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Creating New Ventures

A longitudinal investigation of the nascent venturing process
Creating new ventures: A longitudinal investigation of the nascent venturing process

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Abstract

This study contributes, empirically, theoretically and methodologically, to entrepreneurship research, theory, and practice. I provide answers to three major questions regarding venture opportunity variation, variation in the nascent venturing process, and outcomes from this process. Conclusions and implications are based on theoretically derived hypotheses and empirical information from 622 venture opportunities, which we followed from discovery throughout the nascent venturing process and beyond.

New survey design as well as state of the art longitudinal statistical methods made it possible to extend our knowledge into the nascent stages of the entrepreneurial process. This research is an extension and empirical test of recent conceptual discussions in the field and moves the entrepreneurship research toward an opportunity based theory of the creation of new economic activity.
# Index

| Acknowledgments | 3 |
| Abstract | 4 |
| Index | 5 |
| Figures and tables | 8 |

## Part 1 Entrepreneurship as new economic activity

1. Introduction

## 2 Research design

2. Research design

## Part 2 Venture opportunity variation

3. Venture opportunity variation

## 4 Results: venture opportunity variation

4. Results: venture opportunity variation
4.3 Results: venture opportunity variation ........................................................................ 70
4.3.1 Classifying venture opportunities ......................................................................... 70
4.3.2 Rates of venture opportunities ............................................................................... 71
4.3.3 Developing the classification scheme ...................................................................... 73
4.3.4 Results: venture opportunity variation controls ...................................................... 74
4.4 Venture opportunity variation: implications .............................................................. 77

Part 3 The emerging venture .................................................................................. 79

5 Predicting progress in the nascent venturing process .............................................. 81

5.1 Introduction ............................................................................................................. 81
5.2 Explaining progress in the nascent venturing process ............................................. 82
  5.2.1 The influence of venture opportunity variation on the nascent venturing process ............................................................................................................................ 84
  5.2.2 The influence of resources on progress in the nascent venturing process ......... 87
  5.2.2.1 Human capital ............................................................................................ 88
  5.2.2.2 Social capital ............................................................................................. 92
  5.2.3 The influence of strategy on progress in the nascent venturing process ......... 98

6 Results: predicting progress in the nascent venturing process ................................ 103

6.1 Introduction ............................................................................................................. 103
6.2 Operationalization: predicting progress in the nascent venturing process .......... 103
  6.2.1 Capturing the nascent venturing process: the dependent variable ................. 103
  6.2.2 Capturing the nascent venturing process: the independent variables ......... 104
  6.2.3 Capturing the nascent venturing process: Controls ........................................ 106
  6.2.3.1 Economic growth .................................................................................... 106
  6.2.3.2 Industry competitiveness ......................................................................... 107
  6.2.3.3 Time in the nascent venturing process ................................................. 107

6.3 Analysis methods .................................................................................................... 108
  6.3.1 Longitudinal Growth Modeling ......................................................................... 109
  6.3.2 Building and interpreting longitudinal growth models ................................... 114
  6.4 A formal empirical test of variation in the nascent venturing process .............. 115
  6.4.1 The influence of human capital on progress in the nascent venturing process ............................................................................................................................... 119
  6.4.2 The influence of social capital on progress in the nascent venturing process ............................................................................................................................... 120
  6.4.3 The influence of strategic choice on progress in the nascent venturing process ............................................................................................................................... 121
  6.4.4 Controls ............................................................................................................ 122
  6.4.5 Parameter differences between innovative and reproducing venture opportunities in the nascent venturing process ......................................................... 123
  6.4.6 Systematic variation in the nascent venturing process: implications .......... 124

Part 4 The nascent venturing process’ influence on subsequent performance ...... 127

7 Impact of founding conditions and process characteristics on venture performance ......................................................................................................................... 129

7.1 Introduction ............................................................................................................. 129
7.2 Explaining value realization .................................................................................... 130
  7.2.1 The influence of venture opportunity variation on venture level performance ................................................................................................................................. 132
  7.2.2 The influence of resources on venture level performance............................. 134
  7.2.3 The influence of strategic choice on venture level performance .................... 136
  7.2.4 The influence of gestation behaviors on venture level performance .......... 137
8 Results: predicting subsequent venture level performance ........................................ 139
  8.1 Introduction ........................................................................................................ 139
  8.2 Operationalization: predicting subsequent venture level performance .......... 140
    8.2.1 Dependent variable: venture level performance ........................................ 140
    8.2.2 Independent variables: predicting subsequent venture level performance. 141
  8.3 Analysis methods predicting subsequent venture level performance ............. 141
    8.3.1 Multiple regression ................................................................................. 142
    8.3.2 Event history analysis: Cox regression .................................................... 142
  8.4 Results: Predicting venture performance ....................................................... 144
    8.4.1 Results: the influence of venture opportunity variation on venture level
        performance .................................................................................................. 146
    8.4.2 Results: the influence of resources on venture level performance .......... 147
    8.4.3 Results: the influence of strategic choice on venture level performance.... 149
    8.4.4 Results: the influence of gestation behavior on venture level performance 149
    8.4.5 Control variables' influence on subsequent venture level performance..... 150
    8.4.6 Summarizing results concerning subsequent venture level performance... 151

Part 5 Conclusions and implications for entrepreneurship theory, research and
practice .................................................................................................................... 153

9 Conclusions ......................................................................................................... 155
  9.1 Main conclusions .............................................................................................. 155
    9.1.1 The existence of venture opportunity variation ....................................... 155
    9.1.2 Venture opportunity variation and its impact on the nascent venturing
        process ........................................................................................................... 156
    9.1.3 The nascent venturing process impact on subsequent venture level
        performance .................................................................................................... 156
  9.2 Implications for our understanding of entrepreneurship as an economic
phenomenon ............................................................................................................. 156
    9.2.1 Entrepreneurship as an economic phenomenon ...................................... 157
    9.2.2 The holistic view of entrepreneurship ..................................................... 159
  9.3 Implications for entrepreneurship research, method and design ..................... 160
    9.3.1 Implications for longitudinal research designs ....................................... 161
    9.3.2 The development of measurements ......................................................... 162
  9.4 Implications for entrepreneurship practice ................................................... 163
    9.4.1 Implications for potential enterprising actors and entrepreneurs already
        engaged in the nascent venturing process .................................................. 164
    9.4.2 Implications for entrepreneurship educators ........................................... 166
    9.5 In sum .......................................................................................................... 167

References ............................................................................................................. 169

Appendix 1 sample description ............................................................................ 192
Appendix 2 Missing data analysis ........................................................................... 193
Appendix 3 Descriptive results ............................................................................. 196
Figures and tables

Figure 1.1 The entrepreneurial process (Source: Reynolds, 1997:2) .................................. 15
Figure 1.2 A venture level of entrepreneurship (Based on Davidsson, 2000:6) .......... 26
Figure 1.3 The focused and developed research model of the venture exploitation process (Based on: Davidsson, 2000). ................................................................. 29
Figure 1.4 Outline of the study .................................................................................. 32
Figure 3.1 Explaining venture opportunity variation (Based on Davidsson, 2000). ....... 49
Figure 3.2 The productive possibilities – opportunity gap (source Moran and Ghoshal, 1999:398) ........................................................................................................ 61
Figure 4.1 A latent class model of opportunity variation ............................................ 69
Figure 4.2 BIC values and class membership indicating a two-class opportunity solution .................................................................................................................. 71
Figure 4.3 the non existing relationship between gender and venture opportunity variation .................................................................................................................... 74
Figure 4.4 the non existing relationship between organizational context and venture opportunity variation ........................................................................................................ 75
Figure 4.5 the non existing relationship between industry and venture opportunity variation.................................................................................................................... 76
Figure 5.1 The conceptual model predicting progress in the nascent venturing process (Based on Davidsson, 2000) ................................................................................ 81
Figure 6.1 Graphical representation of a growth model for four time points (Based on: Muthén 1998) ........................................................................................................ 110
Figure 6.2 Growth modeling in terms of random coefficients and a multilevel model ......................................................................................................................... 111
Figure 7.1 The developed research model of the venture exploitation process (Based on: Davidsson, 2000). ................................................................. 130
Figure 9.1 The focused and advanced research model of the nascent venturing process (Based on: Davidsson, 2000). ................................................................. 158

Table 2.1 Gestation activities capturing the nascent venturing process ....................... 36
Table 2.2 The sample developmental process ............................................................. 37
Table 2.3 The sampling procedure and response rates across time .............................. 38
Table 4.1 Parameter estimates for a two-class solution ............................................... 72
Table 4.2 Probability patterns of innovative and reproducing opportunities venture opportunities .................................................................................................................. 73
Table 5.1 Gestation activities capturing the nascent venturing process ....................... 83
Table 6.1 Accumulation of gestation behaviors across time ......................................... 104
Table 6.2 Independent variables: predicting progress in the nascent venturing process 105
Table 6.3 Control variables ..................................................................................... 106
Table 6.4 Fit statistics from separate models of the opportunity exploitation process 108
Table 6.5 Longitudinal growth model results ........................................................... 116
Table 6.6 Summing up hypotheses and their outcome ............................................. 125
Table 8.1 Independent variables: predicting venture level performance .................... 141
Table 8.2 Case processing summary for the Cox-regression ........................................ 145
Table 8.3 Cox regression prediction of time to venture dissolution.......................... 145
Table 8.4 Multiple regression predicting venture level profit at 24 month follow up
N=127) ....................................................................................................................... 146
Table 8.5 Summing up hypotheses and their outcome.............................................. 152
Table 8.1 Advice to entrepreneurs in the nascent venturing process ......................... 165
Table A1 describes each ventures line of business..................................................... 192
Table A2 Item response rates N = 259..................................................................... 195
Table A3 Descriptive results from the growth model mean values, standard deviation,
and correlations innovative venture opportunities (N=40) ........................................ 196
Table A4 Descriptive results from the growth model mean values, standard deviation,
and correlations reproducing venture opportunities (N=219) ............................... 197
Table A5 Descriptive results mean standard deviation and correlations multiple
regression predicting venture level performance (N = 127)................................. 198
Table A6 Descriptive results from Cox regression time to venture dissolution (N = 506)
............................................................................................................................... 199
Part 1

Entrepreneurship as new economic activity
1. Introduction

1.1 Introduction

Why is it that some venture opportunities are turned into wealth creating new ventures, through the exploitation process, and some not? The full answer to that question is difficult to achieve in one study. However, to increase our understanding of how new ventures come into existence this study seeks to investigate four main research questions:

1. Is it empirically possible to verify the existence of two main types of venture opportunities here called innovative and reproducing venture opportunities?

2. Does the nascent venturing process vary as a function of venture opportunity variation?

3. Is variation in the nascent venturing process predicted by different background variables such as resources, strategy, and the environment?

4. Do founding conditions and process characteristics in the nascent venturing process have an impact on subsequent venture level performance?

To answer these questions a theoretical model based on multiple perspectives is developed. The model is empirically tested in a comprehensive study which been designed to provide population estimates for business starts-ups and to follow a random sample of nascent venture opportunities during the period possibly leading to a wealth creating venture. The initial random sample screened in 1998 consisted of 35,971 individuals. Out of those were 622 venture initiatives identified as being in the nascent venturing process and followed over a period of 24 months.

1.2 Background

Creating a new venture is a central aspect of entrepreneurship research and often a large and important step in the life of the individuals involved in this process
The annual Global Entrepreneurship Monitor estimates that about 286 million individuals in the 37 GEM 2002 countries, were either actively engaged in the nascent venturing process or operating a venture less than 42 months old. Since these countries include 62% of the world population, this estimate would equal about 460 million individuals worldwide (Reynolds, Bygrave, Autio, Cox, and Hay. 2002). This enormous number is nearly twice as big as the entire population in the United States of America in 2001. Participating in new venture creation processes is clearly a major social phenomenon and major part of the day-to-day lives of many individuals around the world – affecting a large number of their families and friends – thus deserving more systematic attention in its own right (cf. Reynolds et al., 2002).

In addition to the enormous amount of individuals engaged in and affected by entrepreneurial activities, recent research shows that new ventures have an increasingly important economic and societal role around the world (Davidsson, Lindmark, and Olofsson, 1994; Herron, 1994; Kirchhoff, 1994; McGrath, 1999; Reynolds et al., 2002). Indeed, new ventures are seen as a valuable source of innovation giving presumptive buyers new choice alternatives to consider, creating new markets, and attract additional new entrants as followers (Acs and Audretsch, 1990; Tushman and Anderson, 1986) and/or give present firms in existing markets reason to, in turn, improve their market offerings. Furthermore, entrepreneurship creates and distributes wealth through the creation of new jobs (Birley, 1986; Davidsson et al., 1994).

However, new ventures also fail at an alarming rate, and many surviving ventures attain only “marginal survival” (Cooper, Gimeno-Gascon, and Woo, 1994:386). Given that substantial time and effort are devoted to new ventures around the world and that these dual phenomena, the impact of successful new ventures upon an economy combined with the high cost of new venture failures, lend impetus to the investigation of how new ventures come into existence (cf. Aldrich and Martinez, 2001; Carter, Gartner, and Reynolds, 1996; Davidsson, Low, and Wright, 2001; Reynolds et al., 2002; Shane and Venkataraman 2000).

This research follows a small but growing number of researchers interested in how new venture opportunities are recognized and exploited (Aldrich and Martinez, 2001; Davidsson et al., 2001; Eckhardt and Shane, 2003; Gaglio, 1997; Gartner, 2001; Hills, Lumpkin, and Singh, 1997; Reynolds et al., 2002; Shane and Venkataraman, 2000). Figure 1.1 illustrates the entrepreneurial process from an evolutionary perspective as well as providing a general view of were in the entrepreneurial process this study aims to contribute.

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1 The United States was home to 284,796,887 residents on July 1, 2001. (http://eire.census.gov/popest/data/national.php)
Introduction

Reynolds (1997) divided the entrepreneurial process into five stages. The first stage includes the adult population and a first transition called conception, which capture where one or more individuals first consider and commit time and resources to the venture and through that process establish the nascent venture. During the second transition here called the nascent gestation process the venture’s structure develops and the operational procedure emerge into a new venture. If successfully established the new venture transform through infancy to a fledging venture and further through adolescence to an established venture or the venture can be disbanded at any time during the entrepreneurial process (cf. Reynolds, 1997). Venture dissolution is not necessarily a failure but rather one out of many possible outcomes of the entrepreneurial process which in addition to success needs more systematic studies as shown by McGrath (1999).

The main locus in this study concerns transition 1) conception in which enterprising actors make a conjecture about resources value now and in the future (cf. Casson, 1982), which is the foundation for the venture opportunity and the nascent venturing process and transition 2) “gestation” which includes the nascent venturing process that captures the flavor of the sometimes chaotic and disorderly founding process involving those events and activities that lead to and influence the creation of the new venture.

This process involves actors’ perception of the venture opportunity that are met by acquisition and management of resources (land, labor, capital and information) in order to exploit the opportunity into a wealth creating entity (Teece, Pisano, and Shuen, 1997). A behavioral and economic view of entrepreneurship follows closely Davidsson (2000:5) who states that entrepreneurship consists of the competitive behaviors that drive the market process (cf. Kirzner, 1973:19-20, Gartner, 2001). The nascent venturing process consists of purposeful behaviors executed in order to exploit the venture opportunity into a new venture (cf. Reynolds, 1997).

The outcome of the nascent venturing process is the new venture. If we view entrepreneurship as an economic phenomenon this process includes wealth

Figure 1.1 The entrepreneurial process (Source: Reynolds, 1997:2)
creation through the introduction of new economic activity that have a market impact (cf. Davidsson, 2003). Fundamentally, market exchange allow us to more efficient exploit existing knowledge as it encourages the continual relocation of resources to better-known uses (Moran and Ghoshal, 1999). North and Thomas coherently discuss wealth in relation to market exchange in this way:

The very process of trade creates wealth as goods move from persons who value them less to persons who value them more. Both parties in a voluntary exchange become better off. Furthermore, the opportunity to trade allows specialization and lowers the costs of inventing and innovating which further increase the wealth of society (1975:18).

Entrepreneurship in this perspective consists of competitive behaviors executed by individual actors combining resources in a more efficient and valuable way while imprinted by selection mechanisms in the environment (cf. Davidsson, 2003, Moran and Ghoshal, 1999; Schumpeter, 1942). Three fundamental milestones are important in this perspective and in the early stages of the entrepreneurial process; 1) the venture opportunity; 2) the nascent venturing process; and 3) venture level profit. This study seeks to develop our knowledge and provide explanations to each stage as well as to the overall research question.

1.3 Elaborations on the research problem

The proposed research questions are based on two main research problems identified in contemporary entrepreneurship discussions and empirical studies. The first problem is of a conceptual character and concerns venture opportunity variation and its impact on the nascent venturing process (cf. Shane and Venkataraman, 2000). The second problem is of an empirical character and concerns the conspicuous lack of large-scale systematic studies explicitly focusing on the nature of the venture opportunity and its impact on the nascent venturing process in entrepreneurship and innovation management (cf. Davidsson, 2003; Eckhardt and Shane, 2003).

1.3.1 A conceptual problem and research questions

The first conceptual problem pertaining to venture opportunity variation is paradoxically based in the progress of entrepreneurship as a distinct theoretical domain and research field. Entrepreneurship in the new millennium has developed into a stronger and more comprehensive conceptual domain with a
Introduction

predominant focus on recognition and exploitation of venture opportunities (cf. Aldrich and Martinez, 2001; Davidsson, 2003; Davidsson et al., 2001; Eckhardt and Shane, 2003; Gartner, 2001; Low, 2001; Shane and Venkataraman, 2000; Venkataraman, 1997). Despite this great effort attempting to delimitate entrepreneurship into a more distinct research domain the venture opportunity is often taken for granted without any serious attention. Its conceptual and empirical meaning is mostly neglected and/or absent in the literature (Shane and Venkataraman, 2000).

The problem is demonstrated in recent empirical research. Gatewood, Shaver, and Gartner, (1995:386), conclude, “Because both successful and unsuccessful entrepreneurs devote nearly the same amount of time exploiting an opportunity - the critical difference between success and failure at getting into business might be the nature of the opportunity itself”. This stream of research indicates that the quality of an opportunity may have a larger impact on venture success than has the founder or the amount of resources amassed in support of the venture (Carter, Gartner, and Reynolds, 1996; Gatewood et al., 1995; Shane and Venkataraman, 2000; Stevenson and Jarillio, 1990).

The identified problem is that the theoretical literature, more thoroughly described in part 2 in this study, discusses and distinguishes between two main types of venture opportunities here called – innovative and reproducing venture opportunities, but fails to empirically confirm the existence of different types of venture opportunities (cf. Kirzner, 1973; Moran and Ghoshal, 1999; Schumpeter, 1934). Despite having a strong conceptual position in the literature the venture opportunity is rarely incorporated in empirical studies which lead to the first research question:

1. Is it empirically possible to verify the existence of two main types of venture opportunities here called innovative and reproducing venture opportunities?

Venture opportunity variation also has implications for the subsequent nascent venturing process because it; a) is the outcome of a supply and demand combination, which is the first conjecture of the new venture and, b) generates two types of indeterminism; uncertainty and risk (Knight, 1921). Innovative venture opportunities are a unique manifestation of creative change in supply and demand were the outcome of the exploitation process is uncertain to enterprising actors (Arrow, 1962; Schumpeter, 1934). Reproducing venture opportunities, in contrast, are based on optimizing change in supply and demand were the outcome of the exploitation process is based on risk with a known underlying distribution which makes it possible to calculate the outcome of the exploitation process (cf. Sarasvathy, 2001).

The identified problem concerns again venture opportunity variation and the lack of empirical studies concentrated on the early stages of the entrepreneurial process. As described more thoroughly in part 3 in this study,
venture opportunity variation originates two types of indeterminism that influence the nascent venturing process which makes it appropriate to ask:

2. Does the nascent venturing process vary as a function of venture opportunity variation?

3. Is variation in the nascent venturing process predicted by different background variables such as resources, strategy, and the environment?

The venture opportunity and the nascent venturing process are essential stages in the entrepreneurial process (cf. Reynolds, 1997) and also antecedents of the future economic development of the venture. Entrepreneurship as an economic phenomenon creates wealth through a market exchange process in which value is created through the exchange of resources between sellers and buyers (cf. Moran and Ghoshal, 1999). If we view entrepreneurship and the market exchange as an evolutionary phenomenon (Aldrich, 1999) value is created, to some extent, on the basis of the past, which leads to the final research question:

4. Do founding conditions and process characteristics in the nascent venturing process have an impact on subsequent venture level performance?

In contrast to this discussion, as pointed out by Shane (2001) is the paradoxical situation in entrepreneurship research which assumes that the characteristics of the enterprising actor or team of actors, not the characteristics of the venture opportunity predicts new venture performance (e.g. Begley and Boyd, 1987; Khilstrom and Laffont, 1979).

If we instead, as suggested here, develop a venture opportunity-based perspective on entrepreneurship it can provide a general framework which enables explanations of many parts of the entrepreneurial process. Consequently, an opportunity based framework can be used by scholars to test central entrepreneurship questions about the discovery, evaluation, and exploitation of venture opportunities (cf. Eckhardt and Shane, 2003).

This paradox is further highlighted in a recent review of entrepreneurship research. Davidsson and Wiklund (2001) conclude that the dominant level of analysis is either the individual actor or the firm, and not the venture opportunity per se. Davidsson and Wiklund (2001) even argue that in order to make a difference and distinguish itself from other fields of research entrepreneurship should consistently use the emerging new venture as the unit of analysis rather than the established firm or the individual actor. Using such an approach is consistent with an opportunity-based perspective of entrepreneurship in which the economic activity becomes the main focus.
Introduction

In sum, the venture opportunity is a central concept in the entrepreneurship literature from Say (1971) and forward to Eckhardt and Shane 2003. The problem is that the venture opportunity is often taken for granted without any serious discussion about its influence on the entrepreneurial process. In addition, the nature of the venture opportunity has up to now been conspicuously absent from empirical studies in entrepreneurship (cf. Davidsson, 2003; Shane and Venkataraman, 2000; Eckhardt and Shane, 2003).

1.3.2 The inconsistency between entrepreneurship theory and research

The second problem is paradoxically also a consequence of entrepreneurship as a maturing research domain and closely related to the first problem. Influential conceptualizations of entrepreneurship view entrepreneurship as a process concerning recognition and exploitation of venture opportunities indicating that this phenomenon is best studied with longitudinal process studies (cf. Aldrich and Baker, 1997; Carter et al., 1996, Davidsson, 2003; Eckhardt and Shane, 2003; Gaglio, 1997; Katz, 1997; Reynolds, 1997; Shane and Venkataraman, 2000; Venkataraman, 1997). Despite, recent developments in research designs that allow us to collect large scale systematic data the literature clearly reveals that entrepreneurship research designs and analysis methods in general are inconsistent with the view of entrepreneurship as a process (For a review see Chandler and Lyon, 2001; Davidsson and Wiklund, 2001).

Focusing on the creation of new economic activity that takes place in the early stages of ventures life moves entrepreneurship as an empirical research field into uncharted territory both in terms of research designs and research methods. Up to now the empirical literature is almost void of large scale venture level longitudinal studies of the nascent venturing process. It is problematic that most entrepreneurship studies still are cross-sectional in nature, focusing on young organizations - rather than new ventures, using independent variable predictors that are measured subsequent to their founding and applies, at best static cross-sectional multivariate analysis techniques when most conceptual models define entrepreneurship as a process, i.e., a phenomenon developing across time (i.e., Chandler and Lyon, 2001; Cooper et al., 1994; Dunkelberg and Cooper, 1982; Low and McMillan, 1988).

As long as this inconsistency between theory, research design and analysis methods exists, entrepreneurship as a distinct research domain will be in question and our ability to explain the creation and emergence of new activity will be limited. Consequently, this is an opportunity to stop and think, not only conceptually, but also to empirically test whether general assumptions and empirical results can be explored and confirmed in a more rigorous way than in which they first were discovered (cf. Davidsson et al., 2001). Large scale
longitudinal research designs need to be analyzed with dynamic longitudinal analysis techniques capturing individual variation in development across time.

1.4 Method

The panel survey used in this study is the Swedish part of the Panel Studies of Entrepreneurial Dynamics (PSED). This is a unique multi-year tracking of a cohort of new ventures. Each venture were identified prior to launch of their firms and are being tracked through gestation, launch and forward in time. The design provides population estimates for business start-ups (Reynolds et al., 2000).

This project is the most comprehensive research effort ever conducted to longitudinally examine the early stages of the entrepreneurial process. The project was initiated and guided by Paul Reynolds. In addition, the study involves a voluntary collaboration of 110 researchers from 51 institutions in 9 countries. Most of these collaborators helped to fund the initial stages of the study, as well as to design the panel sample and the questionnaire. This group of researchers formed the Entrepreneurial Research Consortium and sponsored this project during its first five years.

The Swedish PSED study is an efficient and coordinated research effort. Different researchers worked, in parallel, out of different theoretical perspectives and methodological considerations. Therefore, results and conclusions from this study are developed simultaneously with other research efforts in the same project. In addition, different research projects within the research group will show considered variation in theory, methods, and results, due to the aim of each particular study (other studies are for example; Davidsson and Honig, 2003; Delmar, and Shane, 2003; Fiet and Samuelsson, 2000; Honig and Karlsson, 2001; Honig and Karlsson, 2002; Samuelsson, 2001; Shane and Delmar, in press).

The initial random sample screened in 1998 consisted of 35,971 individuals. Out of those were 622 identified as being in the initial stage of the venture opportunity exploitation process. Based on this sample, each venture opportunity is identified, classified and used as the unit of analysis. We collected information about the nascent venturing process by repeated phone surveys every sixth month between 1998 and 2000.

As outlined in the research questions this study investigate three essential stages in the entrepreneurial process. First it examines the existence of different types of venture opportunities i.e., a classification problem. A classification problem together with binary data suggests that latent class analysis is an

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appropriate analysis method considering opportunity variation (cf. Muthén and Muthén, 1999). The initial sample and latent class analysis is explained and used in part 2 in this study.

Second, this research seeks to investigate how different types of venture opportunities are exploited across time i.e., models of individual variation in development. A developmental problem with continuous data suggests that longitudinal growth modeling is an appropriate analysis method (cf. Muthén and Khoo, 2000). The longitudinal sample and longitudinal growth modeling is further discussed and explained in part 3 in this study.

Third, this study investigates the impact founding conditions and process characteristics in the nascent venturing process have on subsequent venture level performance i.e., longitudinal models of individual variation in outcomes and subsequent performance. Prediction of future events suggests that event history analysis is an appropriate analysis method as well as OLS multiple regression (cf. Muthén and Khoo, 2000). The final sample of ventures as well as Cox regression – a particular form of event history analysis is explained and used in part 4 of this study.

Statistical Package for the Social Sciences (SPSS) is used for descriptive and regression analyses and Mplus is used for latent class analysis and longitudinal growth modeling.

This dataset possesses three main advantages; first, quantitative data facilitate explanation and/or prediction among a large set of variables to the population using standard statistical procedures; second, it is possible to build up on and develop previous knowledge obtained with similar methods, and third, it is possible to include time in the analysis thereby allowing for causal analysis. Although, this is not a true random sample of venture opportunities, because the sampling frame is based on individuals, it is probably as close to a random sample of venture opportunities that we can come with contemporary research designs.

1.5 Delimitation of scope and key assumptions

To be precise, the current research does not make any knowledge claims about the opportunity recognition process, i.e., this study starts with a venture opportunity already recognized and it ends with the gestation process and the new venture and makes no conclusive normative claims of why certain new ventures become fledging and established ventures. This delimitation is based on time, data considerations and the belief that this is an under-researched area. This particular phenomenon deserves systematic attention because it has an impact on individual ventures future performance and economic development on a societal level.

In relation to the conceptual delimitation made in 1.1 it is appropriate to make empirical adjustments. This research follows a large sample of Swedish
venture opportunities from conception and during the gestation process, a process that I refer to as the nascent venturing process. This study stretches across a period of 24 months. Prior research indicates that most ventures are either developed into a new venture or abandoned during the initial two years of existence (cf. Carter et al., 1996). In addition, due to resource constraints, this study limited to only one Swedish cohort of venture opportunities, which means that there might be unique contextual factors across time that is difficult to control for.

1.6 Theoretical framework

Theory is here defined as “a set of interrelated constructs (concepts), definitions, and propositions that presents a systematic view of explaining and predicting the phenomena (Kerlinger, 1973:4). The research logic follows Gartner (1989:29), who emphasizes that a theory gives a study a specific purpose and logic. A theory explains by giving reasons for why specific variables influence or are influenced by other variables and a theory inform us about causality, that is, which variables influence other variables.

Together a theory offers a model of the phenomenon as well as definitions of all the variables included in the model. As described below entrepreneurship is here viewed as a multi-dimensional phenomenon and as such, there is not one single theory that includes all aspects of entrepreneurship. The theoretical model presented here is based in the disciplines as suggested by Low (2001). Theories from economics, psychology, and sociology form the foundation for the proposed model of the recognition and subsequent exploitation of venture opportunities. Each part of the theoretical model is then developed into specific hypotheses in subsequent parts of this study.

1.6.1 Entrepreneurship defined

A historical review of the field shows that research in entrepreneurship come from diverse fields such as anthropology (cf. Stewart, 1991), psychology (cf. Shaver and Scott, 1991), sociology (cf. Aldrich, 1999; Reynolds, 1997), economics, (cf. Baumol, 1993; Kirchhoff, 1991) and management (cf. Stevenson, 1985). Attempts to conceptually discuss, refine, and define entrepreneurship both in terms of a definition as such and as a scholarly domain are found in for example: (Bull and Willard, 1993; Davidsson, 2003; Gartner, 1988; Gartner, 1990; Gartner, 2001; Hornaday, 1990; Low, 2001; Low & MacMillan, 1988; Lumpkin & Dess, 1996; Shane & Venkataraman, 2000; Stevenson & Jarillo, 1990; Venkataraman, 1997). However, despite a by now substantial amount of research under the label entrepreneurship, no commonly accepted definition exists. The overall interpretation is that the field
is fragmented; no coherent conceptual framework exists, definitions are numerous, and altogether entrepreneurship can include almost anything (Shane and Venkataraman, 2000).

