based services to some our clients, they still haven’t bought them, even though at some point they said they would. They haven’t bought them – they haven’t needed them. ... So there isn’t a real need, just the idea that we have to have something new, just because everyone else has it.

The trouble often associated with technology companies is that they are lacking in marketing and sales skills. This was also true in all of the case companies. All of them were complaining about the lack of resources they were putting into marketing and sales. This is demonstrated in case company 3, who were making niche products at a world-class level, but did not realise this fact until they heard it from a customer:

Well you can always ask what your chances are of being a world leader [in a certain technological area]. I think it was put well by one of the lead designers for one of our customers: “Why aren’t you saying you’re the world leader in [a certain technology area]”. And I thought about what he was saying. “We are the leaders and you are operating at our core, more than these bigger companies who are public with their information”. So we were doing it in “stealth mode” and didn’t realise ourselves that we were operating at the top level.

However, the case company did not do very much with this information (such as moving into foreign markets or expanding rapidly domestically), nor change their marketing behaviour.

Generative mechanisms in the discovery of new ventures sub-process

There are essentially two ways by which the representatives of the field (i.e. customers, other software developers, etc.) learn about new ventures. They can learn from them either by being active in the communities to which they belong, or by encountering the the company’s marketing communications.
The activity of the representative of the field depends on the individual but also on the domain. As the data showed, in the software domain new ventures get introduced almost daily, hence individuals talk about them constantly. If a company does not follow these trends, it can be judged as a slow mover with few innovations. In the software outsourcing business, companies also have closer relationships with each other than in the product-based software business. This makes it possible to exchange information about new ventures as part of the customer relationship.

Marketing messages allow the entrepreneur to communicate about the new venture to a large audience. This makes it possible for several representatives of the field to get to know about the new venture. The amount of marketing communication was relatively limited in the case companies. This is probably because of the nature of the software outsourcing business, where transactions are not based on marketing but rather on customer relationships. In other domains the amount of public communication might be more important, but in the software outsourcing business, its relevance was low.

Figure 15 below summarises the generative mechanisms in the discovery of new ventures sub-process.

![Diagram](image)

**Fig. 15. Generative mechanisms underlying the discovery of new ventures sub-process.**

### 7.6.2 Selection of new ventures sub-process

The selection of new ventures sub-process represents the activities through which new ventures get added to the software business domain. The selection of
ventures is made by the representatives of the field, i.e. mainly customers, but also by other software developers. The reasons for accepting or rejecting a new venture are more varied than one might at first imagine. It seems that merely introducing a better product is not enough. The generative mechanisms underlying this process are the generative mechanism of the impact of the new venture on the economic system, the generative mechanism of understanding what to do with the new solution and the generative mechanism of accepting the entrepreneur.

*The generative mechanism of the impact of the new venture on the economic system*

Events related to this generative mechanism take into consideration the wide economic impacts of accepting or rejecting a new venture. The perspective is both geographical and domain-wide. In the case companies, the impact on the local economic system was more important than the impact on the domain. Part of this is probably because the companies operated in the software outsourcing business and had mostly local customers.

The interview data presents a mixed view of the communities to which the entrepreneurs belonged. On one hand you have to be part of a community to be valuable: to get the networks, information and customers which finally lead to the creation of new opportunities. On the other hand, parts of the community do not want the entrepreneurs to succeed, and try to impede their progress as much as possible.

Of the three case companies, two had a favourable start because they received help from a customer, and one had a negative start. Of the two companies, case company 2 was sponsored by the customer in the form of financing and work from the customer. Case company 3 had good connections with the customer from early on. Case company 1 had a negative start and received negative feedback from their previous employer; the previous employer even said that they would make the life of the new firm really difficult. There were also some deals that did not go as planned in the early days. One of case company 1’s customers (and a partner of their previous employer) failed to keep to their contract concerning the purchase of working hours from case company 1. The entrepreneur in case company 1 explains his situation at the start:
E: At the start I was thinking mostly about money. And my personal reputation too, because there were people wishing us “good luck”.

I: Yes, stabbing you in the back?

E: Yes, right up to the hilt. That was the not-so nice part of it.

I: Were you afraid of what they could do to you?

E: Yes, and when you knew he had the opportunity... He had the opportunity and he used it, and I think our business would be at another level if he hadn’t spoken behind our backs. I’d say that there are effects even today.

I: What kind of things are we talking about?

E: They were saying that we were small, too small, we couldn’t do it – “they’re too small”. I’ve heard that, say half a year ago from a CEO, talking about things that happened back then. The person saying all those things was a CEO of a large company, and he has had an effect on our work situation.

The power of references is strong here as well. Once the first customers accept the firm, other customers tend to follow. They probably feel that they are more secure because someone else has taken the step into the unknown before them. The case companies also mentioned the preference towards local companies in the regions. However, the behaviour of other companies did not always accord with these words, indicating that other companies might see the new ventures as threats to themselves.

If the new entrant is technically advanced, it can be even less likely that the customer will select the new entrant’s product. The solution can be too advanced, i.e. ahead of its time. It seems as though customers in the rural areas which the companies came from do not want to try too many new things. This is demonstrated in case 1, when the company attempted to sell microcomputers in the mid 80s, but also in the below quote from the entrepreneur in case company 2. In it, he describes his earlier venture which was not successful because their innovation reached the market too early:

It was a strong idea, different from what was around at that time. It seemed clear that with the products and skills we had, we didn’t have to develop it much, and we would be ahead of our time and competitive. After a while we realised we were too far ahead of our time, and there should always be a competitor in the market who operates in the same way. Without that the
customers’ belief in the company can be low because there is always a leap when there is a change in the current situation.

For a new venture to get accepted, it should offer some improvements over existing solutions, otherwise there is little reason to select the new venture. However, sometimes a market is growing so rapidly that it can sustain even new ventures that are not offering significant improvements over existing companies. Typical examples of this are software outsourcing companies in fast-growing markets. In this type of market situation there are customers who require programmers that can do the job, but no significant improvement over other available programmers is required. This means that a company can grow rapidly without a great innovation. The entrepreneur from case company 3 explains their current situation in the following way:

*What we currently get our money from is resource selling, so we allocate people to projects and charge a standard price for that. It is not cheaper than anyone else, it’s more expensive. The people are not necessarily any better than other people, but no worse either. Pretty average I would say. The reason we are doing so well is demand in the market. You could say that our growth does not come from us; we have merely taken what the customer has given us. To put it bluntly.*

*The generative mechanism of understanding what to do with the new solution*

In theory, creating new ventures should be easy in the software business because technology is constantly changing. By taking advantage of new technologies, entrepreneurs should be able to create new opportunities easily. However, the customers have to understand the benefits of the new technology before they will buy it. This is partly because there are also other companies in the marketplace creating an ecosystem and educating customers about the benefits of using new technologies.

The quotes from the entrepreneurs in case companies 1 and 2 have previously highlighted the difficulty in selling a new product to customers who do not know what to do with it. For case company 1 this product was microcomputers and for the entrepreneur in case company 2, it was an advanced piece of software they were developing.
However, blaming these difficulties on the technology being too new or too advanced seems partly like an excuse. At the same time as case company 1’s described problems, companies in other parts of Finland were buying such machines and using them in their businesses. A likely explanation can be found from the customers who simply were not adopting the new technologies. It is clear from the data that customers often need references in order to understand how the new venture can be of benefit to them. When they see how someone else has benefited from the new venture, new customers can more easily imagine how they could benefit from it themselves. References also show what kinds of companies have used the product, indicating to new customers whether or not they are a potential customer type.

The effect of technological trends and customer awareness can also be seen in the behaviour of customers during the late 90s tech bubble. Many software companies were gearing towards growth, but case company 1’s entrepreneur felt that they should stick to what they knew. As the entrepreneur explained above, they experienced a lot of pressure from the customer side to follow the hype.

This is also an example of the situation of customers saying they want something but in reality not making the decision to buy what they claim to want. At the individual level this is best described by a weight-loss example: a person wants to lose weight and at the café has decided to buy a green tea (which is healthy and full of goodness). However, when they get to the counter, they order a Grande Caramel Brulée Frappuccino with whole milk and whipped cream on top. An individual’s actions do not always follow their words.

In all of the cases there were also other companies operating in the same domain at the time of the case company’s establishment. The basic offering of the case companies was quite similar to other companies in the domain at that time. Disregarding case company 1’s early attempts to sell computer hardware as well, the companies did not have any major difficulties in getting to the market in terms of customers not understanding what to do with their offering.

One important part of this mechanism seems to be the choice of geographical region and time. The data clearly shows that for new products there have to be innovative customers that are willing to take risks. When case company 1 started selling computer hardware in the Kainuu region in the early to mid 80s, there were too few customers who understood what to do with a computer, hence there was no market for them. For the other two companies, the regions and timing were such that there were customers who knew what to do with the solutions.
The generative mechanism of accepting the entrepreneur

When a customer decides to accept new software, they are often accepting more than just that software. They are also deciding to accept the firm or entrepreneur who is behind the software.

A key component in the generative mechanism of accepting the entrepreneur is trust. To get acceptance, the entrepreneur needs to be trusted. It seems as though the more customers or financing the company has, the more trustworthy a new venture seems. In the case companies, trust was built over time and at startup often based on existing relationships that the entrepreneurs had established in their previous jobs. They had become known to the customer so the customer knew what to expect from them. At least at the time of the interviews, in the software outsourcing business the relationships tended to last, if there are no significant problems. This indicates that the biggest barrier to success is gaining entry with the customers. Once a company starts receiving work from the customer, they are in an easier position to get more work (assuming they can deliver on the first job).

As a basis of this trust, the past history of the entrepreneur and team seems to matter a lot. If the individual has a wide network and a positive reputation, it can help them to get things started faster. The entrepreneur from case company 2 explains how they got started:

In our case our first customer was a good reference to us. We got them though our past connections – we probably wouldn’t have got it without them. We had experience and the right background and they were convinced we could do the job.

The stories of case companies 1 and 3 are similar in that their customers also knew the entrepreneurs beforehand. As these cases show, the promise of a customer can have a strong effect on the establishment of the company in the first place. This customer can say what they would like the entrepreneur to do and how they’d like it done. In cases like this the customer has already decided to work with the entrepreneur, which could be for various reasons.

New ventures often gain other benefits from their customers, directly or indirectly. This could be seen in case 2, where the customer also participated in the company’s establishment through financing. Doing work for a big client also signalled to others that the new venture was a credible company with which to
work. Furthermore, the fact that the founder and the team had been in the business also helped greatly in navigating through the often hard early years.

A new entrant can also shed some light into a region if business activities in the area are decreasing because of companies focusing on certain areas (and not because of lack of demand). In cases like this there is a clearer demand for the services being provided by the new entrant, even though these might be similar to the ones offered by the existing companies. The entrepreneur from case company 2 describes their situation:

*Everything that we did was based on new ground. There was nothing that we “stole” from the previous company, so we did not harm them in any way. When we left, that business was withering away here in Kainuu because of downsizing. So it could be that the timing was good in that sense too.*

As was described briefly earlier, the case data revealed some examples of negative attitudes towards new entrants. One of the cases encountered aggressive behaviour from a former employer. For ten years, the people in the former employer did not talk to the entrepreneur and the employer tried to badmouth the new entrant. The former employer had talked with their partners who worked in the same domain as the new entrant, and advised them to not do business with the new entrant. The entrepreneur from case company 1 describes their situation in another excerpt:

*It was not that hard [getting customers] because we did some groundwork on this. But then there were these so-called competitors who tried badmouthing and mocking us. There was a breakfast event and the head of production of a major company came and said “How are you doing, our competitor?” I never felt we were competitors but they did. It was a big firm, with a hundred or so working in the IT department. That made me think a little bit, “Hey, we must be a thorn in their side.”*

Something that is often true is that new ventures are small. This can be seen as a negative issue for some customers because small companies often have fewer resources and a smaller product selection. As the data showed, sometimes competitors can even make claims that the small new entrants do not have sufficient resources to meet customers’ needs.

Customers do not just look at the entrepreneur’s past; they also want to know where the new venture is heading and what the company’s vision is. This could be truer in the software outsourcing domain than in product-based businesses. In
outsourcing, customer relationships are long and often based on research partnerships but in a product-based business the product can be installed for the customer and the customer can use the product without the producer company. The entrepreneur from case company 3 explains how changes in the company have resulted in a lack of a vision, and how this has affected the customer relationship:

"The reason I said credibility is a problem for us is that when we have had sales meetings with a customer, they have made comments like “What do you want to do? What does the company really want to do?” The customer asks questions like that. I think it is a clear sign that we haven’t shown what we want to do, because they say things like “We know you will do it if we say so, but what do you really want to do? What is the role you want to take in this business?” So I don’t think we’ve quite convinced our customer about our vision.

When asked about their vision and willingness to expand their business domestically or internationally, all of the case companies talked about how they would like to expand and go international. However, the reality was that none of the companies were international and only one had experienced revenue growth of over 100% in three years. The companies also talked about moving into product-based business in a similar way.

It seems that it is a feature of the domain that companies need to talk about going abroad and expanding their business in order to be a credible firm. Product-based business offers an easily scalable business model and growing revenues. This often requires the company to move into international markets.

As mentioned previously, the status quo in the software domain seems to be that companies need to follow the latest trends. Breaking this status quo too much can hinder the performance of a company. Breaking the status quo in this case can mean that a company stays with older technologies.

Part of the process of becoming an established company is that the company should look and feel like a larger company. This means that there will be lawyers, layers of bureaucracy, and different people in different functions, and that the CEO will not be doing everything. Two of the case companies did work with larger corporations and these customers also expected their suppliers (the case companies) to operate professionally.
Generative mechanisms in the selection of new ventures sub-process

The final part of the new venture creation process – the part which ultimately decides whether or not a venture survives – is the selection of new ventures sub-process. Customers often have various solutions to choose from when making a buying decision. The situation is the same regardless of the industry or buying decision in question.

The generative mechanism of the impact of the new venture on the economic system is based on the fact that the new solution should bring benefits to the whole community. The data revealed that the role of people who are left behind by the new venture is significant for the success of this new venture. They can either support or hinder the venture creation process. In some cases the response that was received from these individuals went as far as being hostile. This could be because they feared they might lose their own jobs if the new ventures became too successful. There were clear signs that the new venture had to be well integrated into the domain and the field; otherwise, its benefits might not be seen so clearly.

The generative mechanism of understanding what to do with the new solution is one of the key elements in selecting new ventures. Arriving on the market too early means that customers do not know how to benefit from the new venture. Thus they will not buy the solution. Customers can be helped in gaining an understanding of what to do with new technologies through the use of references. These help the customer to understand what kinds of companies have used the solutions previously, and in what way. How “advanced” a community is, or the community's attitude towards new innovations, seemed to be crucial in regard to how well customers understood the new ventures.

Finally, the generative mechanism of accepting the entrepreneur determines whether a new venture gets accepted. This was mainly based on trust between the individuals involved. This trust is built first and foremost over time and often through common past experiences. When there is trust between the individuals, decision making became easier and individuals started preferring the individuals they trusted most. The community perspective was also an important factor here, and individuals tended to favour other individuals who were from the same community. In order to stay accepted, the entrepreneur also needs to present himself (and his company) as a viable option for the future. This means that there should be a vision about what the future of the company looks like.

These generative mechanisms are summarised below in figure 16.
7.6.3 Summary of the emergence process

The final part of the new venture creation process is the process of emergence. Through this, new opportunities emerge as real ventures in the domain. It is the process over which the entrepreneur has the least direct control. He can do things that will make it likelier for customers to select the venture, but he cannot directly control who discovers and who finally chooses his venture.

As in the previous processes (actualisation and socialisation), the first part of the process is the discovery of new ventures by the representatives of the field. This is not limited to only the new venture by the given entrepreneur, but also involves the discovery of other new ventures that are in the market. Through this process the individuals get an understanding about where a given domain is heading. If the field is active, it is likely that more ventures will be discovered than if the field is stable and sticks to old habits. The generative mechanisms underlying this discovery process are the generative mechanisms of being an active member of the community and marketing.

Finally, the selection of new ventures sub-process determines which of the vast number of new opportunities in the world gets accepted in the domain. This
is dictated by the opportunity or artefact, the entrepreneur creating it and the relationship of both of these to the community. If the opportunity and entrepreneur are known in the community and are not in competition with existing companies, it is more likely that a venture will get accepted than if the entrepreneur is unknown and competing with existing companies. This process of selecting new ventures happens through the generative mechanisms of the impact of the new venture on the economic system, understanding what to do with the new solution, and accepting the entrepreneur.

A summary of the sub-processes within the emergence process and the generative mechanisms underlying them can be found below in Table 13.

Table 13. Generative mechanisms in the emergence process.

<table>
<thead>
<tr>
<th>Discovery of new ventures sub-process</th>
<th>Selection of new ventures sub-process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being an active member of the community</td>
<td>The impact of the new venture on the economic system</td>
</tr>
<tr>
<td>Marketing</td>
<td>Understanding what to do with the new solution</td>
</tr>
<tr>
<td></td>
<td>Accepting the entrepreneur</td>
</tr>
</tbody>
</table>

7.7 Summary of the research results

In this chapter, the results regarding the components and their characteristics, processes, sub-processes and generative mechanisms of the new venture creation process are presented.

The components of the a priori systems model of venture creation represent the venture creation process quite accurately. One aspect that could be improved in terms of the culture and domain components is to add the domain of entrepreneurship as one of the parallel domains. New ventures are not created solely with knowledge and skills from the software domain. This means that an entrepreneur must master not only skills related to software development (or other domain), he should also be familiar with the entrepreneurial aspects related to venture creation. For the other components, the model holds well.

The characteristics of the components were also fairly accurate. They mostly provided sufficient tools to analyse the venture creation process and how each of the components affected venture creation. Cultural characteristics showed that having information available and accessible in easily transferrable written form helped in creating new ventures. On the other hand, some cultural characteristics also hindered venture creation through ways of thinking that were inwardly
focused and not open to change. The domain characteristics of software business showed that it offered a good basis for venture creation. In fact it is almost an ideal starting point because there is information about software development widely available, it requires little capital investment, it is central to economic life and relatively independent and autonomous of other domains. I believe that the proposed entrepreneurship domain could be analysed using the same domain characteristics as have been proposed earlier.

Society characteristics showed that the rural locations made the societies more likely to prefer stability and homogeneity than innovativeness and heterogeneity. The role of other software developers and entrepreneurs (the field) was seen as aiding in the venture creation process, but only when there was no direct competition. When there was direct competition, the field even went as far as to display hostility towards the new entrant. The characteristics of both society and field components provided a solid framework for analysis.