There are both advantages and disadvantages with a research field in between new and old. Entrepreneurship as a research field is to some extent relatively mature and as such; it may advance in relation to the accumulated knowledge already existing in other research disciplines (cf. Davidsson, 2003, Low, 2001). On the other hand, without a distinct domain, synthesizing different results without some common conscious sense of the fundamental attributes of entrepreneurship would merely add a layer of confusion around what entrepreneurship is and what entrepreneurship research ultimately seek to explain (Gartner, 1990). “Only by making explicit what we believe can we begin to understand how all these different parts make up a whole” (Gartner, 1990:28). To become a legitimate research domain, entrepreneurship needs to develop a conceptual framework that differentiates itself from other research domains. Entrepreneurship needs to explain and predict a set of empirical phenomena that are not explained or predicted by conceptual frameworks already established in other fields (cf. Davidsson et al., 2001; Gartner, 2001; Shane and Venkataraman, 2000).

It has recently been suggested that the debate that exists around the word and meaning of entrepreneurship depends on the confusion that exists around the distinction between entrepreneurship as an economic phenomenon versus entrepreneurship as a scholarly domain (cf. Davidsson, 2003; Davidsson, et al., 2001, Gartner, 2001). The distinction between entrepreneurship as an economic phenomenon and as a scholarly domain becomes evident when we study the initial phase of the entrepreneurial process as illustrated in figure 1.1. The venture develops through conception and gestation without any economic effect hence it is not entrepreneurship as an economic phenomenon. However, this process is of scholarly interest because it has a significant impact on individuals and resources involved in the process. Each venture needs to pass these stages in order to become a new venture. Entrepreneurship as a scholarly domain therefore needs to encompass the entire process of the emerging economic activity from infancy to adolescence (cf. Aldrich and Martinez, 2001; Davidsson et al., 2001).

On the other hand, entrepreneurship as an economic phenomenon also has an economic impact as described by Schumpeter (1942) over half a century ago. An economy is characterized by both intensely competitive markets and multiple firms, coexisting in a constant state of vigorous but creative tension. This is also the basis of the process of creative destruction in which firms continuously interact, on the one hand, creating and realizing new value, and

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1 This research owes intellectually and personally to the Research program on entrepreneurship and growth at Jönköping international business school. Between 1999 and 2001, I had the opportunity to develop a conceptual framework in cooperation and opposition with leading scholars in the field.
markets, on the other hand, forcing these same firms to surrender, over time, most of this value to others. The tension, causes this process to repeat itself over and over again, which induces the system to evolve by forcing actors to accept this “handing of the fruits of progress” to consumers and workers (Schumpeter, 1947:155) and to recognize and exploit other opportunities the process generates or else lose control over resources to those who are able and willing to pursue new venture opportunities more efficiently than when they first appeared (Penrose, 1959).

Despite, the by now well known, creative destruction, formal models of economic growth seems to offer little to reflect or model such a process (cf. Moran and Ghoshal, 1999). Nelson (1994:26) writes: “the new formal models continuous in the spirit of the older ones in treating the actions of firms as determined by the environment they are in, and ignoring anything like Schumpeter’s ‘entrepreneurship’ or Abramovitiz’ ‘enterprise’.

The problem, despite Schumpeter’s and Abramovitiz’ work, research intended to be in an entrepreneurship domain is far from a commonly expressed view of what entrepreneurship is and is not (Shane and Venkataraman, 2000). One recent suggestion is to conceptually delimitate entrepreneurship into an economic phenomenon which concerns the creation of economic value (cf. Davidsson et al., 2001; Shane and Venkataraman, 2000). Creating value, be it by individuals or through the venturing process, is a process that involves the use of resources. Undeniably, securing the most efficient use of resources is what many believe to be “economic problem” that confronts society as a whole (Hayek, 1945). Resources refers to all existing assets, both tangible and intangible, whose services can be used productively (Penrose, 1959; cf., Wernerfelt, 1984). In this perspective the “use” is viewed as a process of discovery and exploitation of resources in order to assess their productive potential, which is not clear initially (Moran and Ghoshal, 1999). Indeed, entrepreneurship is a process whose every element takes considerably time in revealing its true features and ultimate effects (Schumpeter, 1942:83). However, the mere existence of more productive services made possible by new resource combinations does not ensure economic development. It simply enhances the potential and creates new sources of potential value. Economic development, however, is created only in situations in which the potential is realized and when this realization exceeds the cost of services withdrawn. Value creation generally requires some awareness of this potential and some subsequent deployment to exploit it.

Consequently, entrepreneurship involves the creation of economic value through the realization of resource combinations in which realization exceeds the costs cost of services withdrawn. Based on this discussion it is possible to define entrepreneurship as the creation of new economic activity (Davidsson et al., 2001; Davidsson and Wiklund, 2001; Low and McMillan, 1988; Schumpeter, 1934).
Introduction

Creation includes both recognition of creative and optimizing supply and demand combinations together with exploiting behaviors and the outcomes of such combinations into new-to-the-market economic activity or disbanded ventures (cf, Moran and Ghoshal, 1999; Schumpeter, 1934; 1942). Entrepreneurship consists of entrepreneurial opportunities that require new means-end combinations and all other opportunities for profit (cf. Shane and Venkataraman, 2000). The proposed definition focuses entrepreneurship research on a phenomenon not explicitly studied by other research domains – the recognition and exploitation of venture opportunities (cf. Davidsson, 2000). Consequently, the field of entrepreneurship involves the study of sources of opportunities, the processes of recognition, evaluation, and exploitation of opportunities and the set of actors that discover, evaluate, and exploit them (cf. Davidsson, 2000; Low & McMillan, 1988; Stevenson & Jarillo, 1990; Shane & Venkataraman, 2000; Venkataraman, 1997).

Entrepreneurship, in this perspective, is not linked to a particular type of organizational context or outcome (Stevenson and Jarillo, 1990; Shane and Venkataraman, 2000; Venkataraman, 1997; Zahra, Karutko, and Jennings, 1999). Several modes of exploitation may be possible. Venture opportunities can be exploited in de novo start-ups as independent firms or by established organizations as internal ventures. Creating new organizations are an important aspect of entrepreneurship (Gartner, 1988). However, entrepreneurship as a research domain should not confine itself only to organizational emergence. Instead, entrepreneurship could include the study of emerging economic activity across organizational contexts (Van de Ven, 1996). In sum, entrepreneurship as the creation of new economic activity consist of resource combinations, exploited into new ventures through the separate, purposeful acts or behaviors that individuals carry out, in an environmental context, in order to recognize, evaluate, refine, and exploit their potential economic value (cf. Davidsson, 2003; Gartner, 1988; Stevenson and Jarillo, 1990; Shane and Venkataraman, 2000).

1.6.2 A venture level model of entrepreneurship

Entrepreneurship as the creation of economic value suggests that models of this process should be built around the economic activity per se and not persons or firms because value can only be assessed in relation to the costs of services withdraw. In addition, entrepreneurship models built around the economic activity itself needs to be dynamic allowing different outcomes and feedback loops because resource combinations alters our perception of value and diffuses information which may lead to additional resource combinations (Hayek, 1945).

The proposed venture level model of entrepreneurship is conceptually different from most other entrepreneurship models that often start with a
person or a firm (cf. Davidsson and Wilkund, 2001) and that it also has its starting point in the nascent stages of the entrepreneurial process.

The model starts with resources and resource combinations. We conceive of resources in terms of supply and the environment in terms of demand because change in supply and demand is a necessary condition for individuals to recognize a venture opportunity (Schumpeter, 1934). The venture opportunity is based on individual actors’ conjecture that resources are not put at their best use. Ownership or possession of resources is not a necessary condition for venture opportunity recognition to take place (cf. Stevenson and Jarillo, 1990). Instead, venture opportunities are viewed as conjectures based on information of resources value now and in the future which is based in supply and demand combinations, as illustrated in figure 1.2 by resource and environmental combinations (relationship a and d).

Venture opportunities need to be exploited in order to have an economic impact. Entrepreneurship is therefore seen as a process that evolves across time and both venture opportunity recognition as well as exploitation is seen as overlapping processes (cf. Bhave, 1994; de Konig, 1999). The literature includes a number of names for this process such as “opportunity discovery”, “idea generation”, “opportunity formation”, “opportunity identification”, “opportunity detection”, and “opportunity refinement” (Bhave, 1994; Christensen and Peterson, 1990; Christensen, Madsen, and Peterson, 1994; de Konig, 1999a; de Konig, 1999b; Gaglio, 1997; Hills, 1995; Kaish, and Gilad, 1991; Long and McMullan, 1984; Shane and Venkataraman, 2000). The common theme in the literature is that opportunity recognition is a cognitive process that evolves across time, which has implications for the opportunity exploitation process. An opportunity based perspective suggests that the venture opportunity is an essential milestone in the entrepreneurial process because it constitutes the first conceptual evidence of the new economic activity.

![Figure 1.2 A venture level of entrepreneurship (Based on Davidsson, 2000:6)](image-url)
Introduction

The opportunity in part determines what type of environment the opportunity operates in \((e)\) and the external environment in turn not only affect the opportunity, but also its further development \((d)\). The opportunity further influences what recognition and exploitation behaviors are undertaken and may have a direct influence on the outcomes of the exploitation process \((j)\). Recognition and exploitation behaviors are influenced by the initial resource endowment \((h)\) and by reactions from the environment \((f)\) that has been enacted \((g)\). Behaviors are undertaken in the interaction with the external environment \((f, g)\), which further feedback resources in the form of acquisition of knowledge and tangible resources \((l)\). This part of the model concerns the nascent venturing process and is also viewed as an essential part of the entrepreneurial process because all ventures need to pass this process in order to exploit the venture opportunity.

Outcomes are conceived as contingent on the behaviors \((c)\) and characteristics of the external environment \((k)\), but also on resources and the characteristics of the opportunity \((j)\). The outcome may also feedback on the antecedents of the opportunity \((m)\) (Davidsson, 2000). The model allows a range of different outcomes, from venture level dissolution to venture level profit and growth. Entrepreneurship as the creation of new economic activity suggests that an essential venture level outcome is venture level profit because without profit there would be no economic impact.

This model can be compared to other attempts to map the early stages of the entrepreneurial process. Various flow models exist at various level of detail (Carter et al., 1996; Gartner, 1985; Moore, 1986; Reynolds and White, 1993; Vesper, 1980); life cycle views of venture growth and decline (Churchill and Lewis, 1980; Kazanjian, 1988; Kazanjian and Drazin, 1990); and network models of the start-up process (Larson and Starr, 1993). In the literature this process is also referred to as organizational creation (Carter et al. 1996); organizational emergence (Gartner et al., 1992); the preorganization (Katz and Gartner, 1988; Hansen, 1990); the organization in vitro (Hansen and Wortman, 1989); prelaunch (McMullan and Long, 1990); gestation (Reynolds and Miller, 1992); entrepreneurial process (Reynolds and White, 1993) start up (Van de Ven et al., 1989; Vesper 1990; Reynolds and White, 1993); entrepreneurial venture creation (Bhave, 1994).

Comparing the venture level model of entrepreneurship with prior efforts, it is evident that the proposed model is conceptually strong and consistent with entrepreneurship as the creation of new economic activity. Instead of focusing on mode of exploitation or the creation of organizations this model focus on the creation of new economic activity \textit{per se}. This is possible due to the explicit focus on the venture opportunity and its central position in the exploitation process. However, as pointed out earlier this is not a new model instead it is an opportunity to apply a conceptually strong model on an under-researched empirical phenomenon (cf. Shane and Venkataraman, 2000).
1.6.3 Developing the venture level model

The model proposed by Davidsson (2000) is not without limitations. One of the main perspectives not discussed in Davidsson’s original model is internally-oriented perspectives of entrepreneurship such as the strategic choice perspective. This perspective suggests that the primary locus of an organization exists in the selection of goals and domains, with the most consequential act of domain selection being made at the time of founding (Bamford, Dean, and McDougall, 1999; Carter, Williams and Reynolds, 1997; Child, 1972; Weick, 1979). Strategic choice models have been applied empirically to examine short term and long term survivability of new ventures (Bamford et al., 1999; Bantel, 1998; Birley, 1986; Cooper et al., 1994; Carroll and Delacroix, 1982; Carroll and Hannan, 1989; Eisenhardt and Schoonhoven, 1990; Pfeffer and Salancik, 1978; Romanelli, 1989).

A fundamental proposition in this research is that a venture is imprinted at the time of founding and that this imprinting has lasting effects on the subsequent strategy (Boeker, 1988; 1989), structure (Stinchcombe, 1965); and performance (Bamford et al., 1999; Cooper et al., 1994; Romanelli, 1989) of those ventures. Boeker (1988, 1989) emphasized the critical importance of initial founding conditions in determining the strategy that new ventures pursue throughout their existence. The conclusion is that a venture is set on a course at founding and that this course remains stable across time. This is highlighted by Kimberly who wrote, “just as for a child, the conditions under which an organization is born and course of its development in infancy have important consequences for its later life” (1979:34). Stinchcombe (1965) emphasized the role of social structure on the forms of new ventures, arguing that their forms were temporally stable due to the institutionalization thereof. As a result, the structural characteristics of a venture tend to persist across time, and there is a strong correlation between a ventures’ current structure and the structure at initial founding.

The overall conclusions from these studies are that decisions made during founding of a new venture imprints the future development of the venture, limits its strategic choice, and has a continuous impact upon the ventures future performance. Strategy is here viewed as a decision to pursue a strategic choice and not as behavior per se and that decisions made during the nascent venturing process also have performance implications across time. This is also the core aspect of path-dependency theory, which fundamentally suggests that a venture’s future is to some extent explained by its past behaviors (Baron and Hannan, 1996; Goldstone, 1998; Metcalfe, 1994).

In addition to the internally oriented approach there are several researchers more in favor for life-cycle or growth models in order to examine venture survival and performance (Greiner, 1972; Hanks, Watson, Jansen, and Chandler, 1993; Kazanjian and Drazin, 1990). However, these studies do not oppose the argument that founding conditions are important predictors of
future performance, but suggests that the entrepreneurial process is also
classified by change and development across time that cannot only be
explained by the ventures past behaviors. This is also highlighted by Sarasvathy
(2001) in her rudimentary theory of effectuation and causation.

The literature suggests that strategic choice merits inclusion into models of
the nascent venturing process. The inclusion of strategy in the model allow us
to increase our understanding of how enterprising actors use resources, and the
environmental selection process, and strategic choices, and how these factors
interact with each other across time (cf. Aldrich and Martinez, 2001;
Davidsson, 2000). Figure 1.3 illustrates a developed research venture level
model presenting a systematic view of entrepreneurship as an economic
phenomenon. The model is made more parsimonious and gives this study a
specific purpose and logic as well as informing about causality.

**Figure 1.3 The focused and developed research model of the venture
exploitation process (Based on: Davidsson, 2000).**

Included in the model is strategy and its relation to behaviors and outcomes of
the nascent venturing process (relationship $q$ and $y$ in figure 1.3). The model is
also made more parsimonious omitting some of the original relationships
because there is always a trade off between complexity and parsimony and this
study seeks to model the nascent venturing process and outcomes from this
process. Therefore is feedback loops excluded although some implicit feedback
loops are investigated. For example, start-up experience is based on outcomes of
the nascent venturing process and therefore possible to model implicitly as a
feedback loop that influences the process.
1.6.4 Explaining essential milestones in the entrepreneurial process

In addition to asking old questions in a new empirical setting this model provides explanations to three essential outcomes depending on where in the entrepreneurial process the model is applied. First, enterprising actors need to recognize a venture opportunity. The venture opportunity is the first tangible evidence of the new economic activity and the foundation for the subsequent nascent venturing process. Part 2 in this study seeks to explain venture opportunity variation from an economic as well as an evolutionary perspective building on the early work of Schumpeter (1934), Kirzner (1973), and later work by Moran and Ghoshal (1999). Resource combinations are viewed as the first essential stages that all ventures need to pass through in order to create value.

Second, enterprising actors need to act in order to exploit the venture opportunity. “Use” in Moran and Ghoshal’s (1999) terminology refers to any deployment whatsoever, whether to exploit known venture opportunities of current resources or to discover or create new resources and new innovative venture opportunities. Schumpeter (1934) refers to this as the “purposeful acts or behaviors” executed in order to exploit the venture opportunity. Entrepreneurship is the competitive behaviors that drive the market process (Kirzner, 1973). Essentially, enterprising actors need to exploit venture opportunities in order to create value. This is also captured in the nascent venturing process through so called gestation behaviors (cf. Reynolds, 1997). Figure 1.3 illustrates how resources, the venture opportunity, and the external environment influence enterprising behaviors. Part 3 in this study discuss how venture opportunity variation as well as different background variables such as resources, the environment, and strategy influence progress in the nascent venturing process.

Third, entrepreneurship in this perspective is essentially about creating value (Drucker, 1985; Moran and Ghoshal, 1999). Economic development occurs only if venture opportunities are exploited and realized and when this realization exceeds the cost of all resources withdrawn (cf. Moran and Ghoshal, 1999). Part 4 in this study discuss entrepreneurship from an economic perspective focusing on how the nascent venturing process explains subsequent venture level outcomes.

Economic performance and/or development is often viewed as a multi-dimensional construct (Bamford et al., 1999) which makes this discussion interesting. In addition, one recurring idea in entrepreneurship is its contribution to wealth creation on different levels of society. As pointed out in the introduction, wealth is sometimes discussed in terms of job creation, industry efficiency, and economic growth in GDP etc.

From a strategic perspective firm level performance is often discussed in relation to efficient use of resources and in a comparative view (see Connoly,
Introduction

Conlon, and Deutch, 1980; Venkataraman and Ramanujam, 1986; Zammuto, 1984). These are all important aspects of entrepreneurship which could be captured with different measures.

Entrepreneurship, however, as an economic perspective, concerns value creation in relation to resource combinations and exploitation processes which essentially suggests that value is created when value exceeds all costs associated to venture opportunity recognition and exploitation. From this perspective it is possible to argue that venture level profit can capture economic value because it is the residual of market exchange between different resource owners.

Venture level profit is viewed as a temporary measure of wealth creation that captures a ventures economic impact across time. Already Say (1971) in his *Treatise on Political Economy* argues that the foundation of value is utility or the capacity of a good or service to satisfy some human desire and that utility also should cover the risk of developing the venture. Venture level profit is an important aspect of the entrepreneurial process because it creates value for society through efficient use of resources in new ventures which have a value to people in society through the creation of new jobs and products/services. Entrepreneurship in this perspective does not explicitly include other values that are important in a society such as personal development, freedom, democracy, etc.

A fourth possible outcome is venture level dissolution, which is of a non-economic character often viewed as unproblematic. However, as McGrath (1999) argues in her innovative perspective on entrepreneurial failures, many of the intangible resources associated with a new venture can lend themselves readily to new resource combinations thus lessening the risk of irreversible commitment. For example, entrepreneurs who develop knowledge and skills that can be readily redeployed in other ventures can more safely enter into other new ventures. In addition, consistent with the real option literature, entrepreneurs can use new venture as platforms for future investments (Grenadier and Weiss, 1997). This is also highlighted by Davidsson (2003) who refers to this type of disbanded ventures as “catalysts ventures”. We may view them as learning experiences paving the way for followers that can learn and develop from previous venturing experiences.

Thus, entrepreneurship theory needs to recognize the importance of processes and different levels of outcomes both immediate and long term and tangible and intangible (cf. Zahra and Dess, 2001). *In sum, this study is both consistent with the presented venture level model of entrepreneurship and with the conceptual discussions about “emergence” instead of “events” (cf. Davidsson et al., 2001; Gartner et al., 2001; Shane and Venkataraman, 2000). Entrepreneurship is here viewed as an economic phenomenon and focus is on explaining the creation of new economic activity through three important outcomes, venture opportunity variation, variation in the nascent venturing process, and venture level performance.*
1.7 Outline of the thesis

Researching a phenomenon such as the early stages of the entrepreneurial process soon becomes very complex. As illustrated in figure 1.4, there are three conceptually different but partly overlapping sequences in this process; 1) venture opportunity variation, 2) variation in the nascent venturing process, and 3) performance outcomes from the nascent venturing process.

Figure 1.4 Outline of the study

Each of these three aspects of the nascent venturing process rests to some extent on different theories and methods. However, each aspect is also a part of the nascent venturing process and should be viewed as such. This is also the basis for the structure of the study. Instead of five chapters is this study divided into five parts in an attempt to give this complex phenomenon a structure that captures both the whole and the parts. Part 1 discuss three main issues; 1) it gives a background and purpose with the study as well as providing a conceptual and methodological discussion about entrepreneurship in general and the nascent venturing process in particular.

Part 2 investigates whether it is possible to verify the existence of two main types of venture opportunities – which may be labeled innovative and
reproducing venture opportunities (relationships \(a\) and \(d\) in figure 1.3).

Part 3 seeks to formally test whether the nascent venturing process vary as a function of venture opportunity variation and if this process is predicted by different background variables such as resources, the environment and strategy (relationships \(v, b, i, h, a, f\) in figure 1.3).

Part 4 is an attempt to test whether founding conditions in the nascent venturing process have an impact on subsequent venture performance or venture dissolution (relationships \(z, p, w, y, x\) in figure 1.3) and Part 5 discuss implications for theory, research and practice and gives suggestions for further research.
2. Research design

2.1 Introduction

One of the main concerns about contemporary entrepreneurship theory and research discussed above was the inconsistency that exists between entrepreneurship as a more mature, complex and comprehensive research area and its basic research methods (cf. Chandler and Lyon, 2001, Davidsson and Wiklund, 2001). When entrepreneurship theory seeks to answer complex questions about the entrepreneurial process and obstacles to such a process data become more complex including repeated measurements across time and individuals. Often, questions are tangible but concern complex underlying processes that can only be observed with fallible indicators – for example; what particular development trajectories population subgroups have in the nascent venturing process.

In addition, data will be more complex including different multivariate form and different clustering techniques. This sets traditional cross-sectional data analysis techniques aside in favor for new latent variable technology, which is suitable for this kind of large-scale longitudinal data analysis (cf. Aldrich and Baker, 1997; Davidsson and Wiklund, 2001; Ekhardt and Shane, 2003; Muthén and Khoo, 2000).

The following issues are discussed in detail in this chapter; the longitudinal design, unit of analysis, the, sample construction, and a description of main constructs in each part of the study. More specific issues concerning each main hypothesis; such as analysis techniques, sample construction and, operationalizations are discussed in detail in each of the empirical chapters.

2.2 The longitudinal research design

There are two main purposes with the research design in this study as well as in the original PSED. The first purpose was to get a representative sample of nascent entrepreneurs drawn from the adult population in Sweden. A probability sample has the advantage of allowing inference to the population by use of statistical tests (Bryman, 1988). The second purpose with the longitudinal design is to follow a large number of nascent ventures from recognition and during the period possible leading to a wealth creating new venture (For a conceptual and technical background see: Reynolds and White, 1993; Reynolds, 1997; Shaver et al., 2001; Reynolds, 2000). A longitudinal
Research Design

design enables us to follow the entrepreneurial process over a period that allows us to study three essential sequences in the early life of a venture 1) venture opportunity variation, 2) variation in the nascent venturing process, and 3) subsequent venture level performance. This is clearly an improvement in research design that allows us to look at causality and to look at an important part of a new venture’s life (cf. Davidsson and Wiklund, 2001; Eckhardt and Shane, 2000).

The Swedish panel study was initiated and led by Frédéric Delmar and Per Davidsson who started the first pilot study in 1997. The author joined the research group in 1999 and during 2000 the author was granted full access to the entire data set (Approximately 1600 variables). The subsequent research process can be described as simultaneous iterative process of sense making of theory and data. Given that the data set was collected on the basis of the accumulated wisdom in the field, the output of that effort is a unique complex longitudinal data set that requires a thorough understanding of theory and data in order to be analyzed. It is appropriate to point out that the author was not involved in the overall design or operationalization of core constructs in the study.

Longitudinal research designs with representative samples are needed in order to confirm and develop research results from cross sectional research designs as well as test theoretically derived process models of the entrepreneurial process (Aldrich and Baker, 1997; Aldrich and Martinez, 2000; Chandler and Lyon, 2001; Davidsson and Wiklund, 2001; Eckhardt and Shane, 2003; Gartner, 2001; Venkataraman, 1997).

2.2.1 Data collection

The research project started with an initial screening interview during the summer of 1998 and ended during year 2000. Considered effort was made to ensure the quality of the data. SKOP (Scandinavian Opinion AB) a professional opinion research agency, were responsible for the screening interview, the first telephone interview and the initial mail survey. A team of carefully selected and trained interviewers conducted the following telephone interviews under the close supervision of a full time appointed data manager. This design and data collection method facilitates a high quality longitudinal database with response rates well above international comparisons (cf. Davidsson and Honig, 2003; Delmar, and Shane, 2003; Fiet and Samuelsson, 2000; Honig and Karlsson, 2001; Honig and Karlsson, 2002; Samuelsson, 2001; Shane and Delmar, in press).

Each of the respondents went through a screening phone interview aiming at selecting out the business starters and a control group1. Each individual were then asked if they were willing to participate in a longer telephone interview.

1 A random four per cent of the original screening sample not used in this study.
Every respondent located in the household was invited to complete a more detailed 60-minute phone interview and a 10-page mail questionnaire about his or her efforts to start a new business.

In order to optimize the number of possible nascent ventures in our sample we asked each respondent the following question: “Have you, alone or with others, started a new firm during the last two years?” (cf. Reynolds, 1997; Reynolds, 2000; Reynolds et al., 2002; Shaver et al., 2001). A decision rule was used to determine which of the respondents that could be defined as a nascent and who had already started a business. The decision rule was based on so-called gestation behaviors. Gestation behaviors are different behaviors associated with starting a new firm such as earned money on sales, market research, saving money to start a business (see also table 2.1 for a more comprehensive list).

Table 2.1 Gestation activities capturing the nascent venturing process

<table>
<thead>
<tr>
<th>Gestation behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/service idea or concept, Product/services initial development, Information of competition/opportunity, Saving money to invest, Team in process, Team complete, Business plan in process, Business plan completed, Projected financial statement</td>
</tr>
<tr>
<td>Application for funding, Received funding successfully, Unsuccessful search for funding completed, Purchased raw materials, supplies, inventories etc., Started investing own money, Established credit with a supplier, Purchased major item</td>
</tr>
<tr>
<td>Marketing or promotion started, Own phone line, Permits and licenses in process, Permits and licenses granted, Registered at PRV, Received tax licenses, Application for patent, copyright, trademark in process, Application for patent, copyright, trademark granted</td>
</tr>
<tr>
<td>Product/services tested on customers, Business received income, Product/services ready for sale, Devoted full time to the business, First hire, Revenues exceeded expenses</td>
</tr>
</tbody>
</table>

The eligible respondents were transferred to a longer phone interview in which they were asked if they had “initiated” or “completed” any of the gestation behaviors. They were also asked the month and year all reported actions were initiated and/or completed. Based on Reynolds (1997; 2000) suggestion, those that reported two or more firm gestation behaviors were considered “nascent ventures”. This was the lower bound. The upper bound is concerned with when the start-up process is completed, i.e., when a business is considered as started. The start-up process was considered as completed when the following criteria were fulfilled. A business is regarded as started if a) money has been invested, b) income has been made, and c) the firm is already a legal entity (cf. Carter et al., 1996).

The overall sampling strategy was to start with a large initial sample of adults because it was estimated that nascent entrepreneurs constitute a relatively small
Research Design

group in society. We collected data from two samples consisting of 49,979 individuals living in Sweden in 1998. The first sample consists of individuals aged between 16-70 years and the second sample consists of individuals aged between 25-44 years. The purpose with the first sample, here as well as in the original PSED effort, was to get a representative sample of the adult population in Sweden. A probability sample has the advantage of allowing inference to the population by use of statistical tests. The purpose with the second sample was to increase the probability of finding more interesting individuals to interview and follow.

Of the 49,979 individuals randomly selected, it was possible to obtain a telephone number for 35,971 (71.9%). The remaining 28.1% were not listed (n = 13,338), had severe disabilities (n = 381) or had moved abroad (n = 289). Of those contacted by telephone, 30,427 individuals (84.6%) agreed to participate. Out of these, 961 respondents qualified for the longer interview by answering in the screening interview that they were starting a business. Failure to establish renewed contact lead to the loss of 147 cases. Another 133 individuals were dropped from the active case file after detecting, in the longer interview that they did not qualify. As a result, 622 individuals completed the longer interview (see table 2.2).

Table 2.2 The sample developmental process

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Percent (a)</th>
<th>Percent (b)</th>
<th>Percent (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Individuals randomly sampled</td>
<td>49,979</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals with identifiable phone number</td>
<td>35,971</td>
<td>72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Individuals screened</td>
<td>30,427</td>
<td>85%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. No. of ‘Yes’ answer to nascent entrepreneur or nascent intrapreneur item</td>
<td>961</td>
<td>3.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refused to volunteer</td>
<td>-53</td>
<td>5.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not enough knowledge of Swedish</td>
<td>-6</td>
<td>0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No contact, not clear if start-up</td>
<td>-147</td>
<td>15.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started, but did not complete interview, because they were no longer starting a business (misunderstanding, changed situation, etc.)</td>
<td>-133</td>
<td>13.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. who accepted invitation to volunteer and completed longer interview</td>
<td>622</td>
<td>∗2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

∗72% of the 30,427 initially screened

2.2.2 The longitudinal panel study

The second purpose with the PSED effort was to systematically follow a large number of ventures during the nascent venturing process possibly leading to a wealth creating new venture. The longitudinal sampling procedure starts off with the 622 venture opportunities that were initially screened in 1998 to our final phone interview in year 2000. Table 2.3 below describes the sampling procedure and response rates across time.
We tracked each venture opportunity across time through a set of recurring phone and mail interviews over a period of 24 months. The interviews were conducted during the period of May-September 1998 and February-March 1999 with a mail survey in between, and during May-September 1999 and February-March 2000 with an additional mail survey in between. Every sixth month was the current venture champion interviewed by one of our skilled in-house interviewers under close supervision of a full-time appointed data manager.

The initial screening interview (NV00, n=622) collected information about the life of the venture before the interview and about the current status of the venture. This is here referred to as initial status. The research design allows us to predict initial status with information that was collected retrospectively or simultaneously during the first interview.

The following interviews collected data on venture level progress – here referred to as progress in the nascent venturing process or subsequent venture level performance. The longitudinal design allows us to model both initial status as well as progress in the nascent venturing process. It is possible to use both time invariant as well as time varying independent variables.