When it comes to the entrepreneur’s background characteristics, the role of formal education was seen to be less relevant than work experience in the software venture creation context. Other a priori characteristics are considered to be relevant; however, the relevance of early childhood experiences might not be very relevant in the context of venture creation as such. What seems to matter more is the ability to gain large amounts of experience and skills from a domain and connect to a field, regardless of the age at which these are accumulated. What was most relevant was the preference for conformity or innovation, because the software business is a very dynamic domain and the entrepreneur should be able to adapt to the changes relatively quickly. When it comes to the entrepreneurs’ traits, there were no special talents that could be identified. The role of special talents might be more relevant in the creation of artistic novelty than in the new venture context, or it might just be that the entrepreneurs did not have any special talents. More important than special talents or abilities were personality traits like internal motivation, curiosity and the ability to take initiative, which affected how the entrepreneur engaged in the venture creation process.

In addition to analysing the components of venture creation, this research focused on analysing the processes and generative mechanisms that are involved in venture creation. The a priori research model had a high-level conceptualisation of these processes, but the results show that there are many interesting sub-processes and generative mechanisms beneath these high-level processes.
The actualisation process represents supply-side opportunity discovery and creation. The opportunities discovered are based on the entrepreneur’s perceptions of what can be done with the technologies. The closer these opportunities are to the customer domain, the more likely it is that they will emerge as ventures. How these opportunities are created depends on how passionately the entrepreneur acts and how he wants to expand his business. Many entrepreneurs had had experiences (both good and bad) of growth and expansion, and for some these experiences affected their behaviour a great deal. In the sub-process of opportunity creation, the mechanism of passion seemed to have the most effect on how the venture creation process overall turned out.

The socialisation process represents the discovery of supply-side opportunities and integration with community. The perception of supply-side opportunities is accumulated over time through interactions with customers and other relevant individuals. This is about getting to know large numbers of people and learning what they feel is valuable. Integration with the community on the other hand strengthens the relationship between the entrepreneur and the field and builds meaning for the entrepreneur within the field. In rural areas the mechanism of belonging to a community was especially important because in tight-knit communities and in a service business the entrepreneur must be accepted in order to have a chance to do business.

The emergence process is the process through which the opportunities emerge as ventures and get to be part of the domain. Before the customers can accept or decline the opportunities, they must first discover them. The discovery of new opportunities (created by the entrepreneur and other entrepreneurs) shapes the vision of the future of a domain. If the opportunity created by a given entrepreneur can match this view of the future the opportunity is more likely to emerge as a venture. In these case companies, accepting the entrepreneur was also a significant part of the emergence process – probably because of the rural position of the companies. Therefore, emergence requires something other than just a better product: the new solution has to be delivered by an entrepreneur who can be accepted by the other individuals in the domain.
8 Discussion

I will now present the discussion based on the above results. I will present a systems model of venture creation in software business, examine the theoretical implications for both entrepreneurship and software business scholars, provide discussion of the empirical implications of conducting this study and finally list the managerial implications that the results have for entrepreneurs and business developers.

8.1 The systems model of new venture creation in software business

The \textit{a posteriori} systems model of venture creation presented here is based on the results found above. It is fairly similar to the \textit{a priori} research model in terms of its components, but richer in detail in terms of its processes.

The components of the systems model are culture and different domains (software business, customer domain and entrepreneurship), society and field, and the entrepreneur, including his or her background and traits. The difference between the \textit{a priori} and \textit{a posteriori} models is the inclusion of the entrepreneurship domain as one of the domains, and changes in the characteristics of some of the components. The changes in the characteristics are based on the results, which indicate that the characteristics of the \textit{a priori} model (which were still rooted in novelty creation) are not entirely suitable in entrepreneurship.

The \textit{components} (entrepreneur, domain and field) of the \textit{a priori} model mostly provided a solid background for the analysis. Based on the results, only a few changes should be made to the underlying characteristics of these components. The \textit{processes} (actualisation, socialisation and emergence) and their sub-processes that were discovered are applicable to venture creation in the software context, and most probably in other contexts as well. They explain the basic processes of how opportunities are identified and turned into ventures. The \textit{generative mechanisms} underlying the previous processes are more specific to software business, but are likely to be applicable to other industries, with some adjustments. In other contexts, other generative mechanisms may also emerge. These generative mechanisms explain where the processes come from and what creates the dynamism or movement in them.
Figure 17 on the next page depicts the components and processes of the systems model of venture creation in software business, and tables 14, 15 and 16 on the following pages describe the characteristics of each of the components.
Fig. 17. The systems model of new venture creation in software business.
<table>
<thead>
<tr>
<th>Cultural characteristics</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage of information</td>
<td>Many kinds of technical information is stored in written form. Business information is often tacit and hard to codify. When information is stored in transferrable form it affects how easily new entrants can develop software and access the domain.</td>
</tr>
<tr>
<td>Accessibility of information</td>
<td>Technical information accessible to a wider audience; business information often only accessible through other individuals. Often the entrepreneur must be part of the domain to get access to business information. Accessibility of information affects how many individuals can access a domain, and what backgrounds they may be from.</td>
</tr>
<tr>
<td>Availability of information</td>
<td>Technical information available widely; business information often only available to individuals within the business. Availability of information helps in creating new ventures that are perceived by customers to be valuable and relevant.</td>
</tr>
<tr>
<td>Differentiation of the culture</td>
<td>Some differences within the software domain in urban and rural areas. However, mostly the same within the software domain. The main differences come from different customer domains. Each customer domain has its own rules and practices. Differentiation of the culture means that it is important to understand the differences between different domains: to understand what can be done within a domain and how things are done in a certain domain.</td>
</tr>
<tr>
<td>Integration of the culture</td>
<td>Innovations within software services can be transferred to customer domains if there are common software platforms in use. If not, transfer is more difficult. Integration of the culture affects how easily innovations in one customer domain can be transferred to another one.</td>
</tr>
<tr>
<td>Openness of the culture to other cultures</td>
<td>In rural areas, uniformity seems to be preferred over heterogeneity, limiting the ability for outside entrants to enter the market. The software business domain itself is integrated into different domains and open to innovations. The openness of the culture to other cultures makes it more likely for new innovations to succeed.</td>
</tr>
<tr>
<td>Domain characteristics</td>
<td>How venture creation is affected</td>
</tr>
<tr>
<td>Recording of information</td>
<td>Software serves as a recording device for technical information; other technical information documented within companies and distributed through books, seminars, etc. Explicit business information occasionally recorded inside a company but seldom distributed outside of it. The recording of information affects how new entrants will be able to enter a domain. If no information is recorded in explicit form, entry requires knowing the right people who can distribute information.</td>
</tr>
<tr>
<td>Integration of information in the domain</td>
<td>Changes within the software domain are constant, information is divided into more sub-domains than before, but the technical base often stays the same. Innovations are often more evolutionary than revolutionary. Integration of information in the domain affects how individuals understand each other and how easily they can determine what is an innovation and what is not.</td>
</tr>
<tr>
<td>Centrality of the domain to the culture</td>
<td>Software and software business have become a central part of the culture. Businesses do not run without software and software business is a significant part of the economic life of the culture. The centrality of the domain within the culture affects how a domain can attract resources and how innovations from a domain get transferred to other domains. The more central a domain is, the more resources it will get and the more power it will have to influence other domains.</td>
</tr>
<tr>
<td>Access to the domain</td>
<td></td>
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<tr>
<td>-------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>The domain is easy to enter because software development does not require a large</td>
<td></td>
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<tr>
<td>amount of resources. The greatest barrier is knowledge about how to build software.</td>
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</tr>
<tr>
<td>It is hard to succeed because there are a large number of existing solutions and</td>
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</tr>
<tr>
<td>competition. Success also requires knowing the right people, which can take a while</td>
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<tr>
<td>unless the new entrant has something to add to the domain. Access to the domain</td>
<td></td>
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<tr>
<td>affects how a new entrant can enter a domain and succeed within it.</td>
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</table>

<table>
<thead>
<tr>
<th>Autonomy of the domain</th>
</tr>
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<tbody>
<tr>
<td>Software innovations are in part controlled by customer domains and the development</td>
</tr>
<tr>
<td>of hardware technologies. Software innovations focused only on software are mostly</td>
</tr>
<tr>
<td>limited by the imagination of the software developers. The autonomy of the domain</td>
</tr>
<tr>
<td>affects the level of radical innovation that can be carried out and how the</td>
</tr>
<tr>
<td>innovations are transmitted to other domains. If a domain is totally autonomous, it</td>
</tr>
<tr>
<td>is often not very useful to the culture as a whole.</td>
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</tbody>
</table>
Table 15. How society and the field affect new venture creation in software business