Table 2.3 The sampling procedure and response rates across time

<table>
<thead>
<tr>
<th>Interview date</th>
<th>Aug-98</th>
<th>Mar-99</th>
<th>Aug-99</th>
<th>Mar-00</th>
<th>Aug-00</th>
<th>Nov 98-</th>
<th>Nov 99-*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of interview</td>
<td>Phone</td>
<td>Phone</td>
<td>Phone</td>
<td>Phone</td>
<td>Mail</td>
<td>Mail</td>
<td>Mail</td>
</tr>
<tr>
<td>Label</td>
<td>Nascent venture 00 (NVp00)</td>
<td>Nascent venture 06 (NVp06)</td>
<td>Nascent venture 12 (NVp12)</td>
<td>Nascent venture 18 (NVp18)</td>
<td>Nascent venture 24 (NVp24)</td>
<td>Nascent venture mail00</td>
<td>Nascent venture mail12</td>
</tr>
<tr>
<td>Valid interviews</td>
<td>622</td>
<td>563</td>
<td>401</td>
<td>330</td>
<td>293</td>
<td>299</td>
<td>277</td>
</tr>
<tr>
<td>Response rates a</td>
<td>90.5%</td>
<td>91.9%</td>
<td>98.5%</td>
<td>88.7%</td>
<td>48%</td>
<td>69%</td>
<td></td>
</tr>
<tr>
<td>Abandoned by all</td>
<td>125</td>
<td>35</td>
<td>25</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated</td>
<td>125</td>
<td>160</td>
<td>185</td>
<td>206</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abandoned %</td>
<td>20.1%</td>
<td>6.2%</td>
<td>6.2%</td>
<td>6.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abandoned accumulated %</td>
<td>20.1%</td>
<td>26.3%</td>
<td>32.5%</td>
<td>38.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Percent of eligible cases; computed from valid interviews of ventures that were not abandoned during an earlier round of the study.

Response rates for eligible cases for the successive waves were 90.5% (6 months), 91.9% (12 months), and 98.5% (18 months) and 88.7% (24 months). The reasons for response rates well-above international comparison are; 1) Sweden is by tradition a country were people answer surveys regarding their ventures – especially telephone surveys (cf. Davidsson, 1989; Wiklund, 1998). Most businesses need to answer mandatory surveys from the government from time-to-time and the market is not yet destroyed by telemarketing. 2) A full-time appointed data manager and highly skilled
Research Design

interviewers increased the overall response rates. As much as 40 telephone calls spread over all weekdays and time of the day were sometimes used in order to facilitate a convenient time for the interview. This effort resulted in a highly qualitative database consisting of approximately 1600 variables.

As most longitudinal research designs our survey too saw a shrinking sample over time. Over 24 months the champion or the entire team of actors involved in the venture opportunity exploitation process abandoned approximately 206 (38.9%) venture opportunities. At the same time they reported that no one else was pursuing the venture opportunity. The main loss of venture opportunities took place at the sixth month follow up in which 121 (20.1%) venture opportunities were abandoned. After the six-month follow-up the rate of abandoned venture opportunities was stable at approximately 20 (6%) venture opportunities each subsequent follow up resulting in a final sample of 293 ventures at the 24-month follow-up interview. This result challenges the recurring statement that most new ventures fail (cf. Cooper et al., 1994) and gives impetus to scholars maintaining that entrepreneurship needs to include also the early period of a ventures life in order to understand the selection mechanisms that select sustainable wealth creating ventures from early abandonment (cf. Aldrich and Martinez, 2001; Davidsson et al., 2001).

2.2.3 Unit of analysis

To achieve consistency between the conceptual venture level model presented in chapter one the unit of analysis in this study is the venture itself. This is an unusual approach, but consistent with a definition of entrepreneurship as the creation of new economic activity (cf. Davidsson et al., 2001; Shane and Venkataraman, 2000; Ucsbasaran et al., 2001).

The research design as well as unit of analysis is explicitly supported by recent conceptual discussions (See, Davidsson, 2003; Eckhardt and Shane, 2003) and implicitly supported by empirical research in the field, because socio-demographic and psychological difference have not satisfactorily accounted for differences in entrepreneurial behavior and outcomes of the entrepreneurial process (Gatewood et al., 1995; Bull and Willard, 1993; Cooper and Gascon, 1992; Low and MacMillan, 1988; Van de Ven, 1995). In addition, as argued by Moran and Ghoshal (1999), value can only be assessed in relation to costs and value related to resource combinations, the nascent venturing process and exchange of resources.

Recent empirical reviews in the field emphasize the fit, or rather the misfit, between entrepreneurship definitions and unit of analysis. Davidsson and Wiklund (2001:90) put it as follows “The researchers who want to make a

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As reported in table 2.2 response rates for the mail interviews were lower than the phone interviews (299 (48%) respondents at NVm06 and 277 (69%) at NVm12). The mail interviews are not used in this study.
unique and worthwhile contribution to entrepreneurship research should seriously consider making the effort to study new enterprise efforts, although collecting this kind of data is far from easy. Finding the relevant cases may be difficult as readily available data bases on individuals and firms involved in new enterprise efforts do not exist. Using the emerging venture as “the unit of analysis” may help entrepreneurship to distinguish itself from other fields of research which is in contradiction to the firm or the individual which are now the dominant units of analysis in use (Chandler and Lyon, 2001; Davidsson and Wiklund, 2001; Eckardt and Shane, 2003; Venkataraman, 1997). However, the point is not to distinguish oneself from other researchers; the point is to achieve consistency between theory, research model, unit of analysis and analysis techniques.

The largest obstacle inherent in this approach is probably to identify the universe of venture opportunities and subsequently to draw a representative sample of venture opportunities. However, venture opportunities cannot be independent from individual actors. New ventures emerge in the interaction between enterprising actors and their environment (Katz and Gartner, 1988; Shane and Venkataraman, 2000), without the actor there will be no venture opportunities, and vice versa. Accordingly, it is not possible to sample from a universe of venture opportunities, but it should be possible to identify venture opportunities through enterprising actors. Our sampling strategy therefore aimed at identifying venture opportunities through their current venture champion (cf. Fiet and Samuelsson, 2000). A champion was someone who had simultaneously initiated or completed two of the gestation behaviors listed in Table 2.1 (cf., Reynolds, 1997; Shaver et al., 2001).

A venture may rely on several different champions during its life. However, because this research examines opportunities at the beginning of the opportunity exploitation process, the champion was typically one of the founders. It is assumed that the venture champion has best knowledge and ability to communicate information about the venture opportunity because he or she is assumed to have a good insight in the venture’s day-to-day development. Each venture opportunity was then identified and assigned a unique code that allowed us to follow each venture opportunity as it developed across time.

The alternative other researchers used is to follow only nascent entrepreneurs (cf. Davidsson and Honig, 2003; Honig and Karlsson, 2001), which, is problematic if we want to explain value in relation to overall resource endowments and if we want our research to be consistent with a definition of entrepreneurship as the creation of new economic activity (cf. Davidsson, 2003).

Unit of analysis also concerns the distinction between what has been called independent start-ups and/or nascent entrepreneurs and corporate entrepreneurship and/or nascent intrapreneurs.Basically, entrepreneurs can exploit venture opportunities on behalf of new firms created for that specific purpose or on behalf of already existing firms (Schumpeter, 1942). However,
Venkataraman (1997) argues that the choice of which entity will be used to commercialize a new venture opportunity depends largely on which organizational form will generate the highest expected value of entrepreneurial profit from the commercialization of the opportunity, and which organizational form that will be best for appropriating that value (cf. Arrow, 1962).

It is possible to argue that venture opportunities can at the outset of the nascent venture exploitation process be independent from organizational form because the actual choice of organizational form is in the future. This is based on the argument that venture opportunities are exploitable only after someone actually makes a conjecture about supply and demand change and recognize a venture opportunity. The environment affects the relative advantage and disadvantage of new and established firms in generating and appropriating the value of the venture opportunity. On average, potential entrepreneurs will respond to these cost-benefits tradeoffs by establishing new firms when new firm formation is a better mode of commercialization under a specific business regime and vice versa (cf. Shane, 2001).

Shrader and Simon (1997), summarize the literature regarding differences between independent ventures and corporate ventures and conclude that the majority of that literature is either theoretical or includes a sample composed of entirely of one type or the other. In addition, their empirical study consisting of 250 ventures younger than 8 years revealed no performance differences between independent new ventures and corporate ventures. Honig (2001) found that nascent entrepreneurs used somewhat different learning strategies compared to nascent intrapreneurs. However, a lot of this research mainly concerns “entrepreneurs” and not the economic activity per se. Despite that the literature indicates a difference between entrepreneurs and intrapreneur there is limited support for such a distinction in concerning the creation of new economic activity and the early stages of the nascent venturing process. Thus, the underlying assumption is that venture opportunity variation, progress in the nascent venturing process, and subsequent performance is not systematically related to a specific organizational form in the early stages of the entrepreneurial process.

2.2.4 Strengths with the longitudinal design

The research design and sample has several advantages over other designs and samples used to investigate the nascent venturing process. 1) It was constructed from a random sample of the adult Swedish population. Consequently, the 622 venture opportunities are at least a fair approximation of the Swedish population of venture opportunities in the exploitation process during year 1998 to 2000. 2) The database contains enough ventures to utilize statistical methods suitable to study development over time and to account for venture opportunity variation. 3) Following the venture exploitation process across time from one particular point in their lives and at the same time controlling for
time, makes it possible to establish a “time order”. That is, variables in the data
do not suffer from a time effect that might influence the longitudinal analysis.
4) The sample does not suffer from the selection bias present in most samples of
new ventures. Archival sources do not record abandoned venture exploitation
processes that fail to become new firms, biasing efforts to identify lists of new
firms. By identifying venture opportunities at their point of inception, we avoid
this selection bias. 5) This sample does not suffer from bias introduced by
respondents due to memory decay hindsight bias, or rationalization after the
fact. 6) This dataset examines the evolution of venture opportunities from
discovery and forward in time. This approach allows the examination of the
process of variation, selection and retention in the period prior to the
establishment of a formal organization – a period that is acknowledged
important to the evolution of the new firm (Baron and Hannan, 1996;
Bamford et al., 1999).

2.2.5 Potential problems and suggested solutions with the
longitudinal design

This does not mean that the chosen approach is flawless. There are also
potential problems with the longitudinal design. First, we have the issue of left
censoring; there is a problem with heterogeneity in starting dates and activity
level at the first interview because some ventures are close to up and running
and some just started. For example, the range of executed gestation behaviors in
the initial interview is between 2 and 21. Clearly this is a problem if we are
interested in development captured by a summation of gestation behaviors
across time. The ultimate study would have ventures starting from the same
point as early as possible in the nascent venturing process. Other researchers in
the group used different strategies in order to handle sample heterogeneity. For
example, Honig and Karlsson (2001, 2002), Davidsson and Honig (2003) and
Ruef, Aldrich and Carter, 2003) included all the nascent entrepreneurs
regardless whether they reported an active start during 1998 or 1974 or if the
performed 2 or 25 of the gestation behaviors described above. This approach
becomes problematic of three main reasons, 1) venture opportunity variation is
not considered, 2) it is conceptually inconsistent with entrepreneurship as an
economic phenomenon, and 3) it is methodologically difficult to handle a
sample in which starting dates vary between 1974-1998 and variation in activity
ranging from 2-21 executed gestation behaviors at the time for the first
interview. If we want to study the nascent venturing process and some ventures
actually passed that and some just started and some are in the middle there is a
risk that our results at best become biased.

Shane and Delmar (in press) and Delmar and Shane (2003) tried to
overcome this dilemma by only including entrepreneurs that reported an active
start during 1998, which ignores that even if they report a start, many
entrepreneurs actually performed gestation behaviors earlier than 1998. This means that a sample like this includes venture initiatives that actually reported behaviors before the “official start” of the study. This is problematic if we try to develop a “sequence” or order of activities in which all behaviors are included.

To solve the heterogeneity problem this study adopts a third approach based on two main strategies. First, only ventures with less than 15 executed gestation behaviors are included in the longitudinal analysis. This strategy reduces heterogeneity in initial status as well as provides us with information on progress and outcomes of the nascent venturing process. Second, longitudinal growth modeling is used because this particular analysis method allows us to predict variation in initial status as well as development over time. This approach is more thoroughly discussed in part 3 of the study.

Second, there is a problem concerning abandonment over time because it is impossible to study progress in ventures that are abandoned early in the process. The problem with progress across time is solved by only including ventures with complete longitudinal data. This solution is based on two main arguments; first on an analogy to Penrose’s (1959) argument that we need to have growth in order to be able to study it and, second, abandoned venture opportunities could be viewed as “false” venture opportunities and therefore not qualified to be included in the study. That is, actors may make a conjecture about, as they perceive it, a change in supply and demand which in fact is not a “real” change. This means that there would be a number of perceived venture opportunities without any capacity to generate venture level profit. To solve this I only include ventures with complete data in the longitudinal analysis and I also look at dissolution to see whether surviving ventures are systematically different from those that are disbanded.

The third problem concerns right censoring. For example, one objective in part 4 of this study is to predict profit. The problem is that not all ventures reached a profit at the time for the 24 month follow up interview. Hence, those ventures are in the sample but have not yet reported any information about the dependent variable. I propose two main solutions to this problem. The first is to statistically correct for right censoring and the other is to create models with different outcomes such as event history models predicting abandonment and regression models that predict subsequent performance which I do in Part 4 of this study. Event history is suitable because it corrects for right censoring. Models with different outcomes can be viewed as a kind of triangulation in which we can compare whether variables have the same effect on for example both profit and venture dissolution.

The fourth problem is related to missing data. Even if our data are outstanding when it comes to response rates, one potential threat to overall generalizability is that longitudinal data often suffers from internal missing data. That is, respondents participate in each survey but refuse or fail to answer all questions for some reason. One solution to this problem is to execute a missing data analysis to establish how data are missing. If data is missing randomly it is
possible to use different missing data modeling and imputation strategies in order to use as much and accurate information as possible. Missing data implications and solutions are more thoroughly discussed in Appendix 1. In sum, this research utilizes a unique longitudinal research design together with appropriate state of the art longitudinal statistical techniques.

2.3 An overview of contents in each part of this study

The following section discusses the measurement strategy that is used in this study; much of this discussion is given because data come from an established data set as described above. Most of the measures are valid and tested in another context that gives little room for adaptation.

Part 2 discusses theory in relation to venture opportunity variation. Latent Class Analysis (LCA) is used to empirically distinguish between two types of venture opportunities here called innovative venture opportunities and reproducing venture opportunities. I capture innovativeness with four binary indicators; 1) patent, 2) research and development priority, 3) product/service uniqueness, and 4) alone in the market. These are all measured at the time for the first interview. Hence it is possible to utilize the full potential of the full 622 cases.

Part 3 discusses theory in relation to the nascent venturing process and individual variation in this process. I use Longitudinal Growth Modeling (LGM) to test whether progress in the nascent venturing process varies as a function of venture opportunity variation and if that process can predicted by different background variables? Progress in the nascent venturing process is captured through a summation of 30 so called gestation behaviors. That is, behaviors enterprising actors perform in order to exploit a venture opportunity. Progress in the nascent venturing process is measured every sixth month. Predictor variables are venture opportunity variation, resources, strategy, and the environment. The longitudinal analysis requires complete data from 219 cases that reported progress during the initial 18 months of the study.

Part 4 theorizes about founding conditions and process characteristics in the nascent venturing process impact on subsequent venture level performance. I use multiple regression and event history analysis to investigate whether the nascent venturing process and founding conditions have and impact on outcomes of the process. I capture two types of outcomes; 1) wealth creation through venture level profit and, 2) venture dissolution. I capture founding conditions with the venture opportunity, resources, strategy and the environment, and characteristics of the nascent venturing process with a measure that captures progress in the process. The final analysis consists of 127 ventures with complete data across 24 months.
2.4 Epistemological approach

Epistemology concerns the fundamental theory of knowledge and the way it can be produced (cf. Woolgar, 1988). This study confirms to a philosophical doctrine called scientific realism (see Boyd, 1984; Byerly and Lazara, 1973; Psillos, 1999; Putnam, 1972; 1975a; 1975b). The aim here is to study general aspects of a phenomenon, for example general types of venture opportunities and to generate knowledge about that process based on empirical observations. The venture opportunity is here perceived of as an empirical phenomenon that can be observed through human interaction. This is consistent with the purpose of scientific realism, which is to describe and explain the observable and unobservable aspects of empirical phenomena (Trigg, 1993).

The characteristic product of scientific research is knowledge of largely theory-independent phenomena and that such knowledge is possible even in those cases in which the relevant phenomena are not, in any non-questionable-begging sense, observable. For example, if you obtain a good contemporary physics textbook you will have good reason to believe (because the scientists whose work the book reports had good scientific evidence for) the (approximate) truth of claims it contains about the existence of quarks etc. Additionally, you have good reason to think that such phenomena have the properties attributed to them in the textbook independently of our theoretical conception in physics.

The development of theory and methods makes these approximations more accurate because they are instrumentally correct and work in practice. This is based on the assumption that the special epistemic role of the senses derives from the fact that they are the only detectors we have built into our bodies but the range of phenomena we can detect and measure can be broaden by extending the range of our senses through the use of instruments and procedures whose justification is theory dependent (cf. Hacking, 1982). Observations are according to this theory dependent and can be viewed from different approaches. Thus, the argument for scientific realism is abductive – the cause of a phenomenon is inferred from its effect (Trigg, 1993). Through the use of scientific methods it is possible to establish structural relationships between different phenomena. In defining scientific realism, Boyd (1984) stresses that scientific theories, realistically interpreted, can be confirmed, are often confirmed as scientific proofs, and interpreted according to established methodological standards (Wiklund, 1998:76).

Scientific realism has arguably proven itself a valid approach in organization studies (McKelvey, 1997) as well as in entrepreneurship studies (Wiklund, 1998). McKelvey (1997) argues that in an early stage in a research field it is appropriate to use idealized models. Complexity needs to be reduced so that relatively simple rules apply which makes interpretation possible. As theory develops, more complexity can be allowed into the models and further more complex models can be developed. This is consistent with entrepreneurship as a
maturing field of the social sciences.

One problem in this approach is to decide on how much a model can be idealized and still claim to represent an adequate explanation of the phenomenon under study. Miller (1987) presents some general criteria to evaluate what is a suitable model in social science. The initial requirement is that a sufficient number of explanatory factors need to be identified and incorporated in the model. The second requirement is that explanatory factors need to be necessary to bring about the phenomenon and finally, explanations need to be “deep”, i.e., to reach sufficiently far back in the causal chain. The conceptual model presented in this study is a trade off between parsimony and complexity. This model is based on an assumption that it includes a sufficient number of explanatory factors as well as reaching sufficiently far back in the causal chain starting with the venture opportunity. Based on this it should be possible to achieve a better understanding of the nascent venturing process as it evolves across time.

The scientific realism approach has some important implications for empirical research that also serves as guidelines for the method in the present study. Knowledge is here viewed as cumulative and it is important to build upon existing theories and findings in order to extend our understanding of a specific phenomenon. From this perspective progress within the field of entrepreneurship has been limited (Aldrich and Baker, 1997) and further research building on previous findings and theories is needed. The relevance of theories is determined by confronting them with empirical data. The scientific realist approach emphasizes that theories explanatory and predictive power needs to be assessed through quantitative data and statistical techniques (Psillos, 1999). According to the discussion above results from this study is dependent on the theoretical framework and as such it is open for scientific debate. This debate is made possible through a continuing discussion about choices made in respect to research design and other method related issues in each part of this study as well as presenting data and procedures that makes replication and extensions of this study possible.
Part 2

Venture opportunity variation
3. Venture opportunity variation

3.1 Introduction

The aim with this part of the study is to theoretically derive and empirically test the venture opportunity variation hypothesis and answer the first research question: *is it empirically possible to verify the existence of two main types of venture opportunities here called innovative and reproducing venture opportunities?* Chapter 3 below discusses venture opportunity from a theoretical perspective and chapter 4 discusses the empirical test and results concerning venture opportunity variation. Figure 1.3 place this part of the study in relation to the overall research model and illustrates how the environment (arrow d) containing both supply and demand and resources (arrow a) here defined in terms of supply explains venture opportunity variation.

![Figure 3.1 Explaining venture opportunity variation (Based on Davidsson, 2000)](image)

As mentioned already, despite the central position in the conceptual development of entrepreneurship as a scholarly domain, the venture opportunity and its conceptual and empirical meaning is mostly neglected and/or absent in the literature (cf. Davidsson, 2000; Shane and Venkataraman, 2000; Venkataraman, 1997). A literature review of recent conceptual and empirical investigations of venture opportunities revealed no commonly accepted definition and in most areas is the venture opportunity taken for granted without any serious attention either to its definition or its conceptual
meaning (see Bhave 1994; Casson, 1982; Chandler, 1999; Cooper, 1995; Davidsson 2000; Eckhardt and Shane, 2003; de Koning 1999; Hills and Shrader, 1998; Karlsson and Junehed, 2000; Kirzner, 1997). In terms of theory development non-existing or confusing definitions is a threat to the future development of entrepreneurship as a distinct research domain. If we want to develop our understanding of the venture opportunity as well as building theory the first step in this process is a definition that lends itself for empirical tests (Whetten, 1989).

3.2 Venture opportunity defined

This research tries to conceptually include, define, and classify venture opportunities (cf. Drucker, 1990; Eckhardt and Shane, 2003; Gaglio, 1997; Shane and Venkataraman, 2000). A venture opportunity is sometimes described as a fuzzy phenomenon somewhere in between abstract and concrete, now and in the future, anything and everything. Perhaps is the “fuzziness” a reason for our limited understanding of the concept. However, if we believe that even a fuzzy concept lends itself for empirical investigation we need to clearly state any underlying assumption that we make as well as define the central constructs we want to explain (cf. Gartner, 2001).

An opportunity variation hypothesis is founded on the assumption that an economy is permanently characterized by heterogeneity (cf. Davidsson, 2003). An economy consists of human actors heterogeneous with respect to experience, skills, and cognitive capacity (Cohen and Levinthal, 1990; Conner and Prahalad, 1996) as well as diverse motivations (Birley and Westhead, 1994). It follows from this that the universe of opportunities is not the same for all individuals (Eckhardt and Shane, 2003; Shane, 2001). Actors with differences in resources and differences in their environmental context will discover and exploit different types of opportunities. Hence, resources, the environment, and behaviors will vary as regards what type of opportunity enterprising actors decide to exploit. It is therefore important to increase our knowledge about the venture opportunity and its impact on the entrepreneurial process.

Shane and Venkataraman (2000), made an effort to conceptually discuss entrepreneurship as a distinct domain and based on Casson (1982) they define “entrepreneurial” opportunities as “situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production” (Shane and Venkataraman, 2000:220). This definition moves the field toward a more concentrated research domain. However, there are two main limitations with this definition. First, entrepreneurship as an economic phenomenon requires outcomes that have an impact on the market. Entrepreneurship as a scholarly domain, on the other hand, needs to be able to study the venture exploitation process in real time (cf. Aldrich and Martinez, 2001; Davidsson et al., 2001; Singh, 2001, Zahra and
Venture opportunity variation

Dess, 2001). Outcome-based definitions are problematic because we are forced to study the venture opportunity after-the-fact and retrospective studies might suffer from memory decay and after fact rationalization as well as from success bias.

The second limitation is the distinction between entrepreneurial opportunities and all other opportunities for profit. Shane and Venkataraman (2000) maintain that the former should be considered as entrepreneurship but not the latter. Entrepreneurship consisting only of entrepreneurial opportunities differ – according to Shane and Venkataraman (2000) – from all other opportunities for profit in that entrepreneurial opportunities include only situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at a profit (cf. Casson, 1982). Entrepreneurial opportunities require the discovery of new means-ends relationships, whereas all other opportunities involve optimization within existing means-ends frameworks (cf. Kirzner, 1997).

An approach like this becomes problematic if we view entrepreneurship as an economic phenomenon consisting of profitable processes within existing means-ends resource combinations as well as in new means-ends combinations. If we exclude all other venture opportunities from entrepreneurship research we also run the risk of excluding a majority of all new ventures that are created around the world (cf. Reynolds et al., 2002). In addition, only including entrepreneurial opportunities closely follow the by now extensive research on innovations (cf. Rogers, 1995).

Instead, entrepreneurship as an economic phenomenon focused on value creation should include explanations on how different types of venture opportunities come into existence and the impact they have on the entrepreneurial process. If we, as suggested here, view entrepreneurship as an economic phenomenon it is possible to achieve this understanding through an alternative approach in which we capture the essence and content of the venture opportunity as it is perceived when individual actors recognize the venture opportunity at the very commencement of its existence.

Webster (1996) defines an opportunity as “a favorable juncture of circumstances”. In economical terms, it is possible to interpret this as combinations (junctures) of supply and demand (circumstances). To be a venture opportunity, human actors need to make a conjecture about resources value now and in the future (Teece et al., 1997). The conjecture is based on information about supply and demand combinations and their prospective pay-off, which includes both a perception about the current situation, that allows us to study entrepreneurship in real time, as well as future states, because entrepreneurship have an impact on society (cf. Fiet, 1996; Hayek, 1945; Knight, 1921). Combinations refer to all the many ways in which resources are passed into products and services (Moran and Ghoshal, 1999). As Schumpeter puts it, “To produce means to combine the things and forces within our reach. Every method of production signifies some such definite combination.” This
encompasses “everything that is production in its widest sense” (1934:14). Combinations can be the intended result as in normal production, but also an unintended by-product of some other deployment, or they may be created through the coincidence of two or more uncoordinated deployments made independently by each others (cf. Moran and Ghoshal, 1999).

Recognizing venture opportunities involves uncertainty as to the outcome of a particular supply and demand combination. “Situations” can be viewed as individuals’ perception about supply and demand combinations that together form the conjecture about a future venture. However, the opportunity, in this perspective, is not an objective phenomenon. Human actors need to recognize and as described above, create – the venture opportunity to bring it into existence.

The venture opportunity, viewed from an informational economics perspective, is not supply and/or demand per se it is information about possible combinations of supply and/or demand and the possible outcomes of such combinations (cf. Fiet, 1996, Hayek, 1945). Consequently, it is possible to define a venture opportunity as: venture specific information about a perceived supply and demand combination.

Venture specific information is here defined as any element of a system that provides meaning regarding an observed relationship between supply and demand (cf. Dreyfus and Dreyfus, 1986; Fiet, 1996). A venture opportunity is recognized because venture specific information about market inefficiencies alters resources value to informed actors. To be venture specific, signals need to be specific in terms of valuable information, only information that is hard to imitate, and include both supply and demand, will have the potential to generate entrepreneurial profit (Barney, 1997; Hayek, 1945). Distribution of information is often imperfect and actors have different beliefs about the relative value of resources and differences in knowledge on how to transform them into a different state in order to exploit a new venture opportunity (Campbell, 1982; Gaglio, 1997; Kirzner, 1997). Therefore, some actors will perceive information before and perhaps different from other actors which can act on the information and purchase and recombine resources at below their

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1 It is possible to understand supply by the factors that influence the choices of those who supply goods through venturing activities. Supply consists of productive inputs and technology. Productive inputs are labor, land, natural resources, and intermediate goods. Advancement in technology also refers to advancement in human knowledge. The level of technology establishes the relationship between inputs and the output they can generate (Gwartney, et al., 1996). Demand, on the other hand, is defined as the aggregated available spending power available in a market at any given period (Kotler, 1991). In mainstream economics, demand has four components: 1) consumption, 2) investments, 3) government, and 4) net exports. Determinants of change in consumption are change in income, preferences, future expectations, and demographics. Determinants of investments change are the relationship between sales and capacity, expected future sales, and the interest rate. Government demand determinants are both economic and political and the same yields for net exports (cf. Dean and Meyer, 1996, Drucker 1985, Timmons 1999).
equilibrium value in order to sell and earn entrepreneurial profits (Hayek, 1945; Schumpeter, 1934). In sum, venture opportunities exist because people perceive information about supply and demand differently from each other due to contextual factors, experience and knowledge differences.

3.3 Venture opportunity variation

The fundamental determinant of a venture opportunity is the perceived change in supply and demand (Kirzner, 1973; Knight, 1921; Mises, 1949; Rosen, 1983). Change is defined as a movement away from a present state toward a future state (Fox-Wolfgramm, Boal, and Hunt, 1998). Change, by its very nature, alters the underlying assumptions upon which production decisions are made. As a result, productive activities based on prior assumptions of market conditions are either inefficient or no longer perfectly in concert with demand (Dean and Meyer, 1996). When the different plans of individuals are mutually compatible, the market is in a state of equilibrium (Hayek, 1948). At equilibrium, price is equal to the marginal cost of production, and economic profits are absent (Scherer and Ross, 1990). It is possible to argue that change is a necessary precondition for the existence of an opportunity to create future goods and services both from a disequilibrium perspective and from an equilibrium perspective.

Two main types of change are important to economic behavior. The first type of economic change expresses a creative aspect, which if acted on initiates developmental processes under uncertainty (Hayek, 1945; Kirzner, 1973; Knight, 1921; Mises, 1949; Rosen, 1983). A perspective supported by economists coming from diverse traditions such as Veblenian (Hodgson, 1993), Schumpeterian (Nelson & Winter, 1982; Shane and Venkataraman, 2000), Austrian (Witt, 1992), and Keynesian (Robinson, 1979). In general, they advocate the irrelevance of the notion of equilibrium in a world characterized by evolutionary change (see Nelson, 1994).

On the other hand, there are changes that express an optimizing aspect which, if acted on, originates equilibrium adjustments under risk. This perspective is supported and developed by neoclassical economists, which have, sharpened their methods and by now provide endogenous accounts of the equilibrium approach in for example change of social institutions (e.g., Schotter, 1981), cooperative behavior, and vengeance (Guth & Yaari in Witt 1992).

Unfortunately, in entrepreneurship research the distinction between creative and optimizing change, is underdeveloped. A recent article by Eckhardt and Shane (2003) illustrates the problem. Based on Schumpeter (1934) the authors argue that most entrepreneurship research implicitly assumes that entrepreneurship involves changes in products or services, entrepreneurial opportunities can, in fact, occur as a result of changes in a variety of parts of the
value chain. Schumpeter (1934) suggested five different loci of these changes: those that stem from the creation of new products or services, those that stem from the discovery of new geographical markets, those that emerge from the creation or discovery of new raw materials, those that emerge from new methods of production, and those that are generated from new ways of organizing” (2003:340). Entrepreneurship, however, as discussed by Schumpeter, includes new products and services which clearly qualify as creative change in supply and demand, but also optimizing processes, such as the introduction of a new robot in a production line qualify according to the fourth and fifth loci of change suggested by Schumpeter (2003).