<table>
<thead>
<tr>
<th>Society characteristics</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy</td>
<td>Society supports venture creation in several domains. The software domain has received a lot of support and resources from the government and its agencies. Resources have been provided for the educational development of individuals. The availability of surplus energy affects how easy it is to try risky ventures and educate oneself in order to join a domain which requires a high level of knowledge to join.</td>
</tr>
<tr>
<td>Evaluation and encouragement of creativity</td>
<td>The relevance of new businesses in software business is mainly judged by customers. Society as a whole has a positive view of new innovations and new businesses, but in reality new and different ventures are often seen as risky. Furthermore, if a new venture threatens an existing business, society will not be as supportive. The preference for risk aversion is seemingly higher in rural areas. Having a favourable view of the evaluation and encouragement of creativity creates a mindset which tolerates risky ventures and failure to a greater degree.</td>
</tr>
<tr>
<td>Openness of the society to change</td>
<td>Public organisations and other companies were mostly supportive of evolutionary change. Both groups were less supportive of radical changes. Software business has some technical institutionalisation through the use of common software infrastructure. Some large service companies have strong relationships in the domain but these do not affect smaller companies. The openness of the society to change affects how new entrants can challenge the possibly institutionalised relationships in a society.</td>
</tr>
<tr>
<td>Mobility and conflict in society</td>
<td>In rural areas mobility is limited. New entrants were mostly seen as a threat, even though they might have brought new talent to an area. Mobility and conflict in the society affects how easily a new entrant can become a member of the society. In stagnant societies this can take time whereas in mobile societies business relationships are more flexible.</td>
</tr>
</tbody>
</table>
Complexity of the social system

Society aims at uniformity, has low level of hierarchy and is based on meritocracy. Individuals can follow their dreams and change their positions in the hierarchy through their actions. Many successes in the meritocratic system seem to be based on doing things, rather than on talking about things. A high level of complexity in the social system can limit how an individual can change his/her position from the one to which he/she is born.

Field characteristics

<table>
<thead>
<tr>
<th>Obtaining resources from society</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ICT field receives resources from society mainly through the education of ICT professionals and from public business development agencies. There are also other high techn fields which compete for the same resources, such as hardware manufacturing. Obtaining resources from society helps in building a new venture.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independence from other fields and institutions</th>
<th>Constraints of the domain on the judgements of the field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software outsourcing companies are dependent on customers who buy the software development projects. These fields and institutions create the space for which software innovations are developed. Purely software technological innovations are independent from other fields. Independence from other fields and institutions creates boundaries which determine what kinds of innovations can be accepted by the field.</td>
<td></td>
</tr>
<tr>
<td>The software domain has some clear measures for innovations – such as computing speed, the size of software or the meeting of given requirements – which can be used to determine success objectively. However, there are elements, such as the user interface or the functionality of the software, which are important but also less precise and leave room for different types of innovations. The constraints of the domain on the judgements of the field affect what the field can judge as an innovation. When the domain clearly sets the standards for what is innovative, the field has a fairly limited role as a judge.</td>
<td></td>
</tr>
</tbody>
</table>
Institutionalisation of the field

The software domain is dynamic, hindering institutionalisation of the field. The software field is based on meritocracy, and new ventures are easy to establish. Relationships with suppliers and customers are no more institutionalised than in other fields.

The institutionalisation of the field affects how a new entrant is able to enter a field and how easy it is to be regarded as a relevant actor within the field.

Support for change by the field

Customers often support new technologies and solutions if they bring additional value and if return on investment is positive. Change for the sake of change or the use of new technologies for their own sake is not supported. Competitors in rural areas can try to hinder the establishment of a new entrant.

Support for change by the field affects how new entrants are perceived in general. A negative attitude towards change will make the creation of innovations harder than if there is a supportive attitude.
Table 16. How the entrepreneur affects new venture creation in software business

<table>
<thead>
<tr>
<th>Individual background characteristics</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of surplus energy within the family and community</td>
<td>During childhood, having surplus energy allows one to focus one’s efforts on education. As a young adult, an entrepreneur must often have enough surplus energy to take care of a young family as well as a new venture. The availability of surplus energy within the family and community affects how the entrepreneur can take care of all of his or her immediate social and economic needs.</td>
</tr>
<tr>
<td>Respect for learning and culture</td>
<td>Respect for culture was considered irrelevant based on the data. Respect for business and for hard work seems to be more important than respect for higher education. This also implies that the individual will be interested in entrepreneurship and business in general. Respect for learning as a whole is important because this results in constant renewal and in the ability to try new technologies and to network with different people. Respect for learning and business affects how the entrepreneur will adapt to changing situations and how familiar he or she is with the context of business.</td>
</tr>
<tr>
<td>Having the skills required in the domain</td>
<td>In terms of business aspects, the software domain is often accessible only after one’s teenage years. Before then, one can design and build software, but it is not likely that it will be possible to test the impact of this software on the market. Getting the skills to become a software professional is relatively easy but time-consuming. Having the skills required in the domain affects how one can create innovative products and services in that domain. However, having the skills to develop innovative solutions does not in itself guarantee success.</td>
</tr>
</tbody>
</table>
Connection with the field

In software business, the field is often constituted of customers and other software developers. Connections with these can often be formed once one begins work. Software business is relatively open, hence connections are easy to make if the solution offered is good enough. The connection with the field affects how the entrepreneur will be able to introduce his or her solutions to the other relevant individuals in a domain. Knowing the right people ensures that a new solution will at least have a chance of inclusion as part of the domain.

Support for conformity or for innovation

Early support for innovation ensures that the entrepreneur is able to function in the ever-changing software domain. An inclination towards conformity, on the other hand, seems to lead to less passionate and more risk-averse behaviour. Support for conformity or for innovation affects what kinds of opportunities are available and how one will pursue them.

<table>
<thead>
<tr>
<th>Individual traits</th>
<th>How venture creation is affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>The individual’s special talents</td>
<td>There are no physical talents that one has to have in software business. Special talents are mostly related to mental capabilities, such as intelligence, persistence or a high tolerance for ambiguity – if these can really be called talents. Having special talents related to a domain affects what kind of an advantage an individual has over other individuals when entering the domain. Over the years, the relevance of talents as opposed to practised skills seems to decline.</td>
</tr>
<tr>
<td>The curiosity, interests and intrinsic motivation of the individual</td>
<td>Curiosity and an interest in software or software business are needed for an entrepreneur to succeed in the changing business environment. Strong intrinsic motivation helps, especially in times of adversity and when one must take high risks. The curiosity, interests and intrinsic motivation of the individual affect the intensity with which one pursues new opportunities and develops them into new ventures.</td>
</tr>
</tbody>
</table>
The discovery orientation of the individual

In entrepreneurship, discovery orientation translates into an "entrepreneurial lifestyle". This means that an individual is constantly looking for new opportunities, thinking about how to improve one's business or about what can be learned from past experiences. The discovery orientation of the individual affects the overall alertness of the individual and how he or she feels about his job: how important the job is to the individual beyond their basic nine to five workday.

Having relevant personality traits

Having high risk-taking ability, persistence, ambitious thinking and the ability to take the initiative were favourable to creating successful ventures. These can be learned and developed throughout one's life. Having relevant personality traits affects how easily one can develop a business and how comfortable he or she feels doing so.

The research question that this study set out to answer was:

*How are new ventures created in the software industry?*

New ventures are created in a socially embedded process, outlined in the systems model presented in figure 17. New venture creation has several components, processes, and generative mechanisms which, together, build the venture. At the heart of venture creation is the opportunity, which starts as a perception in the mind of the entrepreneur and emerges as a venture through the actualisation, socialisation and emergence processes. The shape of these processes is determined by the components of the systems model.

Based on the results of this study, the processes are very much ad hoc in nature. They are not planned through strategic visioning processes or implemented rigorously over quarterly plans. The processes take their shape as the entrepreneur acts and through interactions with people belonging to his or her network.

While in the model the different processes have no effect on each other, interplay between them can be seen in real situations. For example, the passion that the entrepreneur puts into the opportunity creation process is often clearly visible to the field, and this in part affects the acceptance of the entrepreneur.

If we take a higher-level view and think about venture creation beyond software business, the components, processes and sub-processes are likely also to apply in other contexts. The generative mechanisms are, however, software business-specific, although similar mechanisms are likely to be found in other
contexts as well. Likewise, their relevance is likely to be different in different contexts. For example, the importance of belonging to a community might not be that great in product-based businesses or in larger geographical areas.

Next, I will provide a more detailed theoretical discussion of the relevant components and processes of the model.

8.2 Theoretical implications

The main topic under consideration in this thesis has been how new ventures are created in software business.

In general, the Csikszentmihalyi’s systems model (1999) offered a good basis for a model of explanation as to how new ventures are created. The systems model shows that the contextual factors – the industry, location and entrepreneur – affect how the process of novelty creation happens and explains what kind of components and processes are associated with it. The model can also be applied to entrepreneurship and new venture creation, as has been shown in this study.

What is interesting is the two-directional relationship of the components and processes. For example, the personality of the entrepreneur affects the processes, but the processes also shape this personality. This was most clearly seen in the entrepreneur in case 1, who had become cautious toward growth after seeing examples of growth gone wrong. This indicates that if venture creation is seen as a difficult process, the personality can be shaped in such a way that does not support new venture creation. On the other hand, if we want to assist people in becoming more entrepreneurial, it should be possible to take “baby steps” in venture creation. This means encouraging slow steps in the process of becoming an entrepreneur, to show people that they are able to create ventures.