In most research is the venture opportunity taken for granted and not further discussed (Shane and Venkataraman, 2000). One potential explanation to this could be that, at least at a distance is, the theoretical propositions of the evolutionary approach incompatible with the propositions of the equilibrium approach. The incompatibility, however, does not necessarily cause that the two approaches are competing alternatives. They can be so only if they are discussing the same phenomenon. The problem and perhaps the explanation to why these are viewed as competing alternatives is that both seek to explain economic development but they do so from two different types of underlying economic change. We can view this from an economic framework in which one type of economic change expresses a creative aspect, which generates developmental processes under uncertainty. Another type of economic change expresses an optimizing aspect, which generates equilibrium adjustments under risk (Knight, 1921).

Equilibrium (risk) and disequilibrium (uncertainty) perspectives should not absorb the other because they both provide important explanations to entrepreneurship (cf. Kirzner, 1973; Schumpeter, 1934). Conceptually this is an important distinction because based on the indeterminism that each type of change originates – uncertainty vs. risk - it is possible to argue that there are two conceptually different types of venture opportunities – one involving uncertainty and one involving risk. The former is in the following discussion referred to as innovative venture opportunities and the latter as reproducing venture opportunities (cf. Aldrich and Martinez, 2001). This is a theoretically generated classification, used for modeling purposes and test of theory. It is not a “true” dichotomy but a simplification of a complex reality that helps us to understand and explain real life situations. The classes proposed here may never or very seldom be found in their ideal type. (cf. Weber, 1947) In reality we may assume the existence of a continuum ranging from pure innovations were both supply and demand may be unknown to most actors to reproducing venture opportunities were population knowledge is widely diffused and known. 

3.3.1 Creative change and innovative venture opportunities

Creative change is characterized as periodic discontinuities as opposed to optimizing change that involves development inside a given means-ends framework. Creative change in technology, for example, alters supply and demand combinations and creates new products and services. Schumpeter (1934) viewed technological change as one of the primary factors that initiated the entrepreneurial process and as the main explanation of economic development. Technological development is seen as fundamental to new combinations of goods or means of production and as a precursor to swarms of new enterprises (Schumpeter, 1934:226). However, an economy also consists of demand changes. Creative change in demand includes modification of demand characteristics such as change in taste and preferences thereby altering the type and nature of the products and services desired by buyers. Change in preferences and tastes can cause entirely new niches or industries to arise (Bedeian and Zammuto, 1991).

Schumpeter refers to this particular manifestation of economic progress as innovations. In his words, “What we, unscientifically, call economic progress means essentially putting productive resources to uses hitherto untried in practice, and withdrawing them from uses they have served so far. This is what we call ‘innovation’” (1928:378; emphasis in original). Innovative venture opportunities require the discovery of new means-ends relationships between supply and demand (Kirzner, 1997; Schumpeter, 1943) and are sometimes referred to as market pioneering (Covin, Slevin, and Heeley, 2000), and/or innovations (Arrow, 1962; Drucker, 1990).

The discovery and subsequent exploitation of innovative opportunities represent a particular form or manifestation of entrepreneurial behavior whereby individuals proactively create or are among the first to enter a new product-market arena that others have not yet recognized or actively sought to exploit (Covin et al., 1999; Shane and Venkataraman, 2000). By entering this unexploited arena, enterprising actors take the competition to a new arena, in which they hope to gain first mover advantage and some basis for a sustainable competitive advantage (Kirzner, 1985; Schumpeter, 1934). In this, product-market arena routines and competencies vary significantly from existing organizations (Picot et al., 1989, in Aldrich and Martinez, 2001). There is no direct competition (Aldrich and Martinez, 2001), and customer reaction is highly uncertain (Utterback, 1994). Design, production, and distribution require skills and resources very different from those used to provide the closest substitute products and services (Utterback, 1994).

The innovative venture opportunity is here viewed as a market phenomenon (Hauknes, 1998; Schumpeter, 1934). It is shaped and created in the intersection between supply and demand and not a “substantive event” that underlies technological innovation (an approach often found in the innovation literature, see Cosh et al., 1998). It is possible to distinguish between two main
types of definitions of innovations. One type focuses on objective criteria such as measuring some minimal height of novelty. The other type is based on more subjective criteria and actors' own perception about the venture opportunity. The first approach is found in the technical areas of innovation research in which the researcher seeks to establish technical criteria that needs to be fulfilled to be regarded as an innovation. For example, an innovation needs to be deliberate, i.e., some form of intentional behavior, they should be new or novel, exceeding some minimal novel height and they are at least partly codified i.e., an objective improvement that is possible to communicate (Hauknes, 1998; The Oslo manual, 1997; The Frascati Manual 2002). The problem with this approach is the risk of treating the opportunity as a technical event instead of a market phenomenon.

The second approach seeks to defined innovations in relation to actors' own perception and knowledge about supply and demand. Van de Ven (1986:592) defines innovations as ideas perceived to be new to an organization, even though it may appear to be an imitation of an existing product or service elsewhere. There are two main advantages with this approach. First, this definition purposefully makes no distinction between “technical innovations” and “service/administrative innovations”. This is important because such distinction often results in a fragmented classification of innovations not congruent with the theoretical basis of this study. Second, it makes it possible to study the opportunity from recognition and forward. Because it is possible to empirically follow the venture from recognition instead of after, for example, an established patent. Innovative opportunities, if successfully exploited, have a strong impact on the environment. In a new industry, each entrant constitutes a major proportion of the whole, hence influencing the environment that ultimately influenced the creation of the opportunity at the first place (Aldrich, 1999). In sum, creative change in supply and demand originates a unique type of venture opportunity – here called innovative venture opportunities.

3.3.2 Optimizing change and reproducing venture opportunities

The underlying change in a situation with a perceived reproducing venture opportunity is conceptually different from creative change. Compared to creative change, optimizing change arises from imperfect information because
of the shortcomings of the observer; we are not “Laplacian devils” that have perfect access to every informational aspect of a given phenomenon (Albert, 1992). As such, any venture opportunity based on optimizing change in supply and demand fit well inside classical economic equilibrium theory. In a sense, change is just a result of a shift in the demand and/or supply curve compared to creative change that creates new supply/demand combinations.

Optimizing change involves transactions within an existing product-market arena and occurs as long as resources not are put at their best use inside that particular arena (Arrow, 1962, 1974). That is, optimizing change in supply and demand is important from a societal perspective because ventures’ created on the basis of reproducing venture opportunities increase competition and the competitive disciplining of industries (Scherer and Ross, 1990).

Change in supply and demand alters the underlying assumptions upon which production decision have been made, resulting in market inefficiencies, in which, actors can perceive temporal and spatial inefficiencies, if recognized, originates reproducing venture opportunities (Aldrich and Kenworthy, 1999; Aldrich and Martinez, 2001; Kirzner, 1973). Reproducing venture opportunities have routines and competencies that vary imperceptibly from those of existing ventures in established populations (Aldrich and Kenworthy, 1999; Aldrich and Martinez, 2001). Consequently, as long as there are market inefficiencies there will be venture opportunities that can generate venture profits, which is consistent with the definition of entrepreneurship proposed here (cf. Davidsson, et al., 2001; Drucker, 1985).

It is possible to view the relation between innovative and reproducing venture opportunities through a life cycle approach. When innovative venture opportunities are exploited, information diffuses to other actors in the market who can reproduce and appropriate some of the entrepreneurial profit from the exploitation process of the innovative opportunity away (Shane and Venkataraman, 2000). Reproducing opportunities exist until the entry of additional enterprising actors reach a rate at which the benefits from new entrants exceed the costs. The incentive for actors to exploit the opportunity is reduced because entrepreneurial profit becomes divided among more and more actors ultimately reaching equilibrium, which exists in situations when the different plans of individuals are mutually compatible, price equals marginal cost, and economic profits are small or absent (Hayek, 1945; Scherer and Ross, 1990). Consequently, reproducing venture opportunities occur more often in gradually changing and maturing industries with well-known routines and competencies (Aldrich and Martinez, 2001).

In terms of importance and in relation to innovative venture opportunities that creates new industries exploiting reproducing venture opportunities moves the market toward equilibrium (Kirzner, 1973; Mises, 1949). Actors exploiting reproducing opportunities are therefore seen as “equilibrators” in contrast to, the Schumpeterian (1934) view of entrepreneurs as “disequilibrators”. Innovative venture opportunities are here viewed as antecedents of economic
development however reproducing venture opportunities are equally important to an economy because they form the basis for an effective economy in which resources are put at their best use (cf. Moran and Ghoshal, 1999). In sum, the consequences of optimizing change in supply and demand are a particular manifestation of economic activity that can be labeled reproducing venture opportunities.

3.3.3 Classifying venture opportunities

A literature review indicates that entrepreneurship research have failed to appreciate the existence of venture opportunity variation despite a strong theoretical foundation (cf. Aldrich and Martinez, 2001; Davidsson and Wiklund, 2001; Eckhardt and Shane, 2003; Shane and Venkataraman, 2000; Venkataraman, 1997) as well as empirical results (cf. Carter et al., 1996).

The paradoxical situation is illustrated in a recent article by Eckhardt and Shane (2003), who discuss different types of venture opportunities based on how the opportunity manifests itself: by the locus of the changes that generate the opportunity; by the source of the opportunities; and by the initiator of change. This is an informative and valuable contribution to our understanding of why venture opportunities exist, but they give no advice on how to empirically classify venture opportunities. Other conceptual efforts are for example Aldrich and Martinez (2001) who discuss the distinction between reproducers and innovators. Chandler (1999) makes a somewhat similar distinction based on how the opportunity relates to the current state of knowledge along two dimensions: market and technology. He discusses four prototypical situations, ranging from known market/known technology to unknown market/unknown technology, and develops specific propositions regarding each of these situations. Drucker (1985), suggested the following categories of opportunities: 1) creation of new information such as inventions of new technologies; 2) exploitation of market inefficiencies that results from information asymmetry which in turn is a result of actors being in different life situations/stages; and 3) the reaction to differences in the relative costs and benefits of alternative uses of resources coming from change in political, demographic and/or regulatory changes (imitations).

Together, these authors both explicitly (Aldrich and Martinez, 2001) and implicitly (Drucker, 1985) support a conceptual distinction between innovative venture opportunities (new combinations) and reproducing venture opportunities (optimizing combinations). Empirical classifications of venture opportunities are, however, conspicuously absent from the entrepreneurship literature in relation to the abundance of typologies and classifications of “entrepreneurs” and/or strategy types (cf. Davidsson and Wiklund 2001). Some exceptions exist; Bhave (1994) distinguished empirically between internally and externally stimulated venture opportunities and types of novelty. The main problem with Bhave’s work is that it only includes 27 cases.
Covin et al., (2000) discuss this in terms of pioneers and followers for which they use a 4-item, 7-point scale which captures whether the firm sells a new product category or not. A higher mean value indicates more pioneering. This is actually one of the approaches in this area using multiple indicators (see Golder and Tellis, 1993). The main focus in their measurement is the ventures propensity to pioneer when it comes to products/services and in relation to what competitors do. The main problem with Covin et al’s (2000) work is the context – the heterogeneous industrial base of southwestern Pennsylvania, their level of analysis – manufacturing firms with more than 50 employees, one respondent – the CEO, sample size (103) and response rates (27.5%).

Extending the literature review to the by now extensive literature of innovation another picture emerge. In a number of studies antecedents, outcomes and diffusion of innovations are studied (Acs and Audretsch, 1987a, 1987b, 1988, 1990, Cosh, et al., 1998, Drucker 1997, Sundbo 1998). The empirical literature clearly emphasize “innovations” and treats reproducing venture opportunities as a residual sometimes explicitly studied as in Covin et al’s (2000) work or implicitly excluded as in the empirical work by Bhave (1994) and as well in empirical work on innovations. Entrepreneurship, in general, however, has failed to systematically incorporate venture opportunity variation in formal models of the nascent venturing process and in more general entrepreneurship models.

In sum, two types of change provide important explanations to venture opportunity variation and economic development (Kirzner, 1973; Moran and Ghoshal, 1999; Schumpeter, 1934; 1942). First, Austrian economics who emphasize, creative change, which if acted on, originates innovative venture opportunities, and second, Neo-classical economics who emphasize, optimizing change, which if acted on, originates reproducing venture opportunities. The empirical literature, too, suggests a distinction between two main types of venture opportunities through measurements that capture innovativeness and treats the residual as reproducers (Aldrich, 1999; Bhave, 1994; Covin et al., 2000). It is, based on creative and optimizing change, possible to formulate the following hypothesis:

Hypothesis 1: It is empirically possible to verify the existence of two main types of venture opportunities, which may be labeled innovative and reproducing venture opportunities, respectively.

3.3.4 The distribution of venture opportunities

Evolutionary theory calls out attention to the numerically dominant role of reproducing venture opportunities, rather than innovative venture opportunities (cf. Aldrich, 1999; Aldrich and Martinez, 2001). In biological evolutionary theory and the process of variation, selection and retention the process of adaptation is assumed to occur gradually over long periods and under
gradual change\textsuperscript{3}. Under such circumstances, variation occurs naturally within species across generations. Those individuals within species most fit to the environment will survive. However as history shows, revolutionary change (creative) characterized as periodic discontinuities instead of gradual change also occurs\textsuperscript{4}. Under such conditions, survival goes to those species with the characteristics needed to exploit the new environment (cf. Tushman and O’Reilly, 1996). Historically, the asymmetry between innovative and reproducing venture opportunities has been hidden from entrepreneurship research because researchers have been overestimating the innovating capacity among business founders (Aldrich and Martinez, 2001). Creating new information is of course, possible. Playfulness and experimentation are natural human impulses with extraordinary strengths and persistence, allowing actors to generate variation of great utility (Campbell, 1982). Conformity, on the other hand, blunts the full expression of such impulses (Aldrich and Martinez, 2001). Humans rather imitate in order to “fit in” and reproduce instead of living through the tension frame-breaking venture activities lead to. Most actors prefer to simply reproduce the competencies, structures, and routines of pre-existing organizations (Aldrich and Martinez, 2001). The reason is evident in terms of risk. Given that both supply and demand is known it is possible to calculate the odds of surviving (cf. Khalil, 1998; Knight, 1921). Within the theory of general equilibrium actors do not differ from each other in terms of attributes and the actors serve no other purpose than that of the optimizing rational manager (Baumol, 1993; Hayek, 1945; Kirzner, 1973). The strengths of selection mechanism will force enterprising actors to reproduce instead of innovate (Aldrich, 1999; Aldrich and Martinez, 2000). Moran and Ghoshal (1999) discuss this in terms of potential and productive venture opportunities.

\textsuperscript{3} Also called incremental change and evolutionary change (Tuschman and O’Reilly 1996).

\textsuperscript{4} Cf. Darwian theory of punctuated equilibria.
Venture opportunity variation

E: the universe of all possible resource combinations

P: Perceived possibilities – all possible combinations of benefit perceived by anyone

X: Productive opportunities – all combinations perceived by parties who are also able and motivated to carry them out

M: Productive possibilities – all possible combinations of benefit to anyone

Figure 3.2 The productive possibilities – opportunity gap (source Moran and Ghoshal, 1999:398)

Figure 3.2 visualizes the relationship between potential and productive venture opportunities. Circle P, X, and M in figure 3.2 contains all possible resource combinations in an economy at any given time. In my terminology this equals all possible supply and demand combinations available in an economy at any given point in time – the universe of venture opportunities. (P) contains all perceived possible supply/demand combinations and M all productive possibilities of resource combinations. (X) Is the actual set of venture opportunities perceived by anyone who also is able and motivated to exploit them. The difficulty with this approach is that it can be empirically impossible to establish whether a perceived possible venture opportunity also is a productive venture opportunity with the capacity to generate wealth.

The conceptual model suggests that there are 1) “true venture opportunities” that is, productive opportunities; 2) “false venture opportunities” that is, perceived venture opportunities without actors who are able and motivated to carry them out; and 3) venture opportunities that are not yet perceived. An information based definition allows us to conceptually integrate venture opportunity variation into entrepreneurship theory. Entrepreneurship as scholarly field and as an economic phenomenon includes all
three aspects of venture opportunities because all three have a profound effect on economic development.

Economic development is based on the existence of different types of venture opportunities – innovative and reproducing venture opportunities. In the theoretical discussion about venture opportunity variation two main approaches were competing against each other as they sometimes are in the literature (cf. Khalil, 1997). On one side the Schumpeterian approach emphasizing the role of creative change and developmental processes leading to innovative venture opportunities (Hayek, 1945, Kirzner, 1973; Schumpeter, 1934; Schumpeter, 1942). In general this perspective advocates the irrelevance of the notion of equilibrium forces in a world characterized by evolutionary change (cf. Nelson, 1994) Moran and Goshal (1999) discuss this in terms of allocative efficiency. On the other side, the neoclassical economists emphasizing the role of optimizing change and reproducing venture opportunities (Khalil, 1997; Kirzner, 1973). This is sometimes referred to as adaptive efficiency (cf. Moran and Goshal, 1999).

The two approaches are clearly different, the evolutionary perspective are incompatible with the propositions of the equilibrium approach and vice versa. However, this incompatibility does not entail that the two approaches are competing approaches. They can be so only if they discuss the same type of changing conditions, which they clearly are not, but they have the same outcome – economic development.

It is possible to discuss this in relation to the Venn diagram in figure 3.2. In this framework reproducing venture opportunities exist within the given (M), both supply and demand are known entities within a given system. Schumpeter refers to this type of combinations as residing “within existing practice” as the adaptive response (1947:153). In effect adaptive responses are favored by the prevailing economic and institutional structure because actors have the adequate resources, ideas and rights needed to independently execute and benefit from them (Moran and Ghoshal, 1999). Under such conditions are the market institutions well suited to the coordination of these supply and demand combinations. Allocative efficiency will drop until new entrants move in and compete some of the entrepreneurial rents away enhancing adaptive efficiency.

Innovative venture opportunities on the other hand belongs to what Schumpeter calls “the creative response” – that is “something that is outside of the range of existing products (cf. Aldrich, 1999; Arrow, 1962). Schumpeter stress that creative change is both unpredictable and discontinuous, and it always involves entrepreneurial activity. Innovative venture are often motivated but not likely to occur because they depend on some additional deployment either not motivated or perceived. Creative change results in innovative venture opportunities often in forms that cannot be meaningfully labeled ex ante due to an inherent uncertainty (cf. Knight, 1921). Given that innovative venture opportunities depends upon new-means relationships their future is uncertain because their exploitation is unlikely to be induced autonomously by the
prevailing institutional and market mechanisms (cf. Moran and Ghoshal, 1999). In sum, evolutionary and institutional theory calls out attention to the numerically dominant role of reproducing venture opportunities compared to innovative venture opportunities, which leads to the following hypothesis:

Hypothesis 2: Reproducing venture opportunities will vastly outnumber innovative venture opportunities.

As described here reproducing and innovative venture opportunities are two different sides of one coin – the creation of new economic activity. It is as Schumpeter calls it, "the interaction of institutional forms and entrepreneurial activity, the 'shaping' influence of the former and the 'bursting' influence of the latter" (1947:153), which drives the economic development process toward greater economic efficiency. It is by facilitating and supporting more and more varied creative and adaptive responses and enabling them to be amplified and leveraged across many actors and purposes that firms help create value for society beyond what markets alone can create (Ghoshal and Moran, 1999). Economic development is achieved through both the improvement within an existing constitutional allocation, and changes in the rules and practices that define what is efficient, via a change in that constitutional allocation (cf. Moran and Ghoshal, 1999). To achieve adaptive efficiency, any system – whether society or a firm – must have the flexibility to develop and pursue both innovative and reproducing venture opportunities.

This section discussed theoretical implications coming from the co-existence of dual processes in an economy. The first process consists of creative change in supply and demand which can be characterized as a disequilibrating process creating new markets (cf. Schumpeter, 1934). The other process consists of optimizing change in supply and demand which can be characterized as an equilibrating process in which actors exploit venture opportunities inside a given market area (cf. Kirzner, 1997). Creative change generates innovative venture opportunities, and optimizing change generates reproducing venture opportunities. Evolutionary theory points at the numerically dominant role of reproducing venture opportunities compared to the more infrequent phenomenon of innovative venture opportunities.

Research in entrepreneurship has, with a few exceptions (see, e.g., Covin et al., 2000) failed to discuss the implications of opportunity variation and explicate the assumptions that are made concerning creative and optimizing change. In sum, entrepreneurship as an economic phenomenon encompasses both economic change and opportunity variation because both innovative and reproducing venture opportunities add to our understanding of how new economic activity comes into existence.
4. Results: venture opportunity variation

4.1 Introduction

This chapter seeks to empirically test the venture opportunity variation hypothesis in a latent class analysis. The sample consists of the entire data set consisting of 622 venture opportunities (the sample construction process is described in 2.3).

The main objective here is to investigate whether it is possible to empirically distinguish between innovative venture opportunities and reproducing venture opportunities as well as to establish rates of each venture opportunity type. This chapter proceeds with operationalization of venture opportunity variation followed by a section describing latent class analysis with a final section reporting empirical results, interpretation and implications.

4.2 Venture opportunity variation related method choices

The literature review indicated two main approaches to capturing innovative venture opportunities. The first approach is the objective approach in which the researcher seeks to measure a set of characteristics of novelty externally assessed such as patents. The other is a more subjective approach in which innovativeness is measured from a focal venture in relation to other ventures in that industry, for example, if the venture is perceived to be alone in a market compared to other ventures. However, there are limitations with each approach in isolation. This study, therefore, seeks to combine both objective indicators and more subjective indicators of venture opportunity variation. The measurement strategy is to establish one class of venture opportunities consisting of innovative venture opportunities and one class consisting of reproducing venture opportunities (cf. Bhave, 1994; Covin et al., 2000).
4.2.1 Measuring innovative venture opportunities

The following measures are combined in this study: research and development focus (R&D), patenting, unique product/service, and alone in the market. Together they capture the characteristics that implicitly underlie the concept of innovation; deliberate (R&D focus), novel (patent, product/service uniqueness, alone in the market); and codified (patent).

These are all proxy measures of innovations with both advantages and disadvantages. Using R&D (research and development) expenditure as an indication of innovativeness is an established approach in order to assess an organizational aspect of innovativeness and often seen as an antecedent of innovations (Acs and Audretsch, 1987a, 1987b, 1988, 1990). However, R&D is often used as antecedent of innovativeness in established firms. Our study starts during discovery of the opportunity and therefore traditional measures such as number of employees in R&D and R&D expenditure are difficult to establish and trust. However, R&D persistency in itself is empirically related to innovative activity (Lanjouw and Schankerman, 1999). Therefore, we ask the respondent on R&D priority instead of using traditional quantitative measures of R&D. In the initial survey, we asked the respondent: “Will spending money on research and development be a major priority for this new business?” If the respondent answered with yes, we coded this as “1” and no as “0”.

Innovativeness is often captured through different aspects of patents (Cosh et al., 1998, Lanjouw et al., 1998, Lanjouw and Shankerman, 1999). A patent has a set of claims that delineate what is protected by the patent. The principal claim defines the essential novel feature of the invention in their broadest form and subordinate claims describe other more detailed features of the innovation. A patent is also used as a protection against competitors in order to be able to pay of costs associated with the patent. However, service firms often protect their venture with copyright and trademark. According to Swedish patent authorities', a trademarks main function is to differentiate products and services from others. We also included copyright that guarantees sole right to the developer, often needed in software and music industries. In order to inform us we asked the respondent at the time for the first interview “Have you applied for a patent, copyright, or trademark relevant to this new business?” If the respondent answered with yes, we coded this as “1” and no as “0”.

Product/service uniqueness is often used as a proxy for innovativeness in studies of non-technical character (Van de Ven, 1986). As we are interested of innovations as a market phenomenon it is also included in this research. In order to establish how unique a product/service is perceived to be we used a scale question of “uniqueness”. On an evenly weighted ten-graded scale the respondent was asked to rate how unique the product/service was to be on the local market. In the first survey we asked “How unique is the contribution of the company, in the form e.g. product or service, on the market where you

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intend to operate? I want you to give the reply on a scale from 1 to 10, where 1 means that there is many doing the same thing and 10 that you are entirely alone with your type of business”. This indicator was dummy coded, because small ventures often overestimate their uniqueness (see Cosh et al., 1998), only using the last scale step “10 – alone in the market”. Those ventures that considered themselves as alone on the local market were coded as “1” and the rest as “0”.

In addition, a venture opportunity can be considered as alone in the market when no competition exists, for example when a product/service is pioneering in a market (cf. Covin et al., 2000). Competitors have not yet reacted and there is an opportunity to take a premium for the innovation (cf. Schumpeter, 1934). In situations like this enterprising actors perceive no or limited competition. In order to establish if a venture opportunity were alone in the market we asked the respondent: “Do you expect the competition to be none, low, moderate or strong for this new business?” To indicate innovativeness I dummy coded those that responded none and low competition as “1” and all others as “0”.

Rather than treating any of these indicators as “correct” I analyze them together in a latent variable framework that allows each to contain measurement error (See section 4.3 for a method description). This is needed since any single item is likely to be affected by factors other than being or not being innovative. Using multiple indicators has two advantages: first, it enables the researcher to identify significant indicators of the quality of an innovation and, second, it is possible to construct a more informative composite measure of innovations conditional on its observed characteristics (cf. Dillon and Goldstein 1984). Such an index can be used also in other instances for example such as modeling economic growth encompassing successful innovations (Aghion and Howitt, 1997).

A composite measure of innovativeness is also an attempt to overcome some of the problems associated with single item measures. R&D data tend to underestimate the importance of innovative activity in small firms (Kleinknecht, 1987; Kleinknecht, 1991). Patent data is sometimes accused underestimating the importance of innovative activity in large firms and in services (OECD, 1992; Pavitt 1982). Product/service uniqueness tend to be overestimated among small firms but as a complement it is useful as an indicator of innovativeness in situations were it is possible to misunderstand the concept of innovation (cf. Cosh et al., 1998).
4.2.2 Venture opportunity variation controls

I included several control variables in this analysis that might have an influence on venture opportunity variation. Control variables are here used to test whether venture opportunity variation is independent from other factors such as gender, organizational context, and industry type.

The underlying hypothesis that sometimes exists in the literature on innovations assumes that innovations are based on new technological findings (cf. Schumpeter, 1934). Technological findings are, as described by Shane (2000), based on experience and knowledge, which in turn is based on education. Consequently, males who have a higher proportion of technical education compared to women are therefore more likely to exploit innovative venture opportunities. In contrast, the argument put forward here is that innovativeness is a market phenomenon shaped and developed in the intersection between supply and demand and not a substantial event based on technical knowledge which suggests that gender should be independent from venture opportunity variation because innovative venture opportunities are not based on technical knowledge. We informed us at the time for the first interview by asking for gender, males were coded as “1” and females as “0”.

Whether, innovative venture opportunities are developed more often inside established ventures or in new independent ventures is still a controversy in the literature (Shane, 2001). Schumpeter (1934) argued that innovations were more often discovered and exploited in independent ventures because they were more flexible. However, this relation is not equally clear in his later work. In *capitalism, socialism, and democracy* (1942) the argument is almost the opposite that innovations are more likely to be exploited in established ventures because they possess resources that are needed in order to exploit the innovative venture opportunity. More recent empirical investigations indicate that empirical results are inconclusive whether innovative venture opportunities are more likely to be discovered in independent ventures or corporate ventures (See Shrader and Simon, 1997 for a review). This gives impetus to control whether the venture opportunity is independent from organizational context. We informed us at the time for the first interview through the following question: “Is this business start-up effort on your own, as part of your current job for an employer, or as a mixture of both?” This question is repeated in the six month follow up.

The final control is for industry type. The rational for this control is based on an evolutionary argument in which innovative venture opportunities are among the first to enter a new product-market arena (Covin et al., 2000). In a new product market arena competition is limited and there is no direct competition (Aldrich and Martinez, 2001). Innovative opportunities, if successfully exploited, have a deep impact on the environment because in a new industry, each entrant constitutes a major proportion of the whole (Aldrich, 1999) which, suggests that new industries consist of a higher proportion of innovative venture opportunities. However, Creative responses are also possible
within a given means-ends system (Kirzner, 1973) indicating that innovative venture opportunities may be recognized also in maturing industries (cf. Moran and Ghoshal, 1999). An inconsistency in the literature suggests that venture opportunity variation can be related to industry type. In order to control for this we informed ourselves by asking the respondent: "What kind of business are you starting? And what will be the main product or service of the company?" Open-ended answers were classified into industry types. The reason for this somewhat crude classification is that respondents have difficulties to articulate official industry classifications such as SIC codes in the early stages of the nascent venturing process.

4.2.3 Latent class analysis (LCA)

The recognition of heterogeneity among groups of opportunities, actors and developmental trajectories set traditional variable-centered statistical methods aside in favor for more individual-centered methods such as cluster analysis, latent class analysis, latent transition analysis, and finite mixture modeling. The aim with this part of the study is to classify venture opportunities that are similar to each other into classes, which is different from all other classes of venture opportunities. Due to the general research question and data (latent groups and categorical indicators) LCA is used in order to distinguish between different classes of venture opportunities (cf. Dillon and Goldstein, 1984; Rindskopf and Rindskopf, 1986; Muthén and Muthén 1999).

LCA provides a flexible system for analyzing relationships between a set of manifest variables to a latent factor or factors. A general mathematical model is used, which relates the probability of responding on each level of each manifest variable to an unobserved latent factor. This technique is handy in situations where the researcher may suspect underlying dimensions of latent constructs such as different types of new venture opportunities (Other examples are market segmentation, (Dillon and Goldstein, 1984), disease diagnosis (Rindskopf and Rindskopf, 1986), and alcohol dependence studies (Muthén and Muthén, 1999).

LCA is also a useful tool to identify items that indicate classes well such as in this study. We may also use this technique in order to classify individuals with a specific response pattern on a set of indicators into classes (so called posterior probabilities) and relate class probabilities to a set of backgrounds variables in order to establish if classes are measurement invariant (for technical information and fuller expositions of latent class analysis see Bartholomew, 1987; Dillon and Goldstein 1984, Goodman 1974, Lazarsfeld and Henry 1968). LCA is based on the assumption that the observed categorical indicators are imperfect measures of an unobserved underlying (latent) structure, which is possible to discover and validate with statistical methods. This is to prefer compared to a summation of indicators, which only gives a summation and no information about any underlying structure among the indicators. In situations with few
Results: venture opportunity variation

indicators there is also a problem to decide on threshold values, for example we may discover that one out of four indicators is not related to innovativeness. LCA helps us understand which indicators are the strongest and we may also test if there are more classes in the data. The theoretical number of classes in an analysis with four indicators is 16. These are the reasons why LCA is a superior analysis technique compared to a summation of indicators with a predefined threshold value indicating innovative venture opportunities. Figure 4.1 illustrates the latent class model with four binary indicators: patent, R&D priority (R&D), product/service uniqueness (Unique), and alone in the market (Alone).