Although the entrepreneur is the most important actor in the model, he or she is not the only one. There are other individuals who affect the success of the new ventures. This indicates that for society’s attitude towards entrepreneurship to progress, not only should we educate people to become “entrepreneurs”, but we should also educate people to become consumers and other stakeholders, and explain what their role is in terms of the performance of new ventures. I believe that individuals as representatives of the field even have the power to affect whether regions will rise or fall. If consumers have a negative approach to new ventures, it is likely that an area will stagnate and new opportunities will not be created. On the other hand, if consumers are positive and constructive toward new opportunities, it is possible for them to aid the entrepreneur in the venture creation
process. This can result in opportunities being created which would not otherwise have been possible.

Next I will go through each of the components and processes of the systems model in relation to earlier research.

8.2.1 Culture and domain

Csikszentmihalyi (1999) uses the concept of a meme (a cultural gene) when describing the behavioural patterns in a domain. Based on the results, this seems to be a relevant concept in the context of venture creation as well. Memes are changed by the activities of the entrepreneur. The entrepreneur creates mutations in the current ways of doing things that have to stand the test of the environment.

The characteristics of cultural and domain components were useful concepts and could be used to describe these components. The cultural characteristics provided a way to identify and analyse relationships between different domains and how the culture in general regards new ventures. This gave an understanding of the kind of cultural environment in which the software business was situated. The creation of software ventures in Finland was mainly supported based on cultural characteristics.

The domain characteristics had some overlap with the cultural characteristics and allowed the positioning of the software domain within the culture as a whole. The characteristics of the domain clearly helped in venture creation; they also showed that the software business is easy to get into and has become a central part of the economy in Finland.

The effects of the surrounding environment on venture creation have also been mentioned in previous studies (e.g. Rhyne et al. 2002, Dena et al. 2003, Florida 2003, 2008). However, these studies often treat the environment as a single concept, consisting of social and cultural components. Based on this study, however, these should be treated separately because the cultural and domain components might be favourable to venture creation while the society and field components might be more of a hindrance towards venture creation (as was the case in this study).

Some individual domain-level factors which have been identified as affecting venture creation are exogenous shifts (Eckhardt & Shane 2003) or environmental jolts (Liu et al. 2007). These have mainly been seen as a source of new opportunities. However, based on the results, the domain-level environment has an effect on venture creation, whether or not there are changes in it. Software
business is an open domain which is easy to get into. Furthermore, the domain itself is characterised by technological changes (which are different from exogenous shifts) that can act as a source for new opportunities.

Umesh et al. (2005) focused on favourable market conditions for IT ventures. They concluded that the growth rate of the market, the timing of market entry, the ability to gain revenues quickly and the cyclical nature of markets had an effect on the performance of IT ventures. The perspective in this study was a little different, but similar domain conditions seemed to be favourable to the case companies.

Issues of intellectual protection (e.g. Warren-Boulton et al. 1995, Tang & Paré Smith 2003, Mann 2004) did not arise in the results in any way. There are two reasons that could be suggested for this. First of all, the companies were operating in software outsourcing, where they made tailored solutions for individual customers. Hence the issue of protection was more the customer’s problem. The second explanation is that the companies emphasised the role of trust in their relationships. This could indicate that they used trust in social relationships as a way of protecting their contracts as well. It could be argued that when participants are close, the social bond is far stronger than a legal one.

Based on this study, there is one domain characteristic that should be better taken into account when considering new venture creation. If one is an expert in a business domain (e.g. software development), this does not mean that one is able to create new ventures. New venture creation also requires expertise in the domain of entrepreneurship. Therefore, in venture creation there are often two domains that need to be mastered: the business domain and the domain of entrepreneurship. In software business, there are usually two business domains that need to be mastered: the software business domain (related to software development) and a customer domain (e.g. the telecommunications or agriculture domain).

8.2.2 Society and field

The social dimension is seen in entrepreneurship literature in many forms. For example, Fried & Hisrich (1994) and Shane & Cable (2002) have studied the role of network ties and information sharing on finding financial capital, Ruokolainen (2005) studied the role of the first customer on a venture’s performance, and Rosen et al. (1998) and Moore (1991) have studied the role of target customer segments in the performance of a new venture.
The results here indicate that the society and field guide or steer the way entrepreneurs make their decisions. They do not dictate what the entrepreneur does but they do lay some ground rules about what is acceptable and what is frowned upon. For example, changes (perhaps those made by the entrepreneur) can be seen as a threat or as an opportunity. It also seems that some regions have their own personality – similar to the personality of an entrepreneur – with particular traits, background and motivations. These seem to have an effect on venture creation similar to that of the entrepreneur’s personality. If the area is risk averse and tends to lean toward conformity, it will be harder for entrepreneurs to create businesses. Therefore, the society and community shape what kind of opportunities start emerging there.

While software developers might not be the most social breed, venture creation benefits from the clustering of software companies (Sternberg 1996, Simmie 1998, Patibandla & Petersen 2002, Patibandla & Petersen 2004, Florida 2008). Spatial proximity enhances innovative performance and knowledge sharing. Creative industries as a whole have been shown to benefit from the spatial proximity of likeminded individuals (Florida 2003). This argument was also supported in this study. Although all of the companies were in rural areas (hence there was no comparison with urban or clustered areas), the companies saw their role as being low-cost service providers, rather than innovative service providers, indicating they did not enjoy these benefits of clustering and hence higher production. Similarly, they spoke about innovativeness as something that is favourable but not likely in their company.

The complementary and networked nature of software (also mentioned by Nambisan 2002, Messerschmitt & Szyperski 2003 and Vainio 2005) and de facto standards (Warren-Boulton et al. 1995 and Pae & Hyun 2006) could also be seen in this study. For service companies these are especially important characteristics to understand as they limit the amount of innovation that can be done. The solutions produced must interact with other software. Furthermore, if some underlying platform changes dramatically, this might require the re-engineering of the whole software that is sitting on top of that platform. Therefore a new venture should spend time choosing a platform and making sure that it will be supported into the future.
8.2.3 Entrepreneur’s background and traits

Gartner’s (1985) study has meant that this question has for a long time been seen as irrelevant. Based on this study, the old question of “who is the entrepreneur” might not be that irrelevant after all. It seems that the entrepreneur’s background and traits shape the venture creation process and therefore comprise a component which it is essential to understand.

What shapes the process of venture creation and the opportunity the most are the background and traits of the entrepreneur. The ventures where the entrepreneur was risk averse and tended to stick to conformity were also the ventures which did not grow. The ventures where the entrepreneur took more risks and was more innovative also grew more rapidly. The entrepreneurs who were more comfortable with planning than doing acted more slowly on the changes and opportunities in the markets. The entrepreneur who was more comfortable with doing than planning acted on opportunities faster and tried more new things, even though the future of the opportunities was often uncertain.

Shane (2000) suggests that an entrepreneur’s experience helps in discovering opportunities. In the light of this study, the experience of the entrepreneur, besides helping to discover the opportunities, makes it possible to understand market reactions to the opportunity. At the start of their entrepreneurial careers all of the entrepreneurs were guided by their technological skills and lacked an understanding of the customer’s view of the opportunities. This resulted in the entrepreneurs creating opportunities that did not have market potential or being highly guided by the customer in the process of venture creation. After they had gained experience, they were better able to identify what kind of opportunities the customers preferred.

When it comes to the entrepreneur’s traits, Hoch et al. (2000) have highlighted some ideal traits for a software entrepreneur. While the list seems utopian (the ability to stand a high level of uncertainty, being a visionary, having high risk-taking ability, betting on multiple options, etc.), it seems that the entrepreneurs who managed to grow their companies in the study shared most of those traits. What was also revealed in this study was that an ability to take the initiative was a determining factor in how rapidly the entrepreneurs moved on the opportunities they perceived. This was also related to whether the entrepreneurs were more comfortable with conformity or innovation.

Based on the study, there is one notable change to the systems model and the characteristics of the entrepreneur. At present, the model does not take skills into
account. It only considers how early an individual has been introduced to a domain. However this is not the only factor which determines the skills of the individual in the domain. As has been noted earlier, there are also different types of business skills that one needs to have at different stages of the company’s life cycle (see, for example, Swiercz & Lydon 2002 on growth and leadership skills as opposed to managerial skills). Therefore an introduction to the domain at an early age is not that important in the business context because children can rarely participate in a business context at an early age. In artistic or sports contexts these might be important just for the simple reason that an individual is in his best physical condition at a young age and this might improve their chances of introducing novelty in some contexts. Similarly, getting to know the field at an early age is not that relevant in a business context.

This component should also be considered from a wider perspective, not merely as an entrepreneur component. In a business context, new ventures are often created by companies, rather than by individuals. The case companies in this study suited the model well because they were led by a single entrepreneur. However, as the companies grew, the role of employees became more important. Had the companies been larger, the model might not have been as easily applied. In that case it would have been more difficult to determine who the actor in the venture creation process was, what his role in the process was and, for example, how the experiences of the team members affected the process. This means expanding the model also to take into consideration the role of the teams that are involved in the process. This does not necessarily require changes to the model, merely a change in how the model is interpreted and applied.

When the actor in the process is a team or an organisation, the characteristics of the component are roughly the same as in the case of a lone entrepreneur. When the actor is a team of individuals, the characteristics of the whole team should be considered, not those of each individual. This is because while there might be individuals in the team that are, for example, innovative, the dynamic of the team might be more inclined towards conformity.

8.2.4 Actualisation process

When the opportunities were discovered on the supply side, they were more likely to be revolutionary opportunities. These opportunities were technologies applied to a customer domain, and in some of these cases the customer domains were yet not ready to apply the technologies. This result is similar to the findings of
Saemundsson & Dahlstrand (2005) who noted that companies based on innovative technological solutions are unlikely to grow as rapidly as those based on solutions with which a market is more familiar.