Figure 4.1 A latent class model of opportunity variation

The arrows from the opportunity class indicate that the probabilities of the indicator vary across different opportunity classes. Two types of unknown parameters are present in a two-class model: first, there are the unconditional probabilities that an opportunity is in each of the latent classes, and second, there is the conditional probability that an opportunity is positive for a particular indicator given that opportunity class membership. In order to explain class membership I hypothesize that the observed relationship results from the existence of two or more classes of venture opportunities. Within each class, the variables are independent – the observed relationships among the variables occur with combinations of the classes. It is possible to say that the classes explain the observed relationships, since when classes are held constant the relationship disappears (Rindskopf and Rindskopf, 1986). In the present analysis, the model of interest is the simplest possible latent class model. It is
hypothesized that the data consist of two latent classes; one class of innovative venture opportunities, and one class of reproducing venture opportunities. Assuming conditional independence given latent class it is easy to compute the joint probabilities of observed response patterns and class membership. Summing over classes gives the predicted observed value. This means that it is possible to calculate the probability of class membership given a specific indicators pattern. Based on that calculation it is possible for the researcher to look at each class and decide on the best indicators for that particular class (Rindskopf and Rindskopf, 1986).

4.3 Results: venture opportunity variation

LCA allow us to both classify venture opportunities and to investigate the distribution of different types of venture opportunities. Section 4.3.1 discusses the LCA procedure starting with a one-class solution followed by an increased number of classes in each solution until a best fit is established. Section 4.3.2 further investigates rates of venture opportunities based on the unconditional probabilities.

4.3.1 Classifying venture opportunities

The purpose with the initial one-class model is to establish that there is a relationship among the observed indicators because without such a relationship there cannot be more than one latent class. To decide on number of latent classes it is convenient to use BIC values (Bayesian Information Criteria; Schwartz, 1978). The lowest BIC value is the most efficient in predicting class membership. The unconditional conventional one class model has a BIC value of 2235.65 and does not fit the data as tested by conventional fit measures: chi-square is 19.04 with two degrees of freedom ($p=0.00$) and RMSEA (Root mean square error of approximation) $0.117$ (CI: .073-.168). However, the low chi-square value indicates a relationship among the variables enough to support a further test of venture opportunity variation.

Figure 4.2 illustrates a significant drop in BIC-value at a two-class solution and a significant increase in BIC-value going from two classes to three classes. This drop in the BIC-value indicates that the best solution in these data is a

\[ \text{BIC} = -2\log L + h \times \ln n \]

where $h$ is the number of parameters and $n$ is the sample size. The lowest BIC value indicates the most appropriate number of classes (Muthén, 2000).

\[ \text{RMSEA} = \sqrt{\frac{X^2}{df - 1}}(N - 1) \]

where "sqr" is the square root, $N$ the sample size, and $df$ the degrees of freedom of the model. Good models have a value of .05 or less. A confidence interval can be computed for the index. Ideally the lower value of the confidence interval is very near zero and the upper value is "not very large." (Maruyama, 1998)
Results: venture opportunity variation

two-class solution, which would account for the relationship in the data. This gives empirical support for hypothesis 1 – It is empirically possible to verify the existence of two main types of venture opportunities – which may be labeled innovative and reproducing venture opportunities.

![Figure 4.2 BIC values indicating a two-class opportunity solution.](image)

4.3.2 Rates of venture opportunities

Data support a two-class model of venture opportunities but it was also hypothesized that reproducing venture opportunities should outnumber innovative venture opportunities in a sample such as this. LCA provides unconditional probabilities which make it possible to calculate the distribution of venture opportunities. Table 4.1 shows that the final class counts and proportions of the total sample indicate that there are approximately 544 (88%) reproducing venture opportunities in this sample and 78 (12%) innovative venture opportunities. Thus there is empirical support for hypothesis 2 - reproducing venture opportunities vastly outnumbers innovative venture opportunities.
Table 4.1 Parameter estimates for a two-class solution

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Estimates</th>
<th>S.E.</th>
<th>Est./S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1 innovative venture opportunity indicators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent</td>
<td>0.25</td>
<td>0.10</td>
<td>2.86</td>
</tr>
<tr>
<td>R&amp;D priority</td>
<td>0.59</td>
<td>0.09</td>
<td>6.97</td>
</tr>
<tr>
<td>Alone/market</td>
<td>0.53</td>
<td>0.34</td>
<td>1.56</td>
</tr>
<tr>
<td>No competition</td>
<td>0.53</td>
<td>0.12</td>
<td>4.45</td>
</tr>
<tr>
<td>Unconditional class probabilities 0.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 2 Reproducing venture opportunities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent</td>
<td>0.11</td>
<td>0.02</td>
<td>4.72</td>
</tr>
<tr>
<td>R&amp;D priority</td>
<td>0.30</td>
<td>0.04</td>
<td>8.40</td>
</tr>
<tr>
<td>Alone/market</td>
<td>0.00</td>
<td>0.00</td>
<td>0.91</td>
</tr>
<tr>
<td>No competition</td>
<td>0.16</td>
<td>0.03</td>
<td>6.29</td>
</tr>
<tr>
<td>Unconditional class probabilities 0.88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 illustrates the individual parameter estimates that are useful in order to assess how well each indicator predicts class membership. The conditional probabilities indicate that those in class 1, the innovative class, have a probability of 0.25 having applied for patent, copyright and/or trademark compared to class two only having a probability of 0.11 of having a patent copyright and/or trademark. The conditional probabilities for the other indicators are more sensitive, however, they all show a similar pattern, with class 1 having high probabilities of having positive indicators which establish class 1 as the innovative class compared to low probabilities in class two indicating a reproducing opportunity class. The unconditional probabilities of being in each class are as stated above 0.12 for the innovative class of venture opportunities and 0.88 for the reproducing venture opportunity class. These values, unlike the conditional probabilities, depend on the composition of the sample. Their only significance is for predicting those probabilities in samples analogous to our sample of venture opportunities. However this, establish the base rate for efficiency. The total probability of making a correct statement of the presence or absence of a particular innovative venture opportunity (cf. Galen and Gambino, 1975).

4 Open-ended descriptions of the character of each venture opportunity were considered for face validity but lack of relevant information made it impossible to assess face validity.

5 Galen and Gambino (1975), discuss this issue under the terms of sensitivity (the probability that an indicator is positive when a particular state is present), and specificity (the probability that an indicator negative when a particular state is not present).
4.3.3 Developing the classification scheme

It is possible to use the posterior probabilities derived from Bayes theorem in order to develop a classification scheme. Using this formula makes it possible to find, for any pattern of indicators, the probability that a person with that particular pattern belongs to a particular latent class. Table 4.2 shows the probability of correct classification (given equal gravity of each type of error; sensitivity/specificity). There are doubts for three cells, first a venture opportunity positive on R&D priority and no competition and negative on patent and alone in the market is classified as an innovative venture opportunity, but the probability of an error is 0.75. However, in a sample like this we expect only about four percent of the sample to show this response pattern (26/622). In addition, there are two more combinations with low probabilities of a correct classification of innovative venture opportunities (combination 0.1.0.1 and 1.1.0.1), indicating that the indicators may be inefficient in certain class combination. However, these combinations are rare and only occur two times out of a hundred (12/622), which makes misclassification limited.

Table 4.2 Probability patterns of innovative and reproducing opportunities venture opportunities.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>n</th>
<th>Class</th>
<th>Statistical probability of correct classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.0.</td>
<td>291</td>
<td>2</td>
<td>0.98</td>
</tr>
<tr>
<td>0.0.0.1.</td>
<td>70</td>
<td>2</td>
<td>0.91</td>
</tr>
<tr>
<td>0.0.1.0.</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.0.1.1.</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.1.0.0.</td>
<td>123</td>
<td>2</td>
<td>0.94</td>
</tr>
<tr>
<td>0.1.0.1.</td>
<td>26</td>
<td>1</td>
<td>0.25</td>
</tr>
<tr>
<td>0.1.1.0.</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.1.1.1.</td>
<td>11</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.0.0.0.</td>
<td>31</td>
<td>2</td>
<td>0.94</td>
</tr>
<tr>
<td>1.0.0.1.</td>
<td>4</td>
<td>1</td>
<td>0.21</td>
</tr>
<tr>
<td>1.0.1.0.</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.1.0.0.</td>
<td>29</td>
<td>2</td>
<td>0.86</td>
</tr>
<tr>
<td>1.1.0.1.</td>
<td>8</td>
<td>1</td>
<td>0.47</td>
</tr>
<tr>
<td>1.1.1.0.</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.1.1.1.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A technique for estimating the conditional probability of a cause given that a particular event has occurred. The theorem states that the probability of cause Bj given the observation of event A is equal to the joint probability of A and Bj divided by the sum of the joint probabilities of A with B1 through Bn. The theorem is named after Thomas Bayes, an 18th century English clergyman who was interested in mathematics.

Table 4.3 include information that allows replication, each indicator pattern can be multiplied with its number of opportunities and the original data will be re-established.
At an exploratory stage of the research process, the overall efficiency is estimated to be sufficient as an initial classification scheme. Overall, out of hundred venture opportunities we may fail to classify eight, which is considered acceptable under the exploratory setting. **In sum, the underlying assumption of the study holds. It is possible to empirically distinguish between innovative and reproducing venture opportunities and to confirm that reproducing venture opportunities vastly outnumber innovative venture opportunities.**

### 4.3.4 Results: venture opportunity variation controls

This section is an attempt to show that venture opportunity variation is independent from gender, organizational context, and industry. The chi-square test indicates whether the row and column variables in a cross tabulation are independent. A low significance value (typically below 0.05) indicates that there may be some relationship between the two variables.

![Bar chart showing count by gender and venture opportunity type](image)

**Figure 4.3 the non existing relationship between gender and venture opportunity variation**

Figure 4.3 illustrates that gender and venture opportunity variation is independent from each other (N=622, Chi-square value .57 with 1 d.f.s' and sig., .45). Males do not have a higher propensity to exploit innovative venture opportunities than females. This gives support for innovative venture opportunities as a market phenomenon. In addition, despite a strong bias in the media towards males there is nothing that supports that females are less likely to recognize innovative venture opportunities.
Results: venture opportunity variation

Figure 4.4 illustrates that organizational context and venture opportunity variation is independent from each other (N=622, Chi-square value 4.43 with 3 d.f.s' and Sig., .21). The propensity to exploit innovative venture opportunities is not higher inside established organizations compared to independent organizations. This result gives both Schumpeter mark I (1934) and Schumpeter mark II (1942) right. Recognizing different types of venture opportunities are not dependent on an organizational context. Both innovative venture opportunities and reproducing venture opportunities are likely to be found inside existing organizations and in independent ventures (cf. Moran and Ghoshal, 1999).

Figure 4.5 illustrates that industry type and venture opportunity variation is independent from each other (N=622, Chi-square value 12.88 with 10 d.f.s' and Sig., .23). The propensity to exploit innovative venture opportunities is not higher in any of the industries that we were able to classify. This indicates that innovative venture opportunities and reproducing venture opportunities are evenly diffused across industry types. Our industry classification is based on an early perception of where the future business will compete. However, it includes industries which we can classify as “new” such as Computer/IT and more mature industries such as farming/forestry. The results show that venture opportunities are distributed evenly across industries both in new and more
mature industries. It is clear from the empirical results that the distinction between innovative venture opportunities and reproducing venture opportunities are independent of gender, organizational context, and industry type. This reinforces and supports the overall conclusion in this chapter – it is possible to empirically distinguish between two types of venture opportunities here called innovative venture opportunities and reproducing venture opportunities.

Figure 4.5 the non existing relationship between industry and venture opportunity variation
4.4 Venture opportunity variation: implications

Two main implications are important to discuss in general and in relation to subsequent parts of this study: 1) venture opportunity variation and a theory of entrepreneurship built around the creation of new economic activity and 2) venture opportunity variation within industries and organizational contexts. Further implications and conclusions are more thoroughly discussed in the final part of the study.

The first implication concerns how entrepreneurship as a distinct conceptual domain handle venture opportunity variation theoretically and methodologically. An information-based definition of venture opportunities increases our ability to study venture opportunities in real time and increases our understanding of the concept. Theories and research that only includes innovative venture opportunities may arrive at a limited understanding of entrepreneurship as an economic phenomenon because most venture opportunities are reproducing rather than innovative. On the other hand, if entrepreneurship researchers only study reproducing venture opportunities they may have a greater understanding of the majority of all opportunities but based on an optimizing rather than creative change.

The third scenario concerns the situation in which the researcher draws a random sample dominated by reproducing venture opportunities, which in the worst case may lead to inconclusive empirical results because venture opportunity variation can influence other predictor variables in different directions leading to unstable empirical results and misinterpretation of data and theory.

Venture opportunity variation clearly shows that entrepreneurship as an economic phenomenon can draw on knowledge from both disequilibrium and equilibrium approaches in order to increase our understanding of how optimizing and creative change in supply and demand influence not only the types of venture opportunities that enterprising actors exploit but also how the underlying economic change and the indeterminism each type of change generates influence the nascent venturing process. Entrepreneurship as an economic phenomenon includes theory concerning both innovative and reproducing venture opportunities because they are both important to our understanding of how new economic activity come into existence. For researchers interested in the early stages of the entrepreneurial process the advice is to explicitly discuss and control for venture opportunity variation because the venture opportunity matters.

The second implication here concerns the even distribution of venture opportunities across gender, organizational context and industries. The overall implications closely resemble the first in that even if researcher control for industry or organizational context it is likely that both innovative and reproducing venture opportunities exists within each control function. It is also interesting to notice that policy measures as well as financial advisors tend to
believe that certain industries are better prospects in terms of more innovative venture opportunities.

In sum, this part verified the existence of innovative and reproducing venture opportunities. The next challenge is to investigate whether venture opportunity variation also influences the nascent venturing process.
Part 3

The emerging venture
5. Predicting progress in the nascent venturing process

5.1 Introduction
This study already verified the existence of two main types of venture opportunities here called innovating and reproducing venture opportunities which lead to the directly related questions;

1. Does the nascent venturing process vary as a function of venture opportunity variation and

2. Is this process predicted by different background variables such as resources, strategy, and the environment?

Figure 5.1 builds on the overall research model and illustrates how gestation behaviors is predicted by the venture opportunity (i), resources (h), strategy (q) and the environment (f).

Figure 5.1 The conceptual model predicting progress in the nascent venturing process (Based on Davidsson, 2000)

This chapter is divided into three sections where 5.2 describes the nascent exploitation process, 5.3 venture opportunity variation influence on the nascent
venturing process, and 5.4 how resources, strategy, and the environment predict progress in the nascent venturing process.

5.2 Explaining progress in the nascent venturing process

The conceptual development of entrepreneurship has lead to a growing body of research devoted to the nascent stages of the entrepreneurial process (cf. Aldrich and Martinez, 2001; Bhave, 1994; Carter et al., 1996; Davidsson and Honig, 2003; Gatewood, 1995; Reynolds, 1997). The nascent venturing process, as initially described in Part 1, captures the founding process involving those events and activities that lead to and influence the creation of the new venture.

In the early part of this process, the milestones that actors seek to reach are not traditional performance measures like sales, profit or the equivalent. Instead, actors need to conceptualize and develop a venture opportunity and perform all those behaviors needed to assemble and organize resources in order to commercialize the opportunity (Katz and Gartner, 1988). Performance in the nascent venturing process is not a single event, instead, it is here viewed as a process captured by the accumulation of gestation behaviors across time.

Despite the allocation of time and resources to the early stages of the venture exploitation process few attempts are made to describe and predict progress in the nascent venturing process given venture opportunity variation and there is a lack of consensus around what kind of behaviors that capture the nascent venturing process (cf. Eckhardt and Shane, 2003).

A literature review indicated that most research concerning the nascent venturing process draw on, or are predecessors to, the emerging property framework proposed by Katz and Gartner (1988). This framework focuses our attention to the nascent venturing process both conceptually and empirically. Two main aspects are central here. First, the issue of sequences in the nascent venturing process and second, the empirically based discussion about different gestation behaviors and how they could capture the nascent venturing process (e.g., Alsos and Kolvereid, 1998; Bhave, 1994; Carter et al., 1996; Duchesneau and Gartner 1992; Fiet and Samuelsson, 2000; Gartner 1988; Gartner and Starr, 1993; Gatewood et al, 1995; Reynolds and Miller 1992; Reynolds and White, 1993; Reynolds, 1994; Stevenson, et al., 1994; Timmons, 1990; Van de Ven et al., 1984; Vesper, 1990). Gestation behaviors are observable behaviors executed by individuals in the venture exploitation process aimed to exploit the opportunity into a competitive venture (cf. Reynolds, 1997; Shaver et al., 2001). Behaviors perceived to be essential to a venture launch are for example: first sale and collected money from customers (Gatewood et al 1995), invested money, having an income, the firm is a legal entity, hiring employees, working full time, bought material/equipment, firm specific telephone/fax number,
specific licenses, patents, official registration, and firm tax evidence (Carter, et al., 1996). Together it is assumed that these gestation behaviors capture progress in the nascent venturing process. Table 5.1 illustrates 30 identified gestation behaviors in relation to the framework proposed by Katz and Gartner (1988).

Table 5.1 Gestation activities capturing the nascent venturing process

<table>
<thead>
<tr>
<th>Properties</th>
<th>Gestation activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionality</td>
<td>Product/service idea or concept, Product/services initial development, Information of competition/opportunity, Saving money to invest, Team in process, Team complete, Business plan in process, Business plan completed, Projected financial statement</td>
</tr>
<tr>
<td>Resources</td>
<td>Application for funding, Received funding successfully, Unsuccessful search for funding completed, Purchased raw materials, supplies, inventories etc., Started investing own money, Established credit with a supplier, Purchased major item</td>
</tr>
<tr>
<td>Boundaries</td>
<td>Marketing or promotion started, Own phone line, Permits and licenses in process, Permits and licenses granted, Registered at PRV¹, Received tax licenses², Application for patent, copyright, trademark in process, Application for patent, copyright, trademark granted</td>
</tr>
<tr>
<td>Exchange</td>
<td>Product/services tested on customers, Business received income, Product/services ready for sale, Devoted full time to the business, First hire, Revenues exceeded expenses</td>
</tr>
</tbody>
</table>

The process starts with intentionality in which one or a group of actors share an intention to recognize or exploit a venture opportunity. Typical gestation behaviors connected to intentionality are; product/service idea, initial development, saving money to invest, planning, etc. (cf. Carter et al., 1996; Katz and Gartner, 1988). Intentions can also be seen as a screening process in which actors conceptually develop and assess their venture opportunities without committing to many resources into the process.

Resources are viewed as a threshold from which actors commit time and resources more strongly to the nascent venture. Typical gestation behaviors are related to funding, purchasing, and credit behaviors.

Boundaries concern the process in which actors seek to generate a competitive advantage through different behaviors such as marketing, permits and licenses, patenting, registrations etc. These are also behaviors with an external target which is different from intentionality behaviors.

Exchange also concerns externally targeted behaviors such as testing products/services on customers, first hire, sales etc.

¹ PRV (Patent och registreringsverket) is the Swedish authority that enforces registration of all new firms regardless of mode of organization.
² In Sweden firms may apply for a tax license. This license ensures that they paid their taxes in advance and are following Swedish tax and VAT regulations.
Theoretically the proposed framework is sequential as described in the left part of table 5.1. A venture passes through this process from intentions via resources, boundaries and exchange. However, if we view gestation behaviors only there are probably as suggested by Carter et al., (1996) a considerably high amount of variation in empirically derived sequences of the nascent process. Theory, however, can rest on two assumptions; 1) generally is this process sequential and 2), intentionality is different from the subsequent stages in the nascent venturing process.

The sequential process suggests that venture opportunity variation and background variables may influence this process differently depending on which sequence the venture is in. This is a theoretically important discussion because it suggests that progress in the nascent venturing process is explained by different factors depending on whether the nascent venture are in an early sequence (intentionality) or in a later sequence (resources, boundary and exchange) of the nascent venturing process. It is also appropriate to point out that this is a theoretically derived sequence in which perfect separation between sequences is difficult/impossible to achieve.

5.2.1 The influence of venture opportunity variation on the nascent venturing process

The distinction between creative and optimizing change, suggests two kinds of indeterminism, uncertainty and risk, arising from economic change. The classical statistical metaphor to illustrate the difference between uncertainty and risk is the urn containing different colored balls (Kamien, 1994). Problems involving risk are akin to a speculative game with an urn containing five green balls and five red balls. The drawer of a red ball wins a price of $100. For any given draw, we can precisely calculate the probability of getting a red ball, because we know the underlying distribution of balls in which we make the draw. On the other hand, problems involving uncertainty are also akin to the same game – except this time we do not know how many balls are in the urn, of which colors, or even if there are any balls at all in the distribution. In statistical terminology, decisions involving risk with a known distribution call for classical analytical techniques, and decisions involving uncertainty with unknown distributions call for estimation techniques. Once the underlying distribution is discovered through estimation procedures, the urn with the unknown distribution is transformed to as it were, into the urn with the known distribution, and becomes susceptible to analytical techniques (this example is also used by Sarasvathy, 2001).

The first type of indeterminism, uncertainty, arises from the phenomenon’s inherent non-predictability, expressing innovative venture opportunities, which are analogous to the laws of quantum mechanics (Khalil, 1997), and in economics, Knight’s notion of uncertainty (1921). The properties of the subject
are unknown and exploiting such a venture opportunity means going into the unknown. Future states are not given facts because actors are innovative and creative. The creative aspects of the opportunity make the agent uncertain about the magnitude of “self-ability” the ability undergoes developmental change. Such a self-defining process is the basis in Simon’s (1976) “procedural rationality” which lately has been discussed in terms of a rudimentary theory of effectuation (cf. Sarasvathy, 2001).

If enterprising actors believe they were dealing with a relatively unpredictable phenomenon such an innovative venture opportunity that originates uncertainty, they will try to gather information through an experimental/iterative learning process aimed at first discovering the underlying distribution of the future (cf. Sarasvathy, 2001). This process involves the creation of new market transactions in situations without a common knowledge base that can support and enhance the exploitation process. Exploiting actors go through a learning process in which they define and create the new product-market arena (cf. Arrow, 1974). This process suffers environmental constraints such as “liability of newness” (Stinchcombe, 1965). In situations like this, more gestation behaviors are needed to make the new venture reliable and increase legitimacy with important stakeholders because there is nothing to compare with (Hannan and Freeman, 1984; Sarasvathy, 2001a). This class of venture opportunities are what Schumpeter refers to as the “creative response” – that is, something that is outside the range of existing practice” (1947:153). It is both an unpredictable and discontinuous process, which always includes entrepreneurial activity.

Innovations in general are not independently motivated under the current incentive regime actors exploiting innovative venture opportunities need to change and even perhaps develop both a market and change the prevailing institutional setting (cf. Schumpeter, 1947). Innovative venture opportunities can be motivated but are not likely to occur because they depend on some additional deployment, such as a new sales organization, some additional technology, or plain knowledge about how to educate the customer to accept an innovative offering. Hence such changes are unlikely to be induced automatically by the prevailing institutional setting rather they are more likely to be systematically discouraged, given the existing distribution of resources, rights and individual perceptions and the way in which these resources are combined at the time (Moran and Ghoshal, 1999).

The other kind of indeterminism, risk, arises because of actors’ limited skill of computation and information processing. This indeterminism, characterizing market equilibrium dynamics, is at least heuristically captured by chaos theory, and in economics, by Knight’s (1921) notion of risk, i.e., when the different plans of individuals are mutually compatible and it would be possible to calculate the odds of surviving (cf. Hayek 1945). Risk, reduces the future into facts in a world of certainty. For example, if we had full information and processing capacity it would be possible to calculate what a butterfly somewhere
in the Atlantic causes in terms of weather fluctuations in the US. However, such facts are not perfectly available to humans. They express limited information, which makes actors formulate only chance probability (risk) about their occurrence (Khalil, 1997). Simon (1976) discusses this in terms of “bounded rationality”. Bounded rationality makes rule-following behavior more efficient on average than a case-by-case extensive investigation because information is available that makes it possible to calculate the outcome of an action (Heiner, 1983).

If actors believe they are dealing with a measurable or relatively predictable future (risk), they will tend to do some systematic information gathering and invest some effort on a reasonable analysis of that information, within certain bounds. Exploiting reproducing opportunities involves existing market transactions in comparison to innovative venture opportunities that create the new market transactions (Arrow, 1974). Population knowledge concerning products and markets is widely available and the exploitation process depends on the exploiting actors’ ability to make more or less mechanical calculations in response to a given set of alternatives (Baumol, 1993). Hence, reproducing venture opportunities will suffer less from “liability of newness” and the rule following behavior will be more efficient on average (Stinchcombe, 1965).

Shane and Venkataraman (2000) and Shane (2001) state that most discoveries of opportunities originate from an entrepreneur’s prior knowledge and are pursued inside that knowledge area indicating that most people act and form goals inside a known supply and demand framework. This is also supported in experiments of normative models showing that actors in general prefer the “risky or known distribution” to “uncertain or unknown distributions (Aldrich, and Martinez, 2001; Ellsberg, 1961). Actors’ rationality is bounded by cognitive limitations such as physiological constraints on computational capacity (e.g. Payne, Bettman, Johnson, 1993), and psychological limitation such as biases and fallacies (e.g. Bar-Hillel, 1980; Tversky and Kahneman, 1982).

This example points at the heart of this endeavor, that entrepreneurship research and advice to aspiring entrepreneurs have not emphasized that exploiting a venture opportunity under uncertainty can be different compared to exploiting one under risk (cf. Sarasvathy, 2001). Historically, the asymmetry between innovative and reproducing venture opportunities has been hidden from entrepreneurship research because researchers have overestimated the innovating capacity among people (Aldrich and Martinez, 2001). In sum, theory suggests that exploiting innovative venture opportunities is systematically different from exploiting reproducing venture opportunities because dealing with uncertainty (exploiting innovative venture opportunities) will be systematically different from dealing with risk (exploiting reproducing venture opportunities).
5.2.2 The influence of resources on progress in the nascent venturing process

New ventures do not necessarily own or control resources (Stevenson and Gumpert, 1985). In essence, they are organizationally resource-free in that resources are not yet committed to a framework of specific use or opportunity (Becker and Gordon, 1966). The founder(s) of the new venture must first make the relevant resource decisions: prioritization, recruitment of partners, and selection of resource combinations in order to establish the new venture and to form a competitive basis (Becker and Gordon, 1966; Casson, 1982; Greene, Brush, and Hart, 1999; Van de Ven, 1993). Consequently, resources may be sequentially important during a venture’s life, and some resources may lead to specific patterns of behaviors while other resources may be the result of specific patterns of behaviors. If an actor perceives the opportunity to be legitimate and valuable, he or she is likely to engage in more venturing activities such as the acquisition of resources and the requisite competencies to realize the opportunity’s commercial value (Teece et al., 1997).

Resources are defined as all tangible and intangible assets that are committed to or available for the discovery and exploitation of a new venture idea (cf. Barney, 1991; Daft, 1983; Shrader and Simon, 1997). The resource-based view of the firm proposes that a firm’s competitive advantage is by and large determined by its unique resources and capabilities (Barney, 1991; Penrose, 1959; Rumelt, 1988, 1991; Teece, 1984; Wernerfelt, 1984). The basic premise in the resource-based perspective is that those firm capabilities, which are rare, inimitable, and difficult to trade, form the basis for sustainable competitive advantage (Barney, 1991). Sustained competitive advantage requires both the exploitation of existing internal and external venture specific resources and developing new ones (Teece et al., 1997). The institutionalization of resource combinations result in a capability and when that capability is defined as essential to achievement of the venture’s basic mission, it has reached the level of core competence (Amit and Shoemaker, 1993; Greene et al., 1999).

It is possible to divide resources into financial capital, physical capital, human capital, and organizational capital (Ansoff, 1965; Barney, 1991, 1996, 1997; Pride et al., 1993; Dollinger, 1995). Greene and her colleagues add social capital to that list (Greene et al., 1999; see also Chandler and Hanks, 1994; Schendel, 1978). However, recent work has placed greater emphasis on the properties of resources, and in particular distinguishes between more tangible, “input resources” (e.g., people, machinery, financial capital) and knowledge-based resources (Galunic and Rodan, 1998; Kogut and Zander, 1992; Nonaka and Takeuchi, 1995; Teece et al., 1997). Knowledge-based resources refer to the ways in which more tangible input resources are manipulated and transformed to add value (Teece et al., 1997:509). In other words, it is not the machine that is important; it is how it is used that matters.
Knowledge-based resources may amplify the value of input resources and how they relate to the opportunity exploitation process. Scholars in this area have placed greater emphasis on the dynamic properties of knowledge and how it influences the venturing process (Conner and Prahalad, 1996; Galunic and Rodan, 1998; Grant, 1996; Kogut and Zander, 1992; Nonaka and Takeuchi, 1995; Teece, et al., 1997).

Economists also appreciate the importance of knowledge in society (Marshall, 1965). For example, Marshall suggests that “capital consist in great part of knowledge and organization….. [K]nowledge is our most powerful engine of production (1965:115). Knowledge-based resources such as, human and social capital are therefore considered as fundamental building blocks needed to establish a competitive advantage (Chandler, 1962; Greene et al., 1999). Human and social capital provided by the venture founder(s) is an important contributor to the development of the opportunity exploitation process (Cooper et al., 1994). Based on the argument presented in the resource based literature this study centers on intangible resources such as human and social capital as well as tangible resources obtained through a social network.