The information seeking patterns in the discovery sub-process were also similar to previous findings. Cooper et al. (1995) concluded that entrepreneurs who have more experience in the domain also seek more information about business opportunities. This was in part true, in that as the entrepreneurs gained experience, they sought more information to verify and clarify an opportunity, not so much to seek out new opportunities. Information seeking for new opportunities was also more ad hoc behaviour and integrated into everyday life, rather than being a strategic task.

One problem that the entrepreneurs seemed to have with supply-side opportunities was that they did not always see the customer benefits of the opportunities discovered. This changed when they gained more entrepreneurial experience, in a similar way to that suggested in the literature by, for example, Ronstadt (1988) in his corridor principle.

The results also supported another aspect of the literature: when the entrepreneur gained more experience of the core of their domain, they tended not to question the status quo as much as before, as suggested by Cliff et al. (2006). This is probably because they started to get socially embedded in the field, and questioning the relevance of the field could thus have resulted in personal losses (in terms of friendships or acquaintances). Prior to this embedding, they had “nothing to lose”.

The opportunity creation process was shaped by the fact that all of the companies were in the software services sector. All of the companies also had the idea of carrying out their own product development on the side and eventually moving to a product-based business model. It seems that this transition is rather difficult to carry out, because only one of the companies achieved something even close to this. What this company managed to create was a sort of product platform (Vendelo 1997) that helped them build software more rapidly. What most managed was some productisation of their services that helped them in terms of sales. These efforts, however, did not lead to products that could have been sold as stand-alone products. There are probably two main reasons that this is such a difficult transition. Firstly, to implement these different strategies requires a different allocation of resources, as suggested by the literature (Hoch et al. 2000 and Sallinen 2002). Secondly, the lack of resources prevented the companies from expanding their business beyond their core activities. This problem is also
identified in previous literature (e.g. Igel & Isam 2001). This would indicate that using a service-based offering as a revenue source to finance product development might not be a very good idea, because it seems to lead to longer development times and both businesses suffer because neither is fully focused upon.

This transition from a service-based offering to a product-based offering also requires a change in business model. This is one of the biggest changes in a company’s lifetime. Of the cases analysed, one experienced this change as they decided to expand their business outside their traditional offering of software services. According to the entrepreneur, this required the organisation to push itself beyond what they normally did. But this was a move they had to make in order to expand their business and decrease their dependence on a few large customers.

Software business is described in the literature as being knowledge-intensive (e.g. Hoch et al. 2000, Mohr 2001, and Messerschmitt & Szyperski 2003). Similarly the hacker ethic (Himanen 2001) and intrinsic motivation (Lakhani & Wolf 2003, Bitzer et al. 2007) have been used to describe the culture of software developers. The results of the study indicate that this is very much true. The generative mechanism of passion represents the concept of the hacker ethic well in this study. It describes the intensity and attitude that is used to solve complex software problems. It was clearly seen that entrepreneurs who acted with passion and managed to transfer this passion to their employees created “better” ventures, in that they received better feedback from customers and managed to expand their businesses. The question of where this passion comes from remains unanswered in this study.

8.2.5 Socialisation

The role of networking is well-known in the literature (e.g. Davidsson & Honig 2003). However, as the results indicate, the building of networks was not a strategic effort. Networks and partnerships were built with close friends, and new relationships were formed mainly through ad hoc behaviour. There was no clear sign of the strategic building of networks that would support the success of the vision.

The discovery of demand-side opportunities was focused mostly on evolutionary opportunities. Here the opportunities came mainly from customers and had a clear benefit for the customer that was based on the customer’s
experiences. This is supported by, for example, Choi & Shepherd (2004), who found that entrepreneurs were more likely to act on opportunities that had a high perceived customer valuation and stakeholder support. The role of stakeholder support in venture creation can also be seen in Sarasvathy’s (2001b) theory of effectuation.

Davidsson & Honig (2003) conclude that both tacit and explicit human capital have an effect on how individuals discover new opportunities. In this study, the role of tacit information was emphasised more than that of explicit information. The entrepreneurs did gather both types of information, but processed the information over a period of time to create a big picture of the phenomenon. The formation of this big picture often came with help from the customers.

Demand-side opportunity discovery is affected by the entrepreneur’s relationship to the field. Studies have shown that participation in business networks can improve an entrepreneur’s chances of getting access to new ventures (Davidsson & Honig 2003). Likewise, spatial proximity and continued contact with previous employers have been shown to reduce the innovativeness of opportunities discovered (Weterings & Koster 2007). Based on this study, prolonged contact with customers who are not innovative tends also to lead to fewer new innovative demand-side opportunities.

The uncertainties associated with being a first mover (Christensen & Bower 1996) seem to outweigh the benefits (Choi & Shepherd 2004) in the software service business. In the software service business, the opportunities for innovation lie in process innovations rather than in innovation at the technological level. This is because the customers often control technological choices and they often want to keep their technology roadmapping to themselves.

In software outsourcing business, integration with the community is an important part of building a new venture (Hoch et al. 2000). Based on the results, companies should focus on building their networks outside their local area, especially in rural areas. Instead of doing ad hoc networking at local business events, companies should try to find the networks they need. If the company wants to internationalise, it might be beneficial for the entrepreneur to attend an MBA class somewhere other than in his or her hometown.

In a product business, the role of networking may also be important but it is not necessary to individual customers. There the role of channel partners is usually more crucial, and networking and partnering with them becomes important (e.g. Hoch et al. 2000).
Although technologies evolve rapidly in the software sector, it might not always be good to chase after the latest trends. One of the case companies is almost 30 years old and it has remained in roughly the same business area in which it started. The interviews did not cover the technological choices they had made in detail, but it was clear that they were not using the latest technologies. They have made a few shifts in technologies but there have been opportunities for many more. Despite this, the company has stayed alive for 30 years, which is a respectable lifetime for any company, let alone a software company. The key to long-term survival seems to be being able to listen to what is really going on in the market, instead of blindly following the latest trends. This seems also to support the observations of, for example, Davidsson (1989) or Autio (1995), who have noted that not all companies aim for growth.

8.2.6 Emergence

The results of the study indicate that the role of customers in venture creation should receive more attention. In the context of entrepreneurship, the saying “you are what you eat” could be translated into “you are who your customers are”. The customers of a new firm shape what kind of new opportunities the venture gets to take part in developing, and the customer’s growth rate largely determines the growth rate of its suppliers. In the case of new software service ventures, the role of the first (and sometimes only) customer (Ruokolainen 2005) is emphasised because most of the revenues and feedback can come from this single customer. Similarly to previous studies, the entrepreneurial experience of the entrepreneur as perceived by others (Shane & Gable 2002) and organisation mode (new entrant or established firm) (Dew et al. 2004) were also seen to have an effect on how the field perceived the opportunities. Risk elimination by relying on entrepreneurs with a proven track record is therefore common.

Technological fit (Ruokolainen 2005) and fitting in with the status quo (Christensen & Bower 1996 and Cliff et al. 2006) were also similar ways to reduce the risk associated with new opportunities. The case companies mostly did work similar to that which they had carried out in their previous companies or jobs.

Although the concept of switching costs has primarily been used in examining information (Shapiro & Varian 1999) and software products (Pae & Hyun 2006), it also seems to be relevant to tailored software solutions. Once a tailored software system has been implemented, it can be hard to change to another
system. The use of parallel software systems is also often excluded, as one of the case companies experienced when there was a change of ownership in one of their customers. The new owner implemented a software system in the newly-acquired factory that was also used in its other factories. For venture creation this implies that if there are significant switching costs for customers, either the customer should get significant improvements with the new solution or the new entrant should create a strategy that involves benefiting from existing systems. The role of switching costs was probably greater in rural areas, where choices are fewer.

As was also described in the culture and domain characteristics section, the choice of technology platform has a clear effect on the success of a software outsourcing firm. The firm needs to select a platform that will be supported for a long time and that is used by several other companies. This also has implications for the selection of new ventures through understanding what to do with the new solution. The solutions which the new venture decides to adopt and the companies that accept the new venture create the ecosystem in which the new firm operates. The more familiar solutions a company uses, and the more companies decide to accept the new venture, the more understandable the solution will be to new customers.

8.2.7 Processes and generative mechanisms of software venture creation over time

These processes and generative mechanisms can also be viewed from a time perspective.

As has been said earlier, while the processes and generative mechanisms are conceptualised here as separate processes, in reality it is hard to see the processes as isolated; they are, in fact, intertwined. For example, signing a client contract can be seen as part of the actualisation process because it represents the first step on the path of developing software, but it can also be seen as a socialisation process because it represents gaining social capital through customer interaction. Finally, a client contract can also be seen as an emergence process because it represents the acceptance of the new venture by a customer.

The generative mechanisms do not have a strict sequence of operation or pattern in which they interact. They are interrelated but not dependent on or connected to other generative mechanisms. For example, changes in the technological landscape can lead to some experiential learning (for example in the
form of failure due to new technology being introduced), which then leads to scanning the market for new opportunities. However, the scanning of the market for new opportunities can also be initiated by other events (for example the desire to expand product selection or customer base in order to reduce risks).

Despite these limitations, there are some analytical generalisations and conceptualisations that can be made about the occurrence of the sub-processes and generative mechanisms over time.