5.2.2.1 Human capital

Human capital is located extensively in the founder or the founding team in the nascent venturing process. The actor is both the foundation and fountainhead for all other resources that will become the venture and thus has an influence on the discovery and exploitation of the venture opportunity (cf. Greene et al., 1999). Human capital may also include different qualities defined as relevant to an entrepreneur such as: judgment, insight, creativity, vision, intelligence, ability to perceive opportunities, values, and beliefs (Dollinger, 1995) and entrepreneurial traits such as need for achievement (McClelland, 1961), and locus of control (Brockhaus, 1986). The contribution, however, of those traits to the understanding of the entrepreneurial process and outcomes remains in question (Aldrich and Martinez, 2001; Gartner, 1989; Gartner, 1988). Instead, prior research has established a link between human capital that in the form of the experience and education that people acquire during their life course and the creation of new ventures. Human capital embraces the acquired knowledge, skills, and capabilities that enable actors to sustain competition and act in new ways (Coleman, 1988; Nahapiet and Goshal, 1998).

Perhaps the most persistent theme in writing about the nature of knowledge centers on the proposition that there are two main types of knowledge (Nahapiet and Ghoshal, 1998). For example, a recurring distinction is made between practical, experience-based knowledge and the theoretical knowledge derived from reflection and abstraction from that experience (Giddens and Turner, 1987). Variously labeled “know how” or “procedural knowledge” which is frequently distinguished from “know that”, or declarative knowledge (Anderson, 1981). Possibly the most cited and influential distinction of this kind is Polanyi’s identification of tacit and explicit knowledge (Polanyi, 1962,
Predicting progress in the nascent venturing process

Polyani distinguishes tacit knowledge in terms of its incommunicability; to what extent knowledge is or is not codifiable (Galunic and Rodan, 1998). Tacit knowledge can be shared among people but not easily articulated (Polyani, 1962, 1967). The most likely sources of tacit knowledge are previous work experience (Vesper, 1990), and firm formation experience (Bruderl et al., 1992; Carroll and Mosakowski, 1987; Schoonhoven, 1990).

Tacit knowledge is here viewed as the capacity to store and systematically recall informational inputs; in this case, as they relate to the discovery and exploitation of a venture opportunity. Knowledge explains why certain actors are more suited to discover and exploit different types of venture opportunities because knowledge allows actors to manipulate and transform resources in order to add value (Galunic and Rodan, 1998; Teece et al., 1997). This process is obtained through the organizing principles, skills, and processes that direct action (Kogut and Zander, 1992). Tacit knowledge aids in the process of bringing together diverse basic inputs and specialized areas of knowledge and bundling them to perform a productive undertaking in which accumulation is a result in itself (Dosi, 1982; Grant, 1996, Teece, 1992). The knowledge based view of the firm argues that:

Hypothesis 3a: Tacit knowledge (in the form of start-up experience and industry experience) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.

The knowledge based perspective; however, together with venture opportunity variation suggests that different types of knowledge may be related to different stages in the nascent venturing process. Industry experience and firm formation experience may provide tacit knowledge important to different sequences in the nascent venturing process given venture opportunity variation.

Tacit knowledge is at the heart of the entrepreneurial process and its function is important both during recognition of venture opportunities as well as during the early stages in the nascent venturing process. Tacitness becomes both a necessity as well as a basis for a competitive advantage (Barney, 1997; Fiet, 1996; Reed and DeFillipi, 1990; Shane, 2001). Tacit knowledge that is difficult to codify is likely to be difficult to detect. It will therefore be more difficult for someone to identify it as a potential resource and how it can be exploited in novel ways. However, when such a discovery takes place novel combinations of resources are more likely where tacitness is high (Galunic and Rodan, 1998). When no blueprint is available the exploiting actor becomes more efficient as experience is gained (Teece, 1998). Tacit knowledge improves individuals’ performance in the early stages of the innovative venture opportunity exploitation process because it enables actors to make new resource combinations and navigating through situations where no predecessor exists (cf. Shane, 2001).
The initial sequence proposed by Katz and Gartner (1988) is an intentional and resource combinational sequence in which actors conceptualize and recombine resources. Progress in the early stages for innovative venture opportunities is likely to be a result of tacit knowledge obtained through previous work and start-up experience because that may provide tacit knowledge enabling new resource combinations (Bruderl et al., 1992). Sequential logics and venture opportunity variation suggests that; tacit knowledge (in the form of start-up experience and industry experience) has a positive impact on progress in the early stages of the nascent venturing process for innovative venture opportunities compared to reproducing venture opportunities.

Tacit knowledge, however, is also important in the nascent venturing process for reproducing venture opportunities. This process involves existing market transactions in comparison to innovative venture opportunities that create new market transactions (Arrow, 1974). Population knowledge concerning products and markets is widely available and the exploitation process depends on the exploiting actors’ ability to make more or less mechanical calculations in response to a given set of alternatives (Baumol, 1993). Hence, reproducing venture opportunities will suffer less from “liability of newness” (Stinchcombe, 1965) and rule following behavior will on average be more efficient.

Industry experience is helpful to the enterprising actors because it provide knowledge about customers and suppliers, as well as social contacts with important stakeholders (Gimeno, 1997; Van de Ven et al., 1984). Firm formation knowledge influences the ability of the founder(s) to successfully establish new ventures because much of the knowledge that is necessary for funding a new venture – how to lead and hire people, how to manage relationships with the right stakeholders, how to attract and retain customers – are learned by doing (Bruderl et al., 1992; Carroll and Mosakowski, 1987; Schoonhoven, 1990). The knowledge based argument suggests in this situation that tacit knowledge (in the form of industry and start-up experience) has a positive impact on progress in the later stages of the nascent venturing process for both innovative venture opportunities and reproducing venture opportunities. Thus it is possible to argue that venture opportunity variation together with the knowledge based view of the nascent venturing process suggests the following hypothesis:

**Hypothesis 3b:** The impact of tacit knowledge (in the form of start-up experience and industry experience) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

The nascent venturing process is in many parts a social exchange process and developed by means of knowledge accumulation and novel (re)combination of resources. A fundamental requirement for the development of knowledge is to
draw upon, and engage in existing and differing knowledge and knowing activities of various parties (Boland and Tenkasi, 1995). Novelty is often generated through the synthesis of existing knowledge (Galunic and Rodan, 1998; Hargadon and Sutton, 1997), or reconfiguring of knowledge that enabling novel use of existing resources (Helfat, 1997; Nonaka and Takeuchi, 1995).

New knowledge is generally generated through a process of combining and exchanging knowledge and experience of different parties (Nahapiet and Ghoshal, 1998). This exchange sometimes involves the transfer of tacit and codified knowledge between actors in the exploitation process in order to develop the new venture (Nahapiet and Ghoshal, 1998, Penrose, 1959). Ideally, codified knowledge in the form of a formal education would be valuable because it consists of basic scientific and analytical principles that actors would use to develop new technologies. A higher education can also be viewed as a complementary investment in new knowledge, which might be helpful in marshalling resources during the later stages of the nascent venture exploitation process (Teece, 1998; Teece et al., 1997). An education may improve enterprising actors’ information processing skills, and enhance actors’ capacity to access and assess venture specific information concerning the future (Fiet and Samuelsson, 2000).

This is also supported by recent empirical research showing the importance of collaboration for the development and acquisition of knowledge. These results emphasize the significance of teamwork in the creation of knowledge as identified much earlier by Penrose (1959). This increase in knowledge contributes to the “uniqueness” of the opportunity of each individual firm (1959:53). Thus, tacit and codified knowledge independent from each other may have a significant impact on the nascent venturing process. The knowledge based perspective suggests that:

\[ \text{Hypothesis 4a: Codified knowledge (in the form of formal education) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.} \]

However, recent developments in the knowledge based view of the firm also suggests that exchange and combination of tacit and codified knowledge increase new knowledge often required in the nascent exploitation process of innovative venture opportunities (cf. Nahapiet and Ghoshal, 1998). As stated above, when no population knowledge exists, actors need to create new knowledge in order to exploit the innovative venture opportunity. Hence, it is possible to argue that tacit and codified knowledge will be sequentially important for different stages of the nascent venturing process. In the early stages tacit knowledge is essential because the innovative venture opportunity resides in tacit knowledge. However, actors need also to create legitimacy for their new venture. Codified knowledge in the form of formal education adds
resources to the later stages of the nascent venturing process for innovative venture opportunities because knowledge could be developed based on the tacit knowledge acquired through industry and firm formation experience as well as codified knowledge acquired by a formal higher education.

Reproducing venture opportunities may not be an attractive choice to individuals with a higher education because: a) they have the analytical skills needed to calculate the outcome of that effort and b) a reproducing venture opportunity may not be an attractive opportunity because the benefits coming from such an opportunity is lower than required by the individual due to high costs of education and future expectations of that education. Venture opportunity variation and knowledge based views suggest that codified knowledge (in the form of formal education) has a stronger effect on progress in the later stages of the nascent venturing process for innovative venture opportunities compared to reproducing venture opportunities. Thus, it is possible to formulate the following hypothesis:

\[\text{Hypothesis 4b: The impact of codified knowledge (in the form of formal education) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.}\]

5.2.2.2 Social capital

Human capital is central in the nascent venturing process. However, knowledge may also amplify other resources needed to exploit a venture opportunity (Autio and Parkahangas, 1999). Such resources are often acquired through actors’ social network through the process of exchange and combinations of knowledge and more tangible resources obtained in ones social network (Burt, 1992; Stinchcombe, 1965).

Sociologists often contrast “human” capital as described above with “social” capital. Human capital is inherent in education and experience that people acquire over their life time and is based on the actors’ mental schema. Social capital, on the other hand, is based on the actors’ social surroundings and gives a person access to valued assets such as “information, referrals, resources, and support” (Ibarra, 1997:91). An investment in social relations may enhance access to embedded resources to enhance expected returns of instrumental or expressive actions in the nascent venturing process (Lin, 1999).

Social capital initially appeared in community studies, highlighting the importance of the survival and functioning of city neighborhoods- of the network of strong, crosscutting personal relationships developed over time that provide the basis for trust, cooperation, and collective action in such communities (Loury, 1977). Social capital has since then been used to elucidate a wide range of social phenomena, although researchers increasingly have focused attention on the role of social capital as an influence not only on the development of human capital (Coleman, 1988; Loury, 1977) but on the
Predicting progress in the nascent venturing process

economic performance of individuals (Campbell, et al., 1986; Lin et al., 1981;) firms (Baker, 1990), geographic regions (Putnam, 1993, 1995), and nations (Fukuyama, 1995).

The central proposition of social capital theory is that networks of relationships constitute valuable resources for the conduct of social affairs, providing their members with the “collectively-owned capital, a credential which entitles them to credit in the various senses of the world” (Bourdieu, 1986:249). Much of this capital is embedded within networks of mutual acquaintance and recognition such as friendship or from the more institutionally guaranteed rights derived from memberships in a family, a class, or a school (Bourdieu, 1986). Other resources are available through social connections, for example through “weak ties” (Granovetter, 1973) and “friends of friends” (Boissevain, 1974). One often-posed argument is that network members can gain privileged access to information and opportunities through their social capital. However, actors may also receive significant social capital in the form of social status, reputation, and trust derived from membership in specific networks (Bourdieu, 1986; Burt, 1992; D’Aveni and Kesner, 1993).

Nahapiet and Ghoshal (1998:245), define the social network as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit”. With this definition, social capital comprises both the network and the assets that may be mobilized through that network (cf. Bourdieu, 1986; Burt, 1992). This adds an instrumental aspect of social capital that reside not only in the focal person but also in accumulation throughout a social network.

Four different types or functions of social capital influence the nascent venture exploitation process (Brüderl and Preisendörfer, 1998; Powell and Smith-Doerr, 1994): 1) emotional capital to reinforce and support the aspiring entrepreneurs self-confidence, 2) social capital as an important channel for gaining access to information, 3) gaining access to customers and suppliers, and 4) to broaden the financial and physical resources of the new venture. These four functions may be reduced to two main dimensions of social capital - one emotional and one instrumental. Emotional social capital provides emotional support that socially reinforces the actor’s actions and builds self-confidence (Foxall, 1997; Johannisson, 1986; 1995). The instrumental mechanism in social capital includes information, customers, suppliers and physical capital that are directly related to actions in the nascent venturing process (cf., Aldrich and Fiol, 1994; Barney, 1997; Penrose, 1959; Wernerfelt, 1984). Network resources are then used in the nascent venturing process in order to establish the new venture (Burt, 1992), sometimes labeled the “network-founding hypothesis” (Burt, 1992:36). In sum, emotional and instrumental social capital influence progress in the nascent venturing process.

In order for venturing activities to be effective, they need to be reinforced by other actors, because behaviors that operate on the environment to produce effects that strengthen (reinforce) them are more likely to occur in the future
Emotional reinforcement is symbolic, usually mediated by the responsive actions of others. It is verbal and mediated through other people or through one's self's assessment of current behavior (Foxall, 1997). In the nascent venturing process, enterprising actors need to formulate and legitimate an idea and not an established product or service, especially in situations with novel supply and demand combinations. Initially, enterprising actors engage primarily in activities that, following Katz and Gartner (1988), can be called "intentionality" (cf. Bird, 1988). Actors gather information toward the creation of the new venture and when highly negative information about the prospect for the exploited opportunity surfaces, the founding actors may quit (Ronstadt, 1983). However, if the entrepreneur is emotionally reinforced, the exploitation process is more likely to advance.

The literature indicates that the most likely place to seek legitimacy for a venture opportunity is by family and friends, and most research reports positive relationships between emotional reinforcement and the exploitation process (Bryson et al., 1997; Egeln et al., 1997; Fontes and Coombs, 1996; Hills et al. 1997; Long and McMullan, 1984; Reynolds and White, 1997). However, recent empirical research shows that family members are not as important for progress in the entrepreneurial process as previously believed. Renzulli et al., (1998) found that the greater the proportion of kin membership in a nascent entrepreneur's business discussion network, the lower the odds of that person actually starting a business. However, the main argument in the literature suggests that:

**Hypothesis 5a:** Emotional social capital (in the form of social reinforcement) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.

If we view this general relationship in relation to a more dynamic discussion of the nascent venturing process including venture opportunity variation another picture emerges. In the early stages of the nascent venturing process, the venture opportunity and exploiting actors may suffer from "liability of newness" (Stinchcombe, 1965). Actors exploiting innovative venture opportunities in uncharted territories lack legitimacy along three important dimensions: cognitive, moral, and regulatory (Aldrich and Martinez, 2001). The lack of cognitive legitimacy refers to the fact that the new goods or service has not yet been accepted as a taken-for-granted feature of the environment of other individuals. Cognitive legitimacy is also the key to other resources, such as human and social capital and subsequent to moral and regulatory legitimacy (Aldrich and Fiol, 1994; Deeds et al., 1997).

Early in the exploitation process, innovative venture opportunities need to be reinforced and become legitimate in order to improve the exploiting actors' self-confidence and to generate instrumental resources. This subtle and assertive support consists of general affirmation, verbally supporting the actor's role in
the nascent venturing process. For example, a close friend or family member verbally supporting the idea strengthens the prospective entrepreneurs' self-confidence (Johannisson, 1995). This is also found in empirical investigations. Brüderl and Preisendorfer (1998) showed that emotional support from family and friends had a positive effect on new venture success.

Reproducing opportunities, on the other hand, are already part of an established population, already accepted and legitimate, as such, they are not dependent on their closest family members, as a moral support, because they already are legitimate. Hence, emotional capital may play a significant role for actors exploiting innovative venture opportunities but not for actors exploiting reproducing opportunities. Again, venture opportunity variation together with social capital theory challenge the more generally accepted relationship between emotional social capital and the nascent venturing process. Thus it is possible to argue that.

**Hypothesis 5b:** The impact of emotional social capital (in the form of social reinforcement) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

Instrumental social capital consists of a wide array of resources accessible for actors exploiting venture opportunities, including: information (data, technical knowledge, political intelligence, and expertise); physical and capital resources (funds, materials, space, and time); and symbolic support (endorsement, political backing, and legitimacy) (Kanter, 1983). As stated above, the venture opportunity consists of venture specific information, and social relations and social contacts are important channels for gaining access to resources not controlled by the venture champion.

Instrumental social capital is defined as resources available through social interaction with other actors with or without being a stakeholder in the focal venture aimed to reinforce venture gestation behaviors. It is a construct based on social interaction as well as the content coming out of such interactions. Instrumental social capital is important because it increases the efficiency of actions performed in the nascent venturing process. For example, diversified networks of social relations, particularly those characterized by weak ties or structural holes (e.g., disconnections of no equivalencies among players in an arena) increase the efficiency of information diffusion through minimizing redundancy, because this information is often originated from distant parts of the social system (Aldrich and Fiol, 1994; Burt, 1992; Granovetter, 1973).

Entrepreneurs need to be represented in a sufficient number of networks in order to secure adequate social capital and to have a voice in the outside world (Aldrich and Martinez, 2001; Aldrich and Zimmer, 1986, Burt, 1992). In addition, network size is positively related to organization founding and initial performance (Aldrich et al., 1987; Burt, 1992; DiMaggio, 1992; Johannisson, 95
1986, Nohria, 1992; Van de Ven et al., 1984). However, while both size and diversity may be necessary independently they do not appear to be sufficient to explain the nascent venturing process (Larsen, 1992).

Information is also instrumental. Social networks supply information about market conditions, legal issues, accounting, and give access to customers and suppliers (Brüderl and Preisendörfer, 1998). Finding new customers and sufficient and effective suppliers obviously have a positive effect on the nascent venturing process. A diverse network can be very helpful because friends and acquaintances, as the first customers, might spread information about the new venture through their own networks. Acquiring and assessing a wide array of resources in ambiguous situations depends on more than access to information (Krackhardt, 1992).

The social network is not necessarily confined only to information – tangible resources may be acquired through the social network thus strengthen the capital case for the new venture (Brüderl and Preisendörfer, 1998). This is particularly evident in ethnic entrepreneurship were we often find the relation between tangible resources and firm formation (Aldrich and Martinez, 2001). In this perspective the key to survival is the ability to acquire and maintain different types of resources including physical and capital resources. Actors and firms enter into network relationships with other actors and organizations in order to secure and access such resources (Teece, 1986; Teece et al. 1997). This argument leads to the following hypothesis.

**Hypothesis 6a:** Instrumental social capital has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.

The problem again is that the venture opportunity is taken for granted without any serious discussion about how venture opportunity variation may influence the nascent venturing process. Most of the work in the network literature has not yet considered different types of venture opportunities and how instrumental social capital may relate to the nascent venturing process for innovative and reproducing venture opportunities during different sequences of the nascent venturing process.

Founders attempting to exploit innovative venture opportunities lack legitimacy because they operate in situations with high levels of uncertainty and with only a few precedents (cf. Aldrich and Martinez, 2001). They face a number of potential constraints in the exploitation process including the lack of pertinent entrepreneurial and organizational knowledge and the lack of legitimacy for their activities (Aldrich and Fiol, 1994, Hannan and Freeman, 1984; Nelson and Winter, 1982; Stinchcombe, 1965). To overcome this liability of newness, founders need to perform activities that make the new venture more reliable and accountable, which increase the legitimacy of the
Predicting progress in the nascent venturing process

Firm founders cannot do everything simultaneously (Delmar and Shane, 2003; Gifford, 1992; Shane and Delmar, in press). Therefore, enterprising actors exploiting innovative venture opportunities need to select an order in which to perform different activities to seek legitimacy and to create barriers to secure first mover advantage. In the early phase of the exploitation process for innovative opportunities, actors mainly undertake activities to generate legitimacy and to create barriers to hinder others from imitating their products and services (cf. Katz and Gartner, 1988). Those activities aim to enhance the communicability of the business concept to other stakeholders.

Actors only possess limited cognitive ability (Simon, 1976), and suffer from time constraints that make it very difficult to perform networking activities simultaneously. Reproducing venture opportunities, on the other hand, do not suffer from “liability of newness”. Time constraints and limited cognitive ability suggest that it is possible to argue that instrumental social capital has a positive impact on the early stages of the nascent venturing process for reproducing venture opportunities, but not for innovative venture opportunities.

A large and diverse personal network can speed up the enactment of the new venture after its initial focus on legitimating activities (Gartner et al., 1992). Entrepreneurs should invest in personal networking because all activities making up the venture have to be empirically tested if a unique concept is to be generalized (cf. Gartner et al. 1992). Entrepreneurs must be able to activate different parts of their personal network according to their current needs. Network resources may as well be recyclable (cf. Johannisson, 1992). During the commercialization phase, the exchange process in Katz and Gartner’s (1988) terminology, ‘exploiting’ consists of resource acquisition and exchange of information with potential resource holders such as investors, suppliers, customers, and advisors. Consequently, actors exploiting innovative venture opportunities need to interact with potential resource suppliers during the later stages of the exploitation process.

If we compare this with reproducing venture opportunities, it is obvious that these do not suffer from “liability of newness” in the same way as innovative venture opportunities. Reproducing venture opportunities are based on established knowledge and routines. A business concept already exists and the venture is continuously in the exchange process of the nascent venturing process. In addition, instrumental social capital may have another function for reproducing venture opportunities. Reproducing ventures often find their first customer in their social networks. If we relate this to the discussion above it is possible to conclude that instrumental social capital continuously influence the nascent venturing process for reproducing venture opportunities compared to innovative venture opportunities for which it seems to have a stronger impact on progress in the later stages of the nascent venturing process. Hence, venture
opportunity variation, the resource based view; liability of newness and time constraints suggest that:

**Hypothesis 6b:** The impact of instrumental social capital on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

Based on the resource-based view of the firm the above discussion developed a dynamic view of the nascent venturing process and its relation to human and social capital. However, to be competitive, resources need to be costly to imitate and reproduce. Therefore actors can use their resource base to implement strategies that will be costly or impossible for others to imitate (Barney, 1997).

### 5.2.3 The influence of strategy on progress in the nascent venturing process

Strategy is often discussed in terms of corporate strategy and business strategy. While corporate strategy broadly deals with the industry where opportunities are exploited, business strategy specifies the opportunity in terms of products, customers and technologies (Abell, 1980) and how resources are acquired and used (Chrisman et al., 1988). Business strategy deals with the way a venture competes in a given industry (Hofer and Schendel, 1978; Kazanjian, 1988).

Strategies, in the nascent venturing process are unique because unlike established businesses, at this stage the venture has little history and no "realized" strategy from which to build (Mintzberg, 1978). During opportunity exploitation the new venture’s intended strategy needs to be developed to surmount rather than build or exploit barriers inhibiting entry into an industry if it is to survive (Caves and Porter, 1977; Porter, 1980).

Ericsson, Melander, Melin, 2001), conclude in a summary of 15 years of (strategy) research that strategy processes are complex, dynamic, and embedded in different contexts. Therefore, strategies need to be analyzed and understood with the help of multiple theories. In his “field-of-force metaphor” Melin (1985; 1989) argues that there is a need for three simultaneous perspectives in order to understand the different driving and counteracting forces that shape the strategy formation and development of all organizations. First, there are internal forces which represent the resources, cultural, cognitive, political, and structural dimensions that shape the internal conditions for strategic decisions and actions in the focal venture. Second, interactive forces describing the competitive and/or collaborative means that all actors in an industrial field are using reactively or proactively to defend or change its position and finally, external forces expressing the degree of determinism and contextual embeddedness that the external environment represents (Ericsson et al., 2001).
Traditionally population ecology and industrial economics have focused on populations of firms giving little or no attention to the individual firm (cf. Boeker, 1988, 1989; Carroll and Delacroix, 1982; Carroll and Hannan, 1989; Stinchcombe, 1965). At the same time, business strategy researchers have stressed the importance of the individual firm and performance effects of strategic decisions giving limited attention to environmental factors. In addition, few empirical studies concern the nascent venturing process and how the early lives of a venture’s strategic choice may influence both the process in itself as well as subsequent venture level performance (Bamford et al., 1999). This research adopts this view and builds on multiple perspectives and a dynamic view of the nascent venturing process.

A strategic choice perspective on new venture performance emphasizes the role of venture strategy on the performance of the focal firm. This perspective has its conceptual roots in strategic choice theory (Child, 1972), which suggests that actors in an organization have strategic choice in the selection of domain/scope and that the greatest degree of latitude in selecting organizational domain occurs at the time of founding (Andrews, 1971; Biggadike 1979; Child 1972; Weick 1979). In its broadest form, strategy can be defined by the pattern of decisions and actions an organization takes over time (Andrews, 1971). Managers have the freedom to choose between different strategic orientations under the same environmental contingencies (Child, 1972). This means that strategy may depend on, but is not determined by, its environment. In circumstance where actors fail to achieve consistency with respect to the overall strategic orientation-environment fit, low performance can be a result (Tushman and Romanelli, 1985).

If we assume that strategy consists of a set of elements that are internally consistent, interdependent, and interactive (cf. Galbraith and Schendel, 1983, Porter, 1980) it is possible to use a configurational approach to the analysis of strategy (Ketchen et al., 1993). This approach has been central in the conceptual development of key strategy typologies (e.g., Miles and Snow, 1978, Porter, 1980), and taxonomies (e.g., Galbraith and Schendel, 1983; Miller and Friesen, 1980). An organizational configuration can be defined as “any multidimensional constellation of conceptually distinct characteristics that commonly occurs together” (Meyer et al., 1993). The evolution of configuration analysis is described in Ketchen et al., (1993). They define two distinct approaches – the inductive and the deductive approach. The inductive approach focuses on empirically derived configuration, often assumed appropriate in a given context. For example, research on strategic groups reflects this orientation (e.g., Hatten et al., 1978). However, later work in this area has had ambiguous results linking empirically derived configurations to performance (Ketchen et al., 1993). This, in addition to a lack of generalizability, has led to speculation about the value of the inductive approach to the analysis of configurations over time (cf. Bantel, 1998).
The deductive approach to configurational analysis derives configurations from prior theory (Ketchen et al., 1993) and has been applied in various industry contexts linking strategy configurations with performance (Ketchen et al., 1993). This approach draws on structural contingency theory where a fit between the environment and the organization’s structure is required for optimal performance (e.g., Burns and Stalker, 1961). The configurational approach is often derived from the strategic choice perspective focusing on the venture (e.g., Miles and Snow, 1978) and organizational ecology focusing on the environment (Hannan and Freeman, 1977).

It is possible to view strategy configurations in a two-dimensional space including four prototypical strategies (see also Zammuto, 1988). The first strategy type is called “defenders/k-specialists”, and includes ventures efficiently exploiting existing opportunities in a narrow domain. The second strategy type is called “entrepreneurs/r-specialists”, including ventures pursuing opportunities in a narrow domain. The third type is the “analyzers/k-generalists”, that consist of ventures, which efficiently exploit existing opportunities in a broad domain; and the fourth strategy is “prospectors/r-generalists”, including ventures pursuing new opportunities in a broad domain.

The new venture is by definition narrow in scope, i.e., the venture opportunity is limited to only one economic activity. It is likely that ventures in the nascent venturing process adopt either a specialist strategy or a generalist strategy in a narrow domain. A new venture needs to have strong competence in one of these approaches, but not both, to ensure long-term success (Brittain and Freeman, 1980; Miles and Snow, 1978). Strategic choice theory suggests that:

Hypothesis 7a: A strong focus in one strategic approach has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.

Empirical results, however, are not conclusive in the exact character of the relation between a strategic choice and progress in the nascent venturing process. From an environmental perspective innovative venture opportunities have a significant impact on the environment because they constitute a large part of their own environment (cf. Aldrich and Martinez, 2001). Competition is weak and there is no need to compete on price (Schumpeter, 1934). In situations like this, the basis of competition lies in a first-to-market approach with a narrow product domain. In a life-cycle perspective, the issues concern how aggressively and broadly to enter a market (Abell, 1980). In a growing industry, it appears that a first-to-market approach is the most fruitful strategy. Focusing on innovative products in a narrow domain can enhance the exploitation process for innovative venture opportunities.

From the organizational ecology perspective, Brittain and Freeman (1980) argue that specialist strategies will do well in the formative stage of industry
Predicting progress in the nascent venturing process

growth when density is low. In general it is suggested that a narrow approach focusing on a specialist strategy is appropriate in the earliest stages of product development when product features, design, and functionality evolve (cf. Bantel, 1998). Innovative venture opportunities are a particular form of new economic activity in which the venture is among the first pioneering ventures in a new industry. Therefore it is possible to argue that a “specialist” strategic focus has a positive impact on progress in the nascent venturing process for innovative venture opportunities.

The “specialist” perspective maintains that opportunity-exploiting actors also in mature industries should seek a niche in the marketplace where they can avoid direct competition with already established firms (Vesper, 1980). Because, new firms lack resources for effective organizational learning, and this “liability of newness” (Stinchcombe, 1965) limits the firms’ ability to compete because of price (Deeks, 1976). Advocates of this perspective caution that new ventures should become “specialists” by targeting narrow market segments that have been overlooked by established firms and serve those customers through specially designed, high quality products or services (Brittain and Freeman, 1980). Based on the specialist strategic choice perspective it is possible to argue that a “specialist” strategic focus has a positive impact on progress in the nascent venturing process for reproducing venture opportunities.

Alternatively, other researchers have argued that broad strategies focusing on a wider domain will lead to better survival chances for innovative venture opportunities (Brittain and Freeman, 1980; Porter, 1980). Typically, this includes a larger number of distributors, product scope, market growth/share goals, geographic scope etc. Research in system theory (Ashby, 1956) and population ecology (Hannan and Freeman, 1977) support a broad base strategic approach, suggesting that firms need the capability to deal with the variety in their environment, and must, therefore, have a repertoire of competitive actions also in the forming of an industry. For example Carter et al. (1996) suggest that meeting competition head to head with broad “generalist” strategies will lead to better survival chances. Thus it is possible to argue that a “generalist” strategic focus has a positive impact on progress in the nascent venturing process for innovative venture opportunities.

Biggadike (1979) concurs with the “generalist” perspective and suggests that entrepreneurs need to adopt an aggressive posture also when entering established markets and match the broad appeal offered by competitors. New reproducing ventures penalize themselves unless they compete directly with the market leaders, including competing on the basis on price (MacMillan and Day, 1987). It requires knowledge to achieve efficiencies and cost savings across the entire value chain of the new venture’s potential operations to successfully implement a pricing strategy (Carter et al., 1997). Based on this line of research reproducing venture opportunities may be better of using a generalist strategy focusing on price, because the very reason for reproducing venture opportunities entire existence is to be more efficient compared to their
competitors. In addition, reproducing venture opportunities can be characterized as “late movers”. These ventures can gain some free-riding advantages such as lower costs (Mansfield et al., 1981; Levin et al., 1987), and the resolution of market and technological uncertainties (Lieberman and Montgomery, 1988, 1991), thus, it is possible to argue that a “generalist” strategic focus has a positive impact on progress in the nascent venturing process for reproducing venture opportunities.

In sum, although a priori hypothesizing is possible, the inclusion of the strategic choice perspective should be regarded as an exploration of how a strategic orientation influences the nascent venturing process for different venture opportunities and due to venture opportunity variation and the strategic choice perspective it is possible to argue that:

*Hypothesis 7b: The impact of a strategic choice on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.*

This chapter discussed venture opportunity variation in relation to progress in the nascent venturing process. In sum, without excluding the possibility that the same factors have some influence on both types of processes, theory suggests that exploiting innovative venture opportunities is systematically different from exploiting reproducing venture opportunities because going through uncertainty (exploiting innovative venture opportunities) will be systematically different from going through risk (exploiting reproducing venture opportunities).
6. Results: predicting progress in the nascent venturing process

6.1 Introduction

Theory suggests that the nascent venturing process varies as a function of venture opportunity variation and that the process is predicted by different background variables across time. This section describes methods suitable for analyzing longitudinal data with individual variation across time as well as reporting empirical results.

The sample here consists of 259 ventures that performed less than 15 gestation behaviors at the time of the first interview and with complete data over a period of 18 months. The rationale to only use 18 months is that most gestation behaviors are executed i.e., most progress is available during this period (cf. Carter et al., 1996; Samuelsson, 2001).

6.2 Operationalization: predicting progress in the nascent venturing process

One main advantage with this project is its ability to capture the nascent venturing process and a range of predictors to this process. Using input from many scholarly traditions allow us to build complex models based on sufficient empirical data. On the other hand, measurement becomes crude and standardized in order to conform to multiple interests. Single item measures are, however, commonly used in entrepreneurship research and all together; this is a highly qualitative data base.

6.2.1 Capturing the nascent venturing process: the dependent variable

The dependent variable in this part of the study is progress in the nascent venturing process. We capture progress with a summation of 30 different gestation behaviors needed to exploit a venture opportunity (See Reynolds,
1997 and Carter et al., 1996 for a description of the activities; they are also listed in table 5.1). This means that the theoretical variation of the summed number of gestation activities is between 2 and 30.

We asked the respondents if they had initiated or completed any of the behaviors described in table 5.1. If they had executed the gestation behavior, for example if the respondent answered yes to the question – “Have you projected financial status” they were coded as “1” and “0” if not. This question was repeated during each follow-up interview and as the nascent venturing process developed, the number of initiated/completed gestation behaviors grows. This measure is time varying and measured every sixth month. For example, one venture may have performed five gestation behaviors at the time for the first interview, 13 gestation behaviors at the time for the 6 months follow-up and 17, 23 and 25 gestation behaviors at the time for the subsequent follow-up interviews. The accumulation of gestation behaviors across time is here viewed as progress in the nascent venturing process as illustrated by the growing mean values in table 6.1 below.

Table 6.1 Accumulation of gestation behaviors across time.

<table>
<thead>
<tr>
<th>Latent class venture opportunities</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gest beh00 accumulated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>40</td>
<td>9.13</td>
<td>3.18</td>
<td>0.57</td>
</tr>
<tr>
<td>Reproducing</td>
<td>219</td>
<td>8.81</td>
<td>3.17</td>
<td></td>
</tr>
<tr>
<td>Gest beh06 accumulated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>40</td>
<td>14.85</td>
<td>4.62</td>
<td>0.03</td>
</tr>
<tr>
<td>Reproducing</td>
<td>219</td>
<td>13.34</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td>Gestat beh12 accumulated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>40</td>
<td>19.28</td>
<td>6.13</td>
<td>0.08</td>
</tr>
<tr>
<td>Reproducing</td>
<td>219</td>
<td>17.74</td>
<td>4.96</td>
<td></td>
</tr>
<tr>
<td>Gest beh 18 accumulated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>40</td>
<td>22.80</td>
<td>7.57</td>
<td>0.04</td>
</tr>
<tr>
<td>Reproducing</td>
<td>219</td>
<td>20.54</td>
<td>6.05</td>
<td></td>
</tr>
</tbody>
</table>

It is interesting to see that already here in the descriptive results it is possible to see that the exploitation process for innovative venture opportunities includes more gestation behaviors throughout the nascent venturing process.

6.2.2 Capturing the nascent venturing process: the independent variables

Table 6.2 describes the independent variables used in this part of the study. The left side of the table displays main constructs and variable names and the right side of the table displays the empirical operationalization. The measure of venture opportunity variation is based on the latent class analysis as described in chapter 4. Each measurement is based on available data and varies in terms of validity. For example, strategy and environmental measures are all single item
measures which by definition are crude measures of rather complex empirical phenomena. Unique data from the nascent venturing process, however, justify an exploratory measurement approach in order to develop a better understanding of the nascent venturing process.

Table 6.2 Independent variables: predicting progress in the nascent venturing process

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human capital</strong></td>
<td></td>
</tr>
<tr>
<td>Start-up experience</td>
<td>We asked the respondent about his or her previous start-up experience together with each team member’s start-up experience. Start-up experience is measured as a count of prior start-ups across the team members. This measure is time invariant and measured at the time for the first interview.</td>
</tr>
<tr>
<td>Industry experience</td>
<td>We asked the respondent how many years of work experience have they had in this industry - the one where the new business will compete? The same information was received about each member in the start-up team. Industry experience is measured as a count of years of experience in the venture opportunity industry across the team members. This measure is time invariant and measured at the first interview.</td>
</tr>
<tr>
<td>Formal education</td>
<td>Respondents were asked to indicate the highest level of education they had completed. This variable, ranging from primary to doctorate, was coded from 1 equals primary school to 9 for the doctorate. Information about education comes only from the respondent and not for the entire team.</td>
</tr>
<tr>
<td><strong>Social Capital</strong></td>
<td></td>
</tr>
<tr>
<td>Emotional social capital</td>
<td>We asked the respondent “How would you describe the encouragement you received from family, relatives or other close friends? Would you consider it very weak, weak, neither weak nor strong, strong, nor very strong?” The answers are given on a five-item scale where “1” equals very weak, “2” equals weak, “3” equals neither weak or strong, “4” equals strong, and “5” equals very strong. This measure is time-invariant and measured at the time for the first interview.</td>
</tr>
<tr>
<td>Instrumental social capital</td>
<td>Instrumental social capital is measured through a summation of all personal network resources related to the following resources, introduction to other people, information or advice, access to financial resources, physical resources and other kinds of service. During each interview, we asked the respondent about the frequency and content of other actors’ interaction with the venture exploitation process. Each team member, and any additional person, identified as a resource contributor reported number of contacts and the content of that contact. By adding the number contacts across persons and time we obtain a construct of instrumental social capital. This measure is time varying, because in each interview the respondent is asked about any additional contacts during the exploitation process. Network contacts are then summed across the entire team in each interview.</td>
</tr>
</tbody>
</table>
Table 6.2 Independent variables: predicting progress in the nascent venturing process (cont.)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>We asked the respondent “Please indicate how important quality products and services are for the new firm to be an effective competitor? The answer is given on a four-item scale where “1” equals “insignificant”, “2” equals “marginal”, “3” equals “important”, and “4” equals “critical”. Time-invariant and measured at the time for the first interview.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist</td>
<td></td>
</tr>
<tr>
<td>strategy</td>
<td></td>
</tr>
<tr>
<td>Generalist</td>
<td>We asked the respondent “Please indicate how important lower prices are for the new firm to be an effective competitor? The answer is given on a four-item scale where “1” equals “insignificant”, “2” equals “marginal”, “3” equals “important”, and “4” equals “critical”. Time-invariant and measured at the time for the first interview.</td>
</tr>
<tr>
<td>strategy</td>
<td></td>
</tr>
</tbody>
</table>

6.2.3 Capturing the nascent venturing process: Controls

We included environmental factors and time as control variables in this analysis because they might influence progress in the nascent venturing process. Essentially, a supportive environment may boost opportunities and a restrictive environment might limit entrepreneurial efforts (cf. Aldrich, 1999, Dean and Meyer, 1996). The environment is a fluid concept and often discussed in terms of change. Industry change may emanate from a number of sources. They may be political (cf. Delacroix and Carroll, 1983), institutional (Hannan and Freeman, 1987), social (Aldrich and Zimmer 1986; Johannisson, 1995), technological, or economic in nature (Dean and Meyer, 1996). In this study, focus is on social, economic, and technological change rather than political or institutional change. Yet, it is recognized that many changes are rooted in such forces. Social and technological changes are here viewed as the very origin of venture opportunity variation described in part 2 of this study and left out of this discussion. Instead, focus is on economic change and its effect on progress in the nascent venturing process.

6.2.3.1 Economic growth

Economic growth increases the aggregated demand of products and services because spending power in an economy increases and actors may capture new demand through the exploitation of venture opportunities, thus positively influencing both entry and the nascent venturing process. Empirical research especially focused on rates of new ventures support the existence of a positive relationship between economic growth and new venture formation (Duetzsch, 1975; Orr, 1974; Gorecki, 1975; Highfield and Smiley, 1987). However, the logical extension of this leads to the assumption that economic growth will also affect survival as long as enterprising actors perceive the environment as benign. Theory gives little advice on whether economic growth will affect innovative
opportunities differently compared to reproducing venture opportunities. Instead, a perceived positive environment will have a positive influence on the nascent venturing process for both innovative and reproducing venture opportunities.

6.2.3.2 Industry competitiveness
Despite the existence of venture opportunities, potential new ventures can be dissuaded by the existence of different types of entry barriers (For an review of various definitions of entry barriers see Gilbert, 1989). New ventures may be hindered in the nascent venturing process if barriers are erected against them (Penrose, 1959). Empirical research has indicated that entry barriers tend to have greater impact on new venture formation than diversifying firms (Gorecki, 1975).

Barriers to entry may be established by pricing, plant location, excess capacity, and product differentiation/proliferation (Scherer and Ross, 1990); economics of scale (Bain, 1956); and significant sunk costs (Baumol, 1993), government regulations, incumbent retaliation, access to distribution channels, and proprietary knowledge (Porter, 1980), and industry concentration (Orr, 1974). The traditional belief is that greater competitiveness results in barriers to enter and will have a negative effect on the nascent venturing process (Orr, 1974; Dean & Meyer, 1996).

However, one significant factor that enhances new venture survival is its competitive advantage (Timmons, 1999). The better perception enterprising actors have about their competitors the higher probability that the actors make better decisions in the nascent venturing process. A better awareness of the focal ventures competitors will enhance the probability of both dissolution and growth. Because, if competition is perceived to be strong, but at the same time manageable the venture may have carved out a competitive niche in the market. However, if enterprising actors perceive competition too be to fierce the venture is likely to be disbanded. For example, if competition is perceived as strong but known the exploitation process may grow in areas where there is a known market gap that is not captured by other competitors.

Progress in the nascent venturing process could be achieved by targeting narrow market segments that have been overlooked by established firms. That is, a perception of a strong competitive environment can either be a sign of a niche in which the venture has greater chances to survive or strong competition will have a negative influence on the exploitation process because the saturation level in an industry may be reached.

6.2.3.3 Time in the nascent venturing process
Enterprising actors in the exploitation process suffer from time constraints that preclude them from undertaking all venture organizing activities simultaneously.
Therefore spending more time in the exploitation process may increase the number of initiated and completed gestation behaviors.

### Table 6.3 Control variables

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environment</strong></td>
<td></td>
</tr>
<tr>
<td>Economic growth</td>
<td>We asked the respondent “Would you describe the local economy as getting stronger, stable, or getting weaker? (“1” equals “getting weaker” “2” equals “stable” and “3” equals “getting stronger”).” Time-invariant and measured at the time for the first interview.</td>
</tr>
<tr>
<td>Industry competitiveness</td>
<td>We asked the respondent “Do you expect the competition to be low, moderate or strong for this new business? (“1” equals “expect no competition”, “2” equals “expect low competition”, “3” equals “moderate competition” and “4” equals “expect strong competition”).” Time-invariant and measured at the time for the first interview.</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>Time in the process</td>
<td>Time is a time invariant measure and is measured at the time for the first interview. Time in the process is measured as the calculated number of months from the date of the first reported initial gestation behavior to the starting date for the first interview.</td>
</tr>
</tbody>
</table>

### 6.3 Analysis methods

In their seminal article, Low & MacMillan (1988) argued that entrepreneurship research should include longitudinal designs. This is later repeated by Aldrich & Baker (1997), and Davidsson (2000:15) who states that: “the exploitation process, as well as latter parts of the discovery process….. are best studied with longitudinal approaches”. Despite a long tradition of “knowing what’s best practice” the field has only recently developed large scale longitudinal survey designs suitable to study entrepreneurship across time (Reynolds and White, 1993; Shaver et al., 2001).

Entrepreneurship in general, as pointed out above, and the problem at hand requires longitudinal data and suitable analysis techniques. There are four main challenges with this approach. First, we need to be able to study individual variation in initial status – i.e., actors are not exactly at the same status at the time for the first interview. Second, we need to be able to study individual variation in development across time – i.e., individual growth trajectories vary due to for example venture opportunity variation. Third, longitudinal data suffer often from non-compliance and missing data – which opens up for missing data analysis and imputation strategies. The fourth and final issue concern right censoring – i.e., variation in outcomes across time.

The two first challenges with longitudinal process studies concern investigations of how different types of opportunities are exploited across time.
Predicting progress in the nascent venturing process

i.e., models of individual variation in initial status and development. A
developmental problem with continuous data suggests that longitudinal growth
modeling is an appropriate analysis method (cf. Muthén and Khoo, 2000).
Missing data analysis and imputation strategies are discussed in appendix 2.
The fourth challenge – right censoring – does not concern this section because
we are only interested in progress in the nascent venturing process which is a
particular period in a venture’s life and not a specific event such as venture
dissolution. However, right censoring will be discussed in part 4 of this study in
relation to the dependent variable venture dissolution. SPSS is used to analyze
descriptive data and Mplus is used to analyze longitudinal data (Muthén and
Muthén, 1998).

6.3.1 Longitudinal Growth Modeling

If we regard firm formation as a continuous process in which we are interested
in individual development across time we need suitable statistical tools. One
such technique is longitudinal growth modeling (LGM). This is a new latent
variable technique, which has advantages over both OLS regression and event-
history models. LGM allows the researcher a richer model framework including
time varying and time in varying variables as well as individual models for
different groups (cf. Muthén and Khoo, 1998).

A basic idea behind growth modeling is that individual units differ in their
development across time. The nascent venturing process is likely to show
differences in development as a function of opportunity variation and
differences in background characteristics such as resource endowment and
strategic choice. It is evident that entrepreneurs’ curriculum is quite varied and
entrepreneurs are likely to show differences in growth over time due to
differences in other aspects too. However, state of the art statistical tool such as
longitudinal growth modeling, enhance our analysis capacity allowing us to
model individual progress in the nascent venturing process. The following
description draws heavily on Muthén and his associates’ publications (Muthén,
1991; Muthén, 2000; Muthén and Curran, 1997; Muthén and Khoo, 1998;
Muthén and Muthén, 1998).
A conventional path-diagram of a structural model can be used to show the growth model graphically. (Squares represent observed variables and circles represent latent variables). Figure 6.1 illustrates the proposed latent longitudinal growth model of the nascent venturing process.

Figure 6.1 Graphical representation of a growth model for four time points (Based on: Muthén 1998)

The model estimates the intercept at which level the opportunity exploitation process is captured through the summation of gestation behaviors across time (Igestb = estimation of number of gestation behaviors). The intercept and growth (Ggestb) is explained by both time varying and time in varying variables (time in varying, “res” (resources include both human and social capital, “strat” = strategy and “env” = environment). Time varying variables are instrumental social capital (net0-18). Venture opportunity variation is captured through a simultaneous two-group model described below.

LGM considers two main parts of individual development. First, the number of gestation activities is likely to differ at the time for the first interview due to experiences prior to the first interview. This will be referred to as individual variation in initial status or random intercepts in statistical terms. The actual range is between 2 and 21 performed gestation behaviors at that time. This is problematic because we capture growth through the accumulation of gestation behaviors across time and if all possible behaviors are already executed there will be no variation left to explain. Therefore are only ventures that performed less than 15 gestation behaviors at the time for the first interview included in this analysis. This analysis includes only the initial 18 months because most activity was reported during this period. Other measures
Predicting progress in the nascent venturing process
capture performance better in the later stages of the nascent venturing process as described in part 4 in this study.

The second type of individual development occurs in the exploitation process in which ventures are likely to differ with respect to the growth in their performance across time, which is here referred to as individual variation in growth rate. Growth can be described as a linear trend and in this case, the statistical term of random slopes can be used. However, growth deviating from a straight line is also important and considered here.

Figure 6.2 illustrates the idea of individual growth trajectories. The figure shows the development over time for three venture opportunities. The growth trajectories represent three cases of progress in the nascent venturing process. The individual trajectories are different but all three decrease in development across time. This suggests a non-linear growth trajectory, which is the expected growth because there are not an endless number of venture opportunities.

Figure 6.2 Growth modeling in terms of random coefficients and a multilevel model

Key results in the analysis are estimates of the average initial status, the average growth rate (growth = accumulation of gestation behaviors across time), and estimates of variation across venture opportunities of initial status and of growth rate. In addition, for each measurement occasion, time-specific factors also influence the performance so that a certain performance that is expected is in fact not realized. In statistical terms, these factors are described as residuals.

Growth curve analysis is particularly useful when an attempt is made to
explain individual variation in initial status and growth rate using background variables for each individual. These variables are viewed as causes of growth preceding the measurement occasion and do not vary across time. Such variables are of substantial interest in that they are predictors of growth. More elaborate analysis also attempt to account for the fact that development in the exploitation process may be hampered or enhanced by time-specific background variables such as developments in a venture’s instrumental social network structure.

The statistical development to be drawn upon in longitudinal growth modeling is termed random coefficient models. This technique goes beyond traditional equation modeling of longitudinal data and its focus on auto-regressive models (cf. Maruyama 1998). It goes further in terms of including both a mean and a covariance structure. The growth model is multilevel in that an individual’s observation over time is correlated. A second part of the model describes individual variation in growth parameters in terms of person-specific, time invariant covariates. Compared to a single regression that gives an intercept and a slope estimate of all individual units, this approach gives an intercept and slope estimate for each individual unit (Muthén and Khoo, 1998). In addition, this approach accounts for similarities among individuals by stipulating that all individuals’ random effects come from a single, common population. In statistical terms, the growth model is specified as:

$$\gamma_{it} = \alpha_i + \beta_i + \zeta_{it} \quad (1)$$

Here $\alpha_i$ and $\beta_i$ are individual specific parameters describing initial level (intercept) and rate of growth (slope) of the entrepreneurial opportunity recognition process and $\zeta_{it}$ represents time varying residuals. The regression intercept and slopes are random parameters that vary over individuals. No specification of linear growth is necessary; linearity can be estimated whenever there are data on a sufficient number of time points (see Muthén and Khoo, 1998 for a technical description).

It is convenient to view initial status and growth rate as latent variables. To understand this it is useful to consider the specification of this model into two parts. The first part includes terms contributing to the means of the observed variables and terms contributing to variances and covariances among these variables. First the mean structure, intercepts in the regression of the y’s (gestation behavior) on the two latent variables (Igestb and Ggestb) are parameters which should be held equal across time to reflect that these are measured at all time points (i.e. the same metric). The latent variable ($\alpha_i$=initial status) is fixed at zero. The growth in the observed variable means over time is captured by the latent variable ($\beta_i$) (Muthén and Khoo, 1998). Extending the model like this with time-invariant covariates ($W_i$=resources and strategy), the individual variation in these parameters is specified as:
Predicting progress in the nascent venturing process

\[ \alpha_i = \alpha + \gamma \alpha w_i + \delta \alpha i \quad (2) \]

\[ \beta_i = \beta + \gamma \beta w_i + \delta \beta i \quad (3) \]

When further expanding the model by adding a time-varying covariate (vit) to the growth curve of equation (1), introducing time-specific deviations from the growth curve the following equation is used:

\[ Y_{it} = \alpha_i + \beta_i t + \gamma_{it} + \zeta_{it} \quad (4) \]

Assuming for simplicity that there is no time-varying covariate (v), the model can be seen to imply growth in means and variances as a function of time (t).

\[ E (y_{it} | w_i) = \alpha + \gamma \alpha w_i + \beta (\gamma \beta w_i) t \quad (5) \]

\[ V (y_{it} | w_i) = \sigma^2 + 2t \sigma_{\gamma \alpha} + t^2 \sigma^2 + \sigma^2 \quad (6) \]

The growth model can be viewed as a structural equation model with latent variables (cf. Maryama 1998). The alpha and betas can be viewed as latent variables instead of random parameters. They are both unobserved variables varying across individuals. Another application is when (t) is not varying across individuals. In this situation, (t) in equation (4) can be considered as a fixed regression parameter (factor loading) for the variable \( \beta \). According to this, beta can be estimated when fixing the first two (t) values, thereby capturing also non-linear growth (Muthén and Khoo, 1998).

Using LGM is a challenge because the analysis is rich in information that captures individual variation compared to the cross-sectional analysis techniques that dominates entrepreneurship research (cf. Chandler and Lyon, 2001). In this modeling framework it is possible to build a single model that allows prediction both of initial status and growth as well as a formal test of group invariance. It is possible to look at differences both in overall model fit and in individual parameters that may differ between groups (cf. Muthén and Khoo, 1998).

Growth modeling is not without limitations. First, it is a new technique, which makes this study part of an exploratory journey, and second, it is a modeling technique implying interpretations and judgment of the appropriateness of different models. However, all statistics involve interpretations of reality. LGM is an analysis technique that requires a modeling strategy that fits the purpose with the model. Growth modeling does not explicitly deal with left and/or right censoring. Left censoring is here viewed as problematic but possible to deal with through an attempt to only include cases that are similar in initial status measured through the number of performed gestation behaviors. Right censoring is not a real problem in this part, because, the only interest concerns prediction of development of ventures that are in the
process during the entire study period. Missing data is a common problem in longitudinal data analyses and is more thoroughly discussed in Appendix 2.

Another problematic area in relation to growth modeling is the relatively low number of respondents in the innovative group of venture opportunities compared to the reproducing group. This is despite a strong effort in which we aimed to secure a sufficient sample from a very large initial sample. However, a small simple size is not a technical problem in itself but rather a matter of robustness. Despite this, my aim here is to develop entrepreneurship research and methods which allow us to explore and utilize state of the art survey research design and statistical methods in an attempt to understand the nascent venturing process.

The value, instead, should be assessed in relation to how entrepreneurship research has come to focus on the nascent stages of the entrepreneurial process which force us to develop better tools in order to increase our understanding of the nascent stages of the entrepreneurial process. The overall purpose with this part of the study is to test empirically whether exploiting innovative venture opportunities is systematically different than exploiting reproducing venture opportunities. Another aspect of this test is to look at individual parameters in order to verify if certain predictor variables are more important for innovative venture opportunities while other predictors are more important for reproducing venture opportunities.

6.3.2 Building and interpreting longitudinal growth models

The following modeling strategy is applied in order to formally test variation in the nascent venturing process. First, the shape of the growth curve is determined, if possible, from theory or as in this case, data generated. Figure 6.2 above shows a sub sample of growth trajectories and mean values of the entire sample is used here in order to establish a growth shape in this sample. Plots of individual growth trajectories and mean growth trajectories are used in order to establish a growth sequence. Data exploration is also useful to get a good understanding for the data and its properties. The second step concerns model development and starts with a growth model using fixed time steps in order to fit the model. If the model fails to fit the data with fixed time steps, then, the linear assumption will not hold. It is possible to allow the model to estimate the time steps in order to fit a non-linear model. This is an important step, because if this part is stable and converges easily it is possible to use this as a baseline model in order to assess overall fit improvement as the researcher develops the model.

The next step is to add covariates and interpret the results, including and adding the independent variables in the model influence fit and estimates. Each predictor is included in the model and the final model is then estimated. Model fit is assessed with traditional model fit measures such as Chi-square and RMSEA (Root Mean Square Error of Approximation). A Chi-square value
higher than 0.05 indicates good fit and a RMSEA value lower than 0.05 indicates good fit (cf. Muthén and Khoo, 1998). The main advantage with this stepwise approach is that the analyst achieves a genuine understanding of the data and its limitations.

It may also be of interest, as in this case, to simultaneously analyze growth in several populations. For example, innovative venture opportunities and reproducing venture opportunities may be seen as representing different populations. Consequently, we want to test a two-group analysis allowing for various hypotheses of variation across the two groups. To test the degree of variation between innovative and reproducing venture opportunities more formally, the following series of analysis steps are useful (cf. Muthén and Khoo, 1998). In the first analysis, full invariance across the two opportunity types of the growth model parameters are imposed. This is the baseline model saying that there are no differences between innovative and reproducing venture opportunities. This model can then be tested against subsequent models that allow different parts of the model to be different. This means that the model estimates each parameter and allows differences in all parts of the model. A Chi-square difference test is used in order to establish significant model improvements.

If a model with group variation is found to fit the data significantly better than the model without group variation the following steps are used in order to identify more exactly where the differences reside. First, variation is allowed in the marginal part of the model consisting of the covariates because the growth model does not concern itself with this part. Second, we may allow variation in the growth model residual variance (variance remaining when conditioning on the covariates), namely initial status and growth rate residuals. Third, we may allow variation in the growth model’s conditional means given the covariates, namely the growth rate intercept and the initial status intercept (Muthén and Khoo, 1998). Following this modeling strategy, it is possible to investigate how the venture exploitation process may be different for innovative venture opportunities compared to reproducing venture opportunities.

6.4 A formal empirical test of variation in the nascent venturing process

This section reports results from the empirical test of variation in the nascent venturing process given venture opportunity variation. The model includes both an overall assessment of model fit as well as differences between innovative and reproducing venture opportunities. The entire model is reported initially and used to test formally whether exploiting innovative venture opportunities are systematically different from exploiting reproducing venture opportunities. Descriptive data such as mean, standard deviations and correlations for both
innovative and reproducing venture opportunities are reported in appendix 3 (Table A3 and A4).

The first step in the analysis is to estimate a population model without venture opportunity variation. The Chi-square value of 1184.51 with 101 d.f.’s indicates poor fit which is expected because venture opportunity variation suggests that there are two groups of venture opportunities. Fit statistics in table 6.4 shows that both the innovative venture opportunity model and the reproducing venture opportunity model, when estimated separately, fit the data reasonably well.

Table 6.4 Fit statistics from separate models of the opportunity exploitation process

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Innovative venture opportunity</th>
<th>Reproducing venture opportunity</th>
<th>Two group model baseline model</th>
<th>Final model Variation on all parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>40</td>
<td>219</td>
<td>259</td>
<td>259</td>
</tr>
<tr>
<td>chi-sq</td>
<td>29.37</td>
<td>25.80</td>
<td>55.17</td>
<td>55.17</td>
</tr>
<tr>
<td>df</td>
<td>30</td>
<td>30</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>p-value</td>
<td>0.50</td>
<td>0.69</td>
<td>0.65</td>
<td>0.65</td>
</tr>
<tr>
<td>RMSEA Estimate</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>90 Percent C.I.</td>
<td>0.00</td>
<td>0.12</td>
<td>0.00</td>
<td>0.41</td>
</tr>
<tr>
<td>Probability RMSEA &lt;= .05</td>
<td>0.65</td>
<td>0.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Innovative venture opportunities with a Chi-square value of 19.37 with 30 d.f.’s, p-value = .50 RMSEA estimate .00, reproducing venture opportunities with a Chi-square value of 25.80 with 30 d.f.’s, p-value = .69 RMSEA estimate .00.\(^1\) It is possible to use the sum of the two models as a baseline model that can be compared to the single model above. The two group longitudinal growth model has a Chi-square value of 55.17 (19.37+22.80) with 60 d.f.’s (30+30).

A chi-square difference test is used to investigate whether the two group model fit the data significantly better compared to the one-group baseline model. The initial model has a Chi-square value of 1184.51 with 101 d.f.’s and the two-group solution has a Chi-square value of 55.17 with 60 d.f.’s which gives a Chi-square difference test value of 1129.34 with 41 d.f.’s, p-value = 0.000 which clearly shows that the two group solution fits the data significantly better compared to the single population model. The Chi-square difference test clearly supports the overall hypothesis that the process of exploiting innovative venture opportunities is systematically different from the process of exploiting reproducing venture opportunities.

Table 6.5 report results from the two-group model used in order to empirically test hypothesis 3-7. The estimate indicates how much the

\(^1\) General rules of thumb for overall fit are Chi-square > .05 and RMSEA estimate < .05 (Maruyama, 1998).
Predicting progress in the nascent venturing process

dependent variable changes, which in this case is the latent variable initial status or growth; given one unit change in the independent variable (StdYX standardized YX is the standardized effect measured at the same scale; S.E., the standard error allows us to calculate the T-value (EST/S.E. interpreted as Z-values). Confidence intervals are included at the 95% level.

The estimated initial status mean value indicates that we capture innovative venture opportunities (an initial status mean of 3.24) earlier in the nascent venturing process compared to reproducing venture opportunities (an initial status mean of 5.74). The calculated growth rate shows that innovative venture opportunities grow faster with a growth rate mean of 4.88 compared to a growth rate mean of 4.27 for reproducing venture opportunities.

Initial status regression and growth rate regression indicate how progress in the nascent venturing process is regressed on the proposed set of covariates and that part of the model will be discussed below. The first section discusses results concerning how resources influence initial status and growth in the nascent venturing process followed by strategies and the environment influence on initial status and progress in the nascent venturing process.

---

2 T values approaches Z-values when sample size is larger than 30 and the population standard deviation is unknown (Kinnear and Taylor, 1995; See also Maruyama, 1998).
Table 6.5 Longitudinal growth model results

<table>
<thead>
<tr>
<th>Innovative venture opportunities</th>
<th>Reproducing venture opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Est.</td>
</tr>
<tr>
<td>y intercept</td>
<td>3.24</td>
</tr>
<tr>
<td>Initial status mean</td>
<td></td>
</tr>
<tr>
<td>Growth scores/steps</td>
<td></td>
</tr>
<tr>
<td>Gest.Beh00</td>
<td>0</td>
</tr>
<tr>
<td>Gest.Beh06/00-06</td>
<td>1.001</td>
</tr>
<tr>
<td>Gest.Beh12/06-12</td>
<td>1.65/65</td>
</tr>
<tr>
<td>Gest.Beh18/12-18</td>
<td>2.20/55</td>
</tr>
<tr>
<td>Growth rate mean</td>
<td>4.88</td>
</tr>
<tr>
<td>Initial status regression</td>
<td></td>
</tr>
<tr>
<td>Industry experience</td>
<td>0.24</td>
</tr>
<tr>
<td>Start-up experience</td>
<td>2.54</td>
</tr>
<tr>
<td>Formal education</td>
<td>-0.36</td>
</tr>
<tr>
<td>Social reinforcement</td>
<td>1.37</td>
</tr>
<tr>
<td>Specialist strategy</td>
<td>0.88</td>
</tr>
<tr>
<td>Generalist strategy</td>
<td>0.44</td>
</tr>
<tr>
<td>Economic growth</td>
<td>-0.37</td>
</tr>
<tr>
<td>Industry comp.</td>
<td>-0.63</td>
</tr>
<tr>
<td>Time in expl. Process</td>
<td>0.005</td>
</tr>
<tr>
<td>Growth rate regression</td>
<td></td>
</tr>
<tr>
<td>Industry experience</td>
<td>-0.28</td>
</tr>
<tr>
<td>Start-up experience</td>
<td>-0.06</td>
</tr>
<tr>
<td>Formal education</td>
<td>1.85</td>
</tr>
<tr>
<td>Social reinforcement</td>
<td>0.60</td>
</tr>
<tr>
<td>Specialist strategy</td>
<td>-0.92</td>
</tr>
<tr>
<td>Generalist strategy</td>
<td>0.69</td>
</tr>
<tr>
<td>Economic growth</td>
<td>-0.22</td>
</tr>
<tr>
<td>Industry comp.</td>
<td>-0.66</td>
</tr>
<tr>
<td>Time in expl. Process</td>
<td>0.003</td>
</tr>
<tr>
<td>Residual covariance of</td>
<td>-0.06</td>
</tr>
<tr>
<td>initial status, growth rate</td>
<td>0.14</td>
</tr>
<tr>
<td>Residual variances</td>
<td>0.29</td>
</tr>
<tr>
<td>Latent variable R-square</td>
<td>0.40</td>
</tr>
<tr>
<td>Initial status</td>
<td>2.30</td>
</tr>
<tr>
<td>Growth</td>
<td>2.25</td>
</tr>
<tr>
<td>Residual Variances</td>
<td>2.86</td>
</tr>
<tr>
<td>Latent initial status</td>
<td>1.73</td>
</tr>
<tr>
<td>Growth</td>
<td>4.84</td>
</tr>
<tr>
<td>Residual Variances</td>
<td>6.92</td>
</tr>
<tr>
<td>Latent initial status</td>
<td>2.72</td>
</tr>
<tr>
<td>Growth</td>
<td>3.49</td>
</tr>
<tr>
<td>Note: T-value &gt; 1.96 equals significant on the 5% level. T-value &gt; 1.64 equals significant on the 10% level.</td>
<td></td>
</tr>
</tbody>
</table>
6.4.1 The influence of human capital on progress in the nascent venturing process

Table 6.5 reports that industry experience is not significantly related to initial status in the nascent venturing process for neither innovative nor for reproducing venture opportunities. In addition, industry experience has little effect on progress in the nascent venturing process. It is interesting to see that industry experience, often conceived as one of the main explanations for a new firm formation, has no influence on progress for either opportunity type. One tentative explanation for this result is that reproducing venture opportunities reside inside known product-market areas, which allow actors to recognize and exploit venture opportunities based on existing knowledge that is easy to obtain and process which makes industry experience valuable but not a necessity.

The second human capital variable, start-up experience, capturing another aspect of tacit knowledge, indicates again that venture opportunity variation makes a difference. Start-up experience (Est.=2.54, T-value=3.47, StdYX=0.56) has a strong positive influence on progress in initial status for innovative venture opportunities but without effect on reproducing venture opportunities (Est.=0.28, T-value=0.57, StdYX=0.05). Table 6.5 also reports that start-up experience is less important to progress for either opportunity type.

It appears from these results that human capital in the form of industry experience has little effect on progress in the nascent venturing process for either innovative or reproducing venture opportunities. Start-up experience, however, has a positive impact on progress in the nascent venturing process for innovative venture opportunities but not for reproducing venture opportunities. It is also important to note that this relationship is found in the early stages of the nascent venturing process (as indicated by the initial status regression) and not in the later stages of the process. Thus, in this early exploration of the nascent venturing process empirical results rejects hypothesis 3a: Tacit knowledge (in the form of start-up experience and industry experience) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation. Instead, this study suggests empirical confirmation of a reformulated hypothesis 3b: The impact of tacit knowledge (in the form of start-up experience and industry experience) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

The third human capital variable included in the analysis is codified knowledge in the form of formal education. Table 6.5 reports that formal education has no effect on initial status for either innovative or reproducing venture opportunities. However, a formal education has a significant positive impact on growth in the nascent venturing process for innovative venture opportunities (Est.=1.85, T-value=2.39, StdYX=0.37) and a negative impact on growth for reproducing venture opportunities (Est.=-0.80, T-value=-2.99, StdYX=-0.26). These results indicate that codified knowledge (in the form of
formal education) has a strong effect on progress in the later stages of the nascent venturing process for innovative venture opportunities but a negative effect on progress for reproducing venture opportunities. These results strengthen the impression that exploiting innovative venture opportunities are systematically different from exploiting reproducing venture opportunities and allow us to reject hypothesis 4a: codified knowledge (in the form of formal education) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation and accept hypothesis 4b: The impact of codified knowledge (in the form of formal education) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

It is also interesting to relate results concerning initial status and growth to the sequence of gestation behaviors suggested by Katz and Gartner (1988). The innovative exploitation process is initially focused on intentions and in the latter part of the process on boundary and exchange related behaviors. Our results suggest that tacit knowledge, indicated by start-up experience, is related to the initial sequence and codified knowledge to boundary and exchange related behaviors for the exploitation process for innovative venture opportunities. It is, from a theoretical perspective, possible to view the nascent venturing process as a dynamic process with sequential effects and explanations.

6.4.2 The influence of social capital on progress in the nascent venturing process

Table 6.5 reports how social capital (in the form of emotional and instrumental social capital) influences initial status and growth in the nascent venturing process. We capture emotional capital with a measure of social reinforcement which, as indicated by Table 6.5, has a significant positive impact on initial status for innovative venture opportunities (Est.=1.37, T-value=2.02, StdYX=0.30) but no significant effect on reproducing venture opportunities. Table 6.5 also reports that emotional capital (in the form of social reinforcement) has no effect on growth for either innovative or reproducing venture opportunities. Thus, emotional capital (in the form of social reinforcement) has a significant effect on the early stages of progress in the nascent venturing process for innovative venture opportunities but no effect on the nascent venturing process for reproducing venture opportunities. Again, empirical results allow us to reject hypothesis 5a: emotional social capital (in the form of social reinforcement) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation and accept hypothesis 5b: the impact of emotional social capital (in the form of social reinforcement) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.
Predicting progress in the nascent venturing process

Social capital consists as well of a wide array of instrumental resources that increases the efficiency of actions in the exploitation process. Instrumental social capital is a time varying construct directly related to progress in the nascent venturing process. Results in the lower part of table 6.5, show that instrumental social capital has a no impact on the initial measurements of progress in the nascent venturing process for innovative venture opportunities but becomes significant during the later stages of the nascent venturing process (Inst soc. cap00; Est.=0.06, T-value=-0.71, StdYX=-0.11; Inst soc.cap06, Est.=0.14, T-value=1.38, StdYX=0.18; Inst soc. cap12, Est.=0.29, T-value=2.11, StdYX=0.28; Inst soc. cap18, Est.=0.40, T-value=2.29, StdYX=0.32).

Table 6.5 also reports that instrumental social capital has a significant impact on the entire nascent venturing process for reproducing venture opportunities (Inst soc. cap00; Est.=0.09, T-value=2.13, StdYX=0.14; Inst soc.cap06, Est.=0.14, T-value=3.65, StdYX=0.20; Inst soc. cap12, Est.=0.21, T-value=4.88, StdYX=0.24; Inst soc. cap18, Est.=0.26, T-value=5.08, StdYX=0.26). These results indicate that instrumental social capital has a strong and continuous impact on progress in the nascent venturing process for reproducing venture opportunities compared to innovative venture opportunities for which the effect becomes significant later in the process. These results indicates that instrumental social capital has a stronger impact on progress in the nascent venturing process later than earlier for both innovative and reproducing venture opportunities. Thus it is possible, in this exploratory stage, to give partial support to hypothesis 6a: instrumental social capital has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation but it is increasingly important for innovative ventures. Thus, it is possible to accept hypothesis 6b: the impact of instrumental social capital on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

Altogether, the empirical results in this section point at the diversity and richness that we find in the nascent venturing process. Resources have a dynamic and varied impact on progress in the nascent venturing process which is hidden from an entrepreneurship research agenda that neglect the importance of venture opportunity variation.

6.4.3 The influence of strategic choice on progress in the nascent venturing process

Table 6.5 shows that a specialist strategy has a positive influence on initial status (Est.=0.88, T-value=2.21, StdYX=0.14) and a negative effect on growth for innovative venture opportunities (Est.=0.92, T-value=2.25, StdYX=0.39). On the other hand, there is no influence of strategic choice on either initial
status or growth rate for reproducing venture opportunities. This is clearly an interesting result because it seems that a specialist strategic choice is important early in the process for innovative venture opportunities but becomes a liability to progress in the later stages of the nascent venturing process. In addition, no effect is found concerning strategy and progress in the nascent venturing process for reproducing venture opportunities. Thus, empirical results reject the equality hypothesis 7a: a strong focus in one strategic approach has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation in favor of hypothesis 7b: the impact of a strategic choice on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.

It is possible that we capture two related phenomena that may explain the rather strong negative influence on growth. We may capture a high failure rate among innovative venture opportunities and perhaps a problem related to the dilemma of being too strategic too early in the nascent venturing process (cf. Sarasvathy, 2001). Enterprising actors exploiting innovative venture opportunities probably need to be able to adapt to changes during the nascent venturing process in order to capture relevant market needs. Failing to adapt to market needs ultimately leads to an abandoned venture. However, it is noticeable that empirical results indicate that exploiting innovative venture opportunities are systematically different than exploiting reproducing venture opportunities.

6.4.4 Controls

Table 6.5 also reports empirical results concerning the proposed relationship between control factors such as local economic growth, industry competitiveness, time and progress in the nascent venturing process. The overall results displayed in table 6.5 suggest that forces in the environment has a limited impact on the nascent venturing process and that time in the process have a marginal effect on progress in nascent venturing process.

Table 6.5 furthermore indicates that awareness of a strong perceived competition has a positive influence on progress in the nascent venturing process for reproducing venture opportunities (Est.=0.49, T-value=1.70, StdYX=0.14) but there is no effect of competitive awareness on progress in the nascent venturing process for innovative venture opportunities. This is also a result that was expected because innovative venture opportunities are by definition without competition. However, it is also clear that this can be an over-estimation of innovativeness. Because, when actors start exchange information in the nascent venturing process they might recognize that they are not alone.

Finally, it is interesting to see that the number of months that passed from the execution of the first gestation behavior to the start of the first interview has no effect on the exploitation process for innovative venture opportunities and
only limited effect on reproducing venture opportunities. An extensive period of time in the nascent venturing process has both a positive and a negative impact on progress in the nascent venturing process (initial status $\text{Est}=0.006$, T-value=1.71, StdYX=0.14 and growth rate $\text{Est}=-0.004$, T-value=-1.88, StdYX=-0.16). Reproducing venture opportunities that have been around for a while since their first gestation behavior are captured later in the nascent venturing process. This group has at the time for the first interview already performed a number of gestation behaviors. On the other hand, this group is less likely to show progress in the nascent venturing process after the initial interview because their pace is very slow.

6.4.5 Parameter differences between innovative and reproducing venture opportunities in the nascent venturing process

In addition to variation in the exploitation process predicted by the proposed covariates, they also create differences in their correlated residuals and in individual residual estimates. Table 6.5 shows significant amount of variation in initial status for reproducing venture opportunities but not for innovative opportunities which indicates that reproducing venture opportunities are a more heterogeneous group in terms of initiated and completed gestation behaviors when we first capture them.

The estimated variation in growth rate is not significant for innovative opportunities, implying that there is a limited individual variation in growth which is the opposite of reproducing venture opportunities that vary significantly in growth rate, implying that reproducing venture opportunities are more heterogeneous in terms of individual growth trajectories. This means that most innovative venture opportunities pass through the nascent venturing process along similar growth trajectories while there is a greater variation between slow growers and fast growers among reproducing venture opportunities. The residual covariances of gestation behaviors are significant from gestation behavior 06 and forward indicating that there are other factors influencing growth for reproducing venture opportunities. This means that traditional measures in entrepreneurship research fail to capture progress in the nascent venturing process for reproducing venture opportunities.

Residual variances show a similar pattern. Innovative opportunities show less residual variance compared to reproducing venture opportunities. This can be a result due to a larger amount of measurement error in the reporting of gestation behaviors by the reproducing venture opportunity group.

Perhaps the strongest indication of differences between the two processes is found in the R-Square values presented in the bottom of table 6.5. The model is well suited to explain progress in the nascent venturing process for innovative venture opportunities (R-square initial status = .87, growth rate = 0.48) but fails to do so for reproducing venture opportunities (R-square initial status = 0.06, growth rate =
It is evident that the longitudinal model of the nascent venturing process explains a substantial share of variation in initial status and growth rate for innovative venture opportunities. It is equally clear that the results also indicate that the model is less effective in explaining initial status and growth rate for reproducing venture opportunities. This result indicates that many better-chosen covariates are needed to explain progress in the nascent venturing process for reproducing venture opportunities.

Entrepreneurship research and entrepreneurship literature in general seem to capture and sufficiently explain progress for innovative venture opportunities. However, these results indicate a bias toward research and theory building around innovative ventures and their development. This is not a problem as long as researchers clearly state that they want to contribute only to one particular phenomenon.

6.4.6 Systematic variation in the nascent venturing process: implications

In sum, this chapter reported empirical results concerning whether exploiting innovative venture opportunities is systematically different from exploiting reproducing venture opportunities. Table 6.6 reports a summary of hypotheses and whether they were supported or rejected in this study.

It is evident from table 6.6 that exploiting innovative venture opportunities are systematically different from exploiting reproducing venture opportunities. The explanations provided all belong to mainstream entrepreneurship literature and it is also evident that entrepreneurship research and theory provide valid explanations to progress in the nascent venturing process for innovative venture opportunities but not for reproducing venture opportunities.
### Table 6.6 Summing up hypotheses and their outcome

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypothesis 3a</strong>: Tacit knowledge (in the form of start-up experience and industry experience) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.</td>
<td>No</td>
</tr>
<tr>
<td><strong>Hypothesis 3b</strong>: The impact of tacit knowledge (in the form of start-up experience and industry experience) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hypothesis 4a</strong>: Codified knowledge (in the form of formal education) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.</td>
<td>No</td>
</tr>
<tr>
<td><strong>Hypothesis 4b</strong>: The impact of codified knowledge (in the form of formal education) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hypothesis 5a</strong>: Emotional social capital (in the form of social reinforcement) has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.</td>
<td>No</td>
</tr>
<tr>
<td><strong>Hypothesis 5b</strong>: The impact of emotional social capital (in the form of social reinforcement) on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hypothesis 6a</strong>: Instrumental social capital has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.</td>
<td>Partial support</td>
</tr>
<tr>
<td><strong>Hypothesis 6b</strong>: The impact of instrumental social capital on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hypothesis 7a</strong>: A strong focus in one strategic approach has a positive impact on progress in the nascent venturing process regardless of venture opportunity variation.</td>
<td>No</td>
</tr>
<tr>
<td><strong>Hypothesis 7b</strong>: The impact of a strategic choice on progress in the nascent venturing process is different for innovative venture opportunities compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Exploiting innovative venture opportunities includes both tacit and codified knowledge, emotional capital, a growing instrumental social capital, and an early specialist strategic focus. On the other hand, progress in the nascent venturing process for reproducing venture opportunities is explained to some extent by a competitive awareness and a large and growing use of instrumental social capital. This again yields the main implication from this part of the study. Entrepreneurship theory provides endogenous explanations to progress of innovative venture opportunities. By contrast, entrepreneurship theory provides
limited explanatory power for progress among reproducing venture opportunities.

It is possible to conclude this part with two main implications for entrepreneurship theory. First, entrepreneurship as an economic phenomenon including both optimizing and creative processes requires valid explanations to both processes in order to become a legitimate scholarly domain. There is also a more practical reason because reproducing venture opportunities vastly outnumber innovative venture opportunities which make it difficult to study the rare phenomenon of innovativeness.

Second, this part of the study tests a theory in which entrepreneurship is regarded as a behavioral phenomenon. That is, progress in the nascent venturing process is measured through a set of behaviors without any economic impact during the nascent venturing process. This is problematic if we regard entrepreneurship as an economic phenomenon. Therefore, future research needs to investigate whether behaviors in addition to other explanations also drive economic development (cf. Davidsson, 2003).
Part 4

The nascent venturing process’ influence on subsequent performance
7. Impact of founding conditions and process characteristics on venture performance

7.1 Introduction

Entrepreneurship as the creation of new economic entities includes the process of value creation as well as value realization (cf. Moran and Ghoshal, 1999). Part 2 and 3 in this study related to the issue of creation. However, for an economic system to be efficient in the long run it must allow and motivate both the creation and realization of value through the entrepreneurial process (cf. Moran and Ghoshal, 1999; Kirzner, 1973; Schumpeter, 1947). The process of creation involved behaviors as described and explained above. The process of realization, however, assumes that value is an economic phenomenon and path dependent on the creation process (cf. Bamford et al., 1999). Entrepreneurship theory and research defined as the creation of new economic activity include both processes. In addition, explaining venture level performance helps us to answer the overall research question posed in this study: Why is it that some venture opportunities are turned into wealth creating new ventures, through the exploitation process, and some not?

Multiple theoretical models have suggested a focus on the temporal endurance of founding conditions. These models argue that decisions made, and conditions existing during the founding of a new venture, imprint the future development of the venture, limit its strategic choice, and have an impact upon the venture’s future performance (cf. Bamford et al., 1999; Boeker, 1989; Carroll and Hannan, 1989; Carter, Williams and Reynolds, 1997; Child, 1972; Pfeffer and Salancik, 1978; Stinchcombe, 1965). It is also evident from recent conceptual discussions as well as from empirical results in part 3 that the behavioral perspective as well as venture opportunity variation influence value realization (Davidsson, 2003). Figure 7.1 captures different perspectives explaining venture level performance; the resource perspective (relationship x in figure 7.1), the venture opportunity perspective (relationship w in figure 7.1), the strategic choice perspective (relationship y in figure 7.1), the external environment perspective (relationship z in figure 7.1), and the behavioral
perspective (relationship $p$ in figure 7.1). These perspectives together argue that: founding conditions and process characteristics in the nascent venturing process have an impact on subsequent venture level performance.

The conceptual rationale behind the five perspectives is already discussed in part 3 in this study. Instead, this part focuses on shorter extensions of prior theories and empirical studies focusing on entrepreneurial outcomes of the nascent venturing process, which in many areas coincide with explanations to progress in the nascent venturing process. It is important, however, to include various mechanisms that may have a temporal impact on progress and outcomes of the nascent venturing process in order to develop an entrepreneurship theory that includes antecedents, progress and outcomes of the nascent venturing process (cf. Gartner, 2001, Davidsson et al., 2001).

### 7.2 Explaining value realization

Entrepreneurs do not instantaneously create new ventures to exploit the opportunities they identify (Freeman, 1982). Rather, they create new ventures through a series of actions - obtaining inputs, conducting product development, hiring employees, seeking funds and gathering information from customers - undertaken to different degrees, in different order, and at different points in time by different entrepreneurs (Gartner, 1985). New ventures develop through a gestation period during which entrepreneurs engage in activities that, if successful, result in the creation of a new venture (Carter et al, 1996).

The investigation of venture formation could begin with the identification of a venture opportunity and proceed forward over time. In the initial part of this process, the milestones that entrepreneurs seek to reach are not
performance outcomes like return on sales or profits, but are such things as the ability to recognize a venture opportunity, assemble resources and organize the venture in the nascent venturing process. The question remaining is how to capture outcomes from the nascent venturing process.

Prior research indicates that it is difficult to establish exactly when a venture should be regarded as up-and-running. It might even be argued that this is not important because venturing is not a single event (cf. Bygrave, 1989). Reviewing previous research indicates that most studies use variations on a single event approach (e.g., Carter et al., 1996; Dean and Meyer, 1996; Gatewood et al., 1995). A number of studies use subjective self-reported measures such as answering yes on the question “do you regard your venture as up and running” (cf. Shaver and Scott 1991) as an indication of firm birth. A variation on this theme is numerical measures defined by the researcher, often a single event such as first sale, hiring employees, etc. (Aldrich, 1990; Carter et al. 1996; Fiet and Samuelsson, 2000), which can be interpreted as physical birth (cf. Carter et al. 1996; Reynolds 1997). For example, the start-up process is considered as completed when the following criteria are fulfilled: a) money has been invested, b) income has been made, and c) the firm is already a legal entity (Carter, et al., 1996).

Other objective measures with the same categorical outcome are different forms of entries in official registers such as Dun and Bradstreet files (cf. Dean and Meyer 1996; Spilling 1996). Together these are all examples of such “substantial events” rather than a development process. In addition, such measures are likely to contain firms not active in the sense that they have no market impact at all; hence they will actually not be defined as entrepreneurship. Together, the main limitation with both subjective measures and more objective measures of “events” is that such an approach is incompatible with a process based definition of entrepreneurship as presented in this research.

In addition, founders of new ventures would probably disagree that they only did one thing. Rather, founders would probably argue that they continuously act (cf. Shaver and Scott, 1991). This is in direct conflict with the single event approach that assumes a linear exploitation process with a start and an end. There is a mis-fit between theory and operationalizations of core constructs such as firm formation. If we view entrepreneurship as a process, our understanding of the phenomenon will be inconclusive if we measure it as a single event instead of as a process.

Shane and Venkataraman (2000) suggest that entrepreneurship should include three main dimensions; 1) the identification of entrepreneurial opportunities; 2) how, when and by whom they are discovered; and 3) how these opportunities are exploited. Zahra and Dess argue that a fourth dimension should be added to the list: “the “outcomes” of the exploiting entrepreneurial opportunities” (2001:8). This is consistent with my argument that entrepreneurship as an economic phenomenon need to be measured in terms of
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economic impact. Zahra and Dess (2001) develop their argument regarding outcomes of the entrepreneurial process to also include more aspects than only financial. Entrepreneurship as a scholarly field should recognize outcomes of this process, whether these outcomes are positive or negative, tangible or intangible, immediate or long term.

This study aims to explain two main outcomes from the nascent venturing process. Economic impact is captured with venture level profit e.g., when venture level income exceeds venture level costs (cf. Moran and Ghoshal, 1999). Profit captures economic impact and wealth realization because resources are used more efficiently in that they generate income that exceeds costs. The underlying assumption is that factor markets are free and that resource owners are compensated as the trade resources against value on a free market. Venture level profit also captures performance over time which is consistent with the aim of this study.

From a scholarly perspective it is interesting to study why ventures are abandoned. If we look at this narrowly, failures are often seen as a way of irreversible commitments in which resources are lost. However, many of the intangible resources associated with new ventures lend themselves readily to new resource combinations and could be used as “platforms” for new ventures (Davidsson, 2000; Grenadier and Weiss, 1997; McGrath, 1999). The entrepreneurial process can be viewed as an investment in social, human and intellectual capital at least in a longer perspective. Firm formation experience may contribute to the development and growth of individuals increasing their knowledge and their future abilities to locate and pursue venture opportunities (cf. Zahra and Dess, 2001). Thus, explaining venture level profit as well as venture level dissolution helps us to understand why some ventures succeed in realizing value while some are abandoned during the creation process.

It is also useful from a methodological perspective to use both venture level dissolution as well as venture level profit because it avoids “survivor bias” which may influence the result. Here it is possible to investigate factors both influencing performance in terms of survival and profit and abandonment across time which increase our ability to understand how and why new ventures come into existence.

7.2.1 The influence of venture opportunity variation on venture level performance

Theories, as well as empirical results presented above, suggest that venture opportunity variation has a profound impact on the nascent venturing process. The question now is whether venture opportunity variation also influences subsequent venture level performance.

In the framework presented above reproducing venture opportunities exist within the given product market arena. Both supply and demand are known
entities within a given system. Schumpeter refers to this type of combination as residing “within existing practice” as the adaptive response (1947:153). In effect adaptive responses are favored by the prevailing economic and institutional structure because actors have the adequate resources, ideas and rights needed to independently execute and benefit from them (Moran and Ghoshal, 1999). Under such conditions are the market institutions well suited to the coordination of these combinations. Allocative efficiency will drop until new entrants move in and compete away some of the entrepreneurial rents enhancing adaptive efficiency (Schumpeter, 1947).

Innovative venture opportunities, on the other hand, belong to what Schumpeter calls “the creative response” – that is “something that is outside of the range of existing products” (cf. Aldrich, 1999; Arrow, 1974). Innovative venture opportunities are often motivated but not likely to occur because they depend on some additional deployment either not motivated or perceived. Creative change results in innovative venture opportunities often in forms that cannot be meaningfully labeled ex ante due to an inherent uncertainty (cf. Knight, 1921). Given that innovative venture opportunities depend upon new-means relationships their future is uncertain because their exploitation is unlikely to be induced autonomously by the prevailing institutional and market mechanisms (cf. Moran and Ghoshal, 1999). Institutional theory suggests that:

Hypothesis 8a: Innovative venture opportunities are less likely to survive the nascent venturing process compared to reproducing venture opportunities.

As described here reproducing and innovative venture opportunities are two different sides of one coin – the creation and emergence of new economic activity. It is as Schumpeter calls it, “the interaction of institutional forms and entrepreneurial activity, the ‘shaping’ influence of the former and the ‘bursting’ influence of the latter” (1947:153), which drives the economic development process toward greater economic efficiency.

Kirzner (1973) discusses the issue of rents and profits coming from entrepreneurial activity. When entrepreneurs recognize, for example, a use of resources, they bring these resources into a new economic existence. Accordingly, they have created something ex nihilo and therefore are entitled to the associated profit on generally accepted moral principles. The question here is whether venture opportunity variation influence subsequent venture level profit. The traditional belief is that exploiting innovative venture opportunities, representing a particular manifestation of entrepreneurial behavior in which they create or are among the first to enter a new product-market arena that others have not yet recognized, creates a first mover status that forms a basis for a sustainable competitive advantage. For example, innovative ventures can create industry standards, barriers to entry, or define the benchmark against which later entrants are judged (cf. Covin et al., 2000).
This is sometimes discussed in terms of entrepreneurial monopoly. The results of assessing monopoly often depend on whether the short- or long-run is examined. Monopoly can result from initial endowments created by the institutional setting (for example, in nonslave societies each individual has a monopoly over his labor), in which case profits and disadvantages should be attributed to the institutions. Monopoly can be the result of entrepreneurial effort, in which case profits can be attributed either to the monopoly position (short-run view) or to the entrepreneurial effort (long-run view). A quasi-monopoly can be the result of an entrepreneur being the first to exploit an opportunity when entry takes time; in this case the entrepreneur has a temporary monopoly while others begin to assemble the resources to compete, and this monopoly can be viewed the same way as the entrepreneurially-gained monopoly. Research suggests that innovative ventures, due to their competitively distinct status, are often in a position to charge premium prices for their products (cf. Lambkin, 1988; Bobrow and Shafer, 1987). Strategy research and the Schumpeterian view of entrepreneurial monopoly suggest that:

Hypothesis 8b: Innovative venture opportunities, if exploited, will financially outperform reproducing ventures in the short run.

7.2.2 The influence of resources on venture level performance

A great deal of attention is given to the predictive value of resource to the development of the new ventures. Resources are scarce and beyond the individual entrepreneur’s personal means and therefore sought for in a broader social network (cf. Aldrich and Martinez, 2001; Bhave, 1994). This corresponds well with the resource dependency view, which specifically argues that venture success is dependent upon its ability to acquire resources from the environment (Pfeffer and Salancik, 1978). The resource based view of the firm and the resources dependency perspective together argue that the ability of a new venture to acquire essential resources, both human and financial, appears to have an immediate and lasting survival-dependent aspect to it (Birley, 1986; Boyd, 1990; Eisenhardt and Schoonhoven, 1990; Pfeffer and Salancik, 1978).

The process of founding a new venture is fundamentally a social process in which social actors interact in order to recognize and exploit venture opportunities. The process constitutes collective efforts from a range of other actors with an interest in the founding firm (Larson, 1992; Van de Ven, 1993). Human and social capital is in this perspective viewed as resources having a direct as well as a lasting effect on the nascent venturing process and subsequent performance because it amplifies the value of other resources (cf. Aldrich, 1999; Aldrich and Fiol, 1994; Chandler, 1962).

The literature confirms that human and social capital provides the skills and knowledge needed to exploit a venture opportunity (Boyd, 1990; Chandler and
Impact of founding conditions and process characteristics on venture performance

Hanks, 1994; Davidsson and Honig, 2003; Eisenhardt and Schoonhoven, 1990; Pettigrew, 1992, Pfeffer and Salancik, 1978). In addition, initial social capital has an enduring effect on a venture’s subsequent performance. Roure and Maidique (1986) conclude that the percentage of essential functions performed by the team during initial founding conditions was a critical determinant of subsequent venture level performance. Furthermore, Aldrich, Rosen, and Woodward (1987) found that time devoted to social networks and external contacts had a positive impact on young ventures (cf., Mileham, and O’Neill, 1999; Rosenstein, Bruno, Bygrave, and Taylor, 1993). In sum, the resource perspective argues that founding conditions are preeminent due to the persistence of their effects on subsequent venture level performance (cf. Bamford et al., 1999). The resource perspective basically suggests that ventures without a sufficient resource base are less likely to survive compared to ventures with a sufficient resource base. The resource based view described in part three and extended here allows us to formulate the following hypotheses:

Hypothesis 9a: Ventures with high levels of tacit knowledge (in the form of start-up experience and industry experience) in the nascent venturing process are more likely to survive compared to ventures with low levels of tacit knowledge.

Hypothesis 9b: Ventures with high levels of tacit knowledge (in the form of start-up experience and industry experience) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of tacit knowledge.

Hypothesis 9c: Ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing process are more likely to survive compared to ventures with low levels of formal knowledge.

Hypothesis 9d: Ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of codified knowledge.

Hypothesis 9e: Ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process are more likely to survive compared to ventures with low levels of emotional social capital