The whole venture creation process starts with the entrepreneur, and with this individual wanting to become an entrepreneur. In software business this runs alongside the changes in technology which often provide another initiator for the process – the discovery of a new technology provides the opportunity to become an entrepreneur.

The other direction from which a venture creation process can begin is the discovery of demand-side opportunities. This often happens through the generative mechanisms of networking and demand search. When the opportunities come from the demand side it usually requires the entrepreneur to have customer contacts. Once the entrepreneur does have information about different opportunities (either supply- or demand-side), he or she often carries out demand evaluation by talking to customers and other relevant stakeholders.

Once the entrepreneur has an idea about an opportunity to pursue, he or she starts to carry out activities that lead to the creation of artefacts such as software, devices, contracts, business models, etc. Especially at first, this is fuelled by entrepreneurial passion, which keeps the individual doing things often despite negative feedback from some stakeholders.

Alongside the sub-process of opportunity creation is often the sub-process of integration with the community. The entrepreneur wants to belong to a community, but he or she also wants to persuade the community about the new-found opportunity. This is when the entrepreneur announces his opportunity to the markets. This results in experiential learning, which begins after the entrepreneur carries out venture creation activities, and this learning process changes what the entrepreneur does and how he or she does it.

The generative mechanisms in the emergence process can be seen after the entrepreneur starts doing activities which result in concrete products or services that other individuals can either accept or decline. Whether or not the entrepreneur is successful with his opportunity depends on whether or not the community understands the new venture, and on their perception of the entrepreneur.
The decisions of the community depend on how active a member the entrepreneur has been and how active the members of the community are. If both parties are active, the members of the community will make their decisions earlier. On the other hand, if the entrepreneur and community are not active members of the industry, it can take a long time for the opportunity to succeed or fail. The latest point at which the community has to make decisions about whether or not to accept the new venture is when they encounter the entrepreneur’s marketing. Most marketing is unconsciously disregarded.

Scanning the market for new supply-side opportunities often happens in parallel with partnering and expansion mechanisms. These activities typically happen only after an initial opportunity has been created and an entrepreneur has announced his opportunity to the markets. The formation of deeper partnerships with existing companies also happens further along the venture creation process. These partnerships often provide opportunities for renewal, further product development, new delivery channels or expansion to new markets. While the generative mechanism of passion is an integral part of venture creation, it often gives way to the generative mechanism of expansion when the venture creation process moves on. Signs of this happening can be seen when bureaucracy and formality start taking over from creativity and fun.

Figure 18 on the next page depicts these relationships of the generative mechanisms over time.
Fig. 18. Occurrence of generative mechanisms and processes of venture creation over time.
8.2.8 Business opportunity or opportunity to do business

In the entrepreneurship literature, the opportunity is often seen as a business opportunity that is pursued in order to change a market (Venkataraman 1997, Davidsson 2004). Inherent in this is the aim of building a business to create wealth.

The results of this study indicate that this not the whole truth. The entrepreneurs did not create the opportunities with the aim of building a business that will change the market or to create a large amount of wealth. Instead, the opportunities provided them an opportunity to do business.

It would also be more accurate to say that the entrepreneurs created the businesses in order to survive both mentally and in terms of financial security. The entrepreneurs recognised that mentally they wanted to do something “for themselves”. Financially, they were after security, not great wealth. The opportunity was not in business – the opportunity was that they could stay in the region where they had grown up.

The entrepreneurs did not carry out a thorough analysis of all the possible opportunities and decide to follow the best opportunity; they chose an opportunity which was readily at hand. Arguably, had there been other similar opportunities available, the entrepreneurs could also have pursued them.

This has implications for the software business literature as well, which often assumes that companies always want to grow (e.g. Hoch et al. 2000, Nambisan 2002b, Vähäniitty 2003, Umesh et al. 2005). The results indicate that this is not entirely true, and that software companies (especially software outsourcing companies) tend to stay local. The opportunity once again is not in the business but in the fact that the entrepreneur can stay in the region.

8.3 Methodological and empirical considerations

During the research process some methodological insights were made. The study followed process and case study approaches of research and was carried out with a qualitative approach.

First of all, the qualitative approach that was chosen was considered to be a suitable method of inquiry. It gave an opportunity to look at the phenomenon with a broad scope focusing on the whole process, rather than just a small part of it.
quantitative approach would arguably not have given the opportunity to detect the generative mechanisms that created the dynamism in the systems model.

At the same time the broad scope of the research was at times challenging because it was hard to keep all the viewpoints in mind. The concepts used in Csikszentmihalyi (1999) and upon which this study was built on were sometimes challenging to keep separated (especially culture and society). While at the conceptual level the divide between these two concepts is somewhat clear, in practice they were harder to keep separated. A more focused scope could have made the research process easier but would not have allowed a systems view of the venture creation process.

The broad scope and combining two different fields of research (software business and entrepreneurship) also resulted to a considerable length in this thesis. When doing research between two domains, it’s challenging to explain aspects of a theory to one field of research at sufficient level without boring the other side with lengthy and elaborate explanations. Because of the two fields of research, summaries and wireframe examples were used to keep the readers at both fields of research informed about the choices made.

As has been said by many before (e.g. Dawson 1997, Orton 1997), taking a processual approach to research requires the researcher to spend a lot of time with the research subject. The research should be done in an iterative way that involves periods of gathering data, getting familiar with previous research and writing the study. This study was done in a more straightforward manner, first briefly becoming familiar with previous research, then gathering the data, then carrying out a thorough literature review and finally analysing the data. During the data analysis it was discovered that the iterative approach would have worked better because there were occasions when further information would have been useful. However, this was not possible because the research projects had ended and all of the people who participated in the research had changed jobs. This approach has also resulted in a gap in current research literature because there has not been time to stay up to date with current developments in research.

The case study approach allowed the research to focus on a few cases. Analysing and comparing them allowed the researcher to get a better understanding of the reasons behind the venture creation processes.

There are also a few empirical implications which should be mentioned at this point. These are related to conducting the research and how it could have been more efficient.
First of all, the research included a literature review that was carried out following Kitchenham’s (2004) method for carrying out systematic literature reviews. This method was chosen at the beginning to provide a well documented and rigorous method for the literature review. The aim of this was to ensure that the most relevant research papers would be found and the researcher would get an accurate picture of the state of research.

However, it was found that the method was not the most suitable one for a Ph.D. thesis where the research question is a less specific one and the scope is wide. The method did not deliver the most relevant papers on the topic.

There are numerous reasons for this, the main one being the unsuitability of the literature review method to the research question. The research question was a wide one, but the method is more suited to finding answers to more specific questions (for example, how does previous work experience affect the performance of a new venture). Another possible explanation could be that the method was not applied correctly. This is an unlikely explanation because the method provides a rather detailed description on how to use it and this was followed during the research process.

The second main empirical implication is related to the form of this dissertation – a monograph. For a novice researcher engaging in a Ph.D. process, I would recommend writing an essay or article dissertation in many cases. This gives the opportunity to do more focused work with clearer steps, deadlines and goals. In my opinion, a monograph-style dissertation is better suited to an experienced researcher who is already familiar with the tactics of research and the research topic. A monograph gives the opportunity to summarise and integrate a large body of knowledge into a single study, whereas – I believe – the task of a novice researcher should be to become familiar with the process of carrying out research and to understand a few subject topics in detail.

Thirdly, and related to the previous implication, the scope of the study is so wide that occasionally it has been hard to keep on track with all the different views. This is an inherent issue when taking a systems view on any phenomenon. This issue can really only be avoided by making clear decisions at the beginning about what to include in the study and what not to include, and keeping to those decisions throughout the research.
8.4 Managerial implications

This section summarises the managerial implications of this study. These are divided into implications for software professionals and implications for policy makers.

8.4.1 Implications for software entrepreneurs and managers

The results of this study indicate that entrepreneurs who are pursuing new opportunities within the software business should start the process as early as possible and not focus too much on planning. Once the entrepreneur engages in the process, starts talking with potential customers and doing passionately what they feel needs to be done, things start clicking into place. This does not mean that there should be no planning, or that planning in itself is bad for the business, but the results of the study indicate that the role of planning compared to doing is minimal in terms of the success of the firm.

The study shows that software development is not just about developing a product or a service. The history, motivations and background of the entrepreneur also have an effect on the process, and these are probably even more important in small and rural areas. One must take care to be seen as a valuable member of the community and not burn too many bridges. People tend to follow previously known patterns that work, and often tend not to want to stand out too far from the crowd. "Standing out from the crowd" will be different depending on the prevailing mindset of the area. In Kajaani it might be dangerous to be too innovative, but in Silicon Valley it might be dangerous to stick to the status quo. Hence there might be an opportunity to create the greatest piece of software ever made, but if there is no community to support the development, the product might never be ready for the market.

Social context also has an effect on how individuals pursue opportunities and how these opportunities eventually turn out. Entrepreneurs should therefore acknowledge the benefits and limitations of their social environment. If the social environment supports the creation of the new opportunity, the opportunity is more likely to succeed. The social environment also shapes what the opportunity will turn out to look like. For example, if a company wants to grow to be international, it should internationalise very early on. If it stays local too long, it can become intertwined into the Finnish software ecosystem, which might not support the international development. An analogy for this can be found in the realm of
sports: if you learn to run with slow runners, it is likely that you will become a slow runner. It is therefore important to acknowledge the effect of the social environment on the opportunity.

While this study has focused mainly on entrepreneurs, it also has considerable consequences for managers of firms both small and large.

It seems that the fact that you are doing venture creation is more important than how you are doing it. This means that managers should be integrated with the everyday business in order to learn about opportunities in the markets and to see why customers choose to adopt some new ventures and not others. It is most important that people are doing new venture creation; what they are doing is less important, and how they are doing it even less so. It seems that there is a correction mechanism which corrects the behaviour of the individuals towards the most successful way of doing things. Therefore the “how” and “what” get made right in time. This of course requires fluidity in a company, as well as understanding of the fact that venture creation is a process where the first way of doing things might not be right and might need correction.

The other main contribution for managers is that employees should have roles where everyone can do what they are interested in and passionate about. Then passion can motivate each individual to be better at their job. This is especially important in a knowledge-intensive domain like software business, where the productivity of an individual is dependent mostly on the individual themselves (as opposed to a certain dependence on production machinery in some industrial domains).

8.4.2 Implications for policy makers and incubators

The study showed how entrepreneurs and the creation of new business were tightly integrated into the environment in which the entrepreneurs resided and the people with whom they interacted. The study also showed that venture creation and the development of an entrepreneurial identity do not happen overnight. Rather, they take time to develop, and happen in an evolutionary way.

One of the key missions for policy makers is to create a feasible environment for entrepreneurship to flourish. The results of this study indicate that for this mission to succeed, policy makers should make sure that it is possible for individuals to try to break the status quo and try things without a fear of failure. This will make it easier for even risk-averse individuals to create businesses without the fear of losing so much money that it could ruin the rest of their lives.
One key mission for incubators and public business developers is to put the initiatives of policy makers into action and to help entrepreneurs and companies in a hands-on manner. Based on this study, incubators should make sure that the entrepreneurs are capable of pursuing the business opportunities they have identified. They should also make sure that the opportunities can be supported in the local ecosystem, or find a suitable ecosystem for the opportunities. If an individual is pursuing an opportunity which requires rapid access to global markets, a rural area will not be a plausible environment in which to start the business.

Also policy makers and especially incubators should pay attention to the underlying generative mechanisms that a venture has. In this study altogether 17 generative mechanisms were identified. When some of these are missing or are weak, it is likely that a venture will not succeed as well as it would in a situation when most generative mechanism would be strongly present. The underlying generative mechanisms provide the dynamism for the processes that enable the total venture creation process to function.

One way to advance these goals is through entrepreneurship education. Because the domain of entrepreneurship is such that it must be learned through hands-on exercises, the most important implication for entrepreneurship education is that the education system should provide a chance for students to try out entrepreneurship. If students (regardless of age) can be given a chance to try to create something, I believe it can significantly help in the creation of new ventures later on. This way the individuals get a glimpse of what it takes to create an opportunity, and they take the first steps along the path of becoming an entrepreneur. It is also important that entrepreneurship is not mystified, and that potential young entrepreneurs get to familiarise themselves with entrepreneurs and what they do in everyday situations.
9 Conclusions

In this final chapter I will provide the final conclusions, discuss some of the limitations of the results and suggest directions for future research endeavours.

9.1 Research results and contributions

The aim of this research was to provide an understanding of how new ventures are created in software business. The answer to this was sought through a systems model which linked the process of venture creation in the software industry to the people who operate within that industry and the entrepreneur creating the opportunity.

The results indicate that there are three essential processes that constitute the venture creation process. Opportunities are turned into ventures through the processes of actualisation, socialisation and emergence. The initiator of these processes is the entrepreneur who starts turning the opportunity into a venture. The initial opportunity discovered by the entrepreneur is turned into a venture in dialogue with other individuals who are involved in the industry.

Underlying these three processes are sub-processes and generative mechanisms which create the real dynamism in the systems model. The sub-processes are more general in nature, applying to other contexts as well. The generative mechanisms are more closely integrated in the software business but have some connection with generative mechanisms in other contexts as well.

The results also indicate that these processes are very much performed as they come along. The entrepreneur may have a rough idea or vision of what he or she wants to do and how he or she wants to do it, but in reality the process takes shape through the entrepreneur’s interactions with other people and the knowledge about markets and opportunities which the entrepreneur accumulates in these interactions.

The results make a particular contribution to the entrepreneurship literature, where there has been a lack of contextually embedded studies focusing on opportunity creation. The results show that by taking a deeper look into the contextual factors of a venture creation process, we are able to identify sub-processes and generative mechanisms which create dynamism when an opportunity is turned into a venture. The systems model also shows that taking a holistic view of entrepreneurship is possible and will provide deep insight that is
not possible when focusing on single actors in the model or when using quantitative methods.

The study also contributes to the literature on software business. It shows how a software resource firm is tightly integrated with its customers and how the customers shape the future of an opportunity. The systems model created in the study provides a useful method for analysing a software opportunity and its strengths and weaknesses.

9.2 Limitations of the study

Like any study, this research has some limitations. As Alasuutari (1995) and Yin (2003) show, a qualitative study should not be generalised to suggest statistical probabilities (see also Ketokivi & Mantere 2010). Instead, the study can be generalised to produce theory, as has been done in the previous chapter. Therefore the results of this study should not be considered to be indicative of the performance or outcome of companies, or of how likely ventures are to follow the processes described here.

The theoretical limitations for generalisation come from the fact that the data has been drawn only from software companies. Hence the generative mechanisms in particular are specific to software business. It is likely that the generative mechanisms will be somewhat different in other industries. The processes of actualisation, socialisation and emergence and their sub-processes are likely to be similar in other entrepreneurial contexts; however, their importance and relevance may be different.

The nature of the systems model creates limitations on its applicability. Because it is a systems model, it takes a wide view on the whole process. Therefore it will have limitations if applied to very narrow and exact analysis of business cases. It cannot easily be used to analyse questions like pricing, business models, the right distribution channels or technologies. However, it can be used to analyse the types of questions found at system level, and to understand why, for example, new pricing models might not work.

Some limitations come from the data itself. Some of the case companies were established when the researcher was still a child and therefore some interpretations of the context rely mainly on the descriptions of the interviewees and on secondary information (newspapers etc.). Had the researcher lived through that time, the activities of the entrepreneurs might have been seen in a different
light. After all, the Finland of the 2000s looks quite different from the Finland of the mid 1980s.

Data gathering brings other limitations as well. The data gathering could have benefited from a longitudinal data gathering process in which data would have been gathered as the venture creation progressed. This would have given a more precise view of things instead of looking at the process in retrospect. However, this type of data gathering over time is challenging because the researcher would have to be part of the process before the process even starts.

It is likely that this would also have provided access to other informants, such as customers, to give a more holistic view of the process. This time only the entrepreneurs had their say on things. Had there been several other participants in the interviews, the results might have been somewhat different. Having only the entrepreneur’s perspective brings limitations, especially to the emergence process, where more light would have been shed by also interviewing customers.

9.3 Recommendations for future research

The results presented offer many possibilities for future research. The limitations presented above should be tackled in future research, and hence they provide a good starting position for suggestions for future research in entrepreneurship.

Like this study, much current entrepreneurship research focuses on the entrepreneur. The first recommendation for future research topics is that it would be useful to study the process of venture creation from the perspective of customers, peers and other participants as well. It would be most useful to study this process in more detail and get more data from various other perspectives. This would provide more viewpoints on the events and give an insight into why things have unfolded as they have.

Secondly, and related to the first recommendation, I believe that new venture creation could be understood much better by focusing more research on the emergence process. This is an often overlooked or ignored topic in current entrepreneurship research. Research on emergence should pay particular attention to the customer and social perspectives. Of the processes studied here, the emergence process is the most important because it determines whether a new meme will be transferred over time. One important topic here would be to find out how the field theorises the new memes that the entrepreneurs produce in the domain and how the field behaves based on these theorisations. This would give a greater understanding of the kinds of process through which the field accepts the
new memes. This intersects with studies of technology acceptance, sales, product design and other fields of studies which focus on the customer interface.

Thirdly, I believe the systems model presented here provides a useful tool for analysing venture creation in other contexts as well. I believe that an overall model would be quite similar at the level of new venture creation, and that similar processes of actualisation, socialisation and emergence would be found. However, the generative mechanisms underlying these processes are likely to be different. Some may be the same but it is likely that the generative mechanism of technological change, for example, will not play as big a role in some other contexts. Likewise, in consumer businesses it is likely that other generative mechanisms will create more dynamism in the model.

Fourth and finally, other systems models should also be used to understand the venture creation process. They would provide alternative interpretations with a similar viewpoint on the same phenomenon. This would provide additional support for carrying out theoretical generalisation.

Hopefully these suggestions for future research will guide the way to a more holistic understanding of entrepreneurship.
References


# Appendix 1, List of interviews and durations

<table>
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<tr>
<th>Interview</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
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<td>Interview 1 - Founding the company</td>
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<td>3:20</td>
<td>2:08</td>
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<tr>
<td>Interview 2 - Current situation and strategic choices</td>
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<td>3:33</td>
<td>2:46</td>
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<tr>
<td>Interview 3 - Future business opportunities</td>
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<td>1:54</td>
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<tr>
<td>Interview 4 - Personal history</td>
<td>N/A</td>
<td>2:15</td>
<td>N/A</td>
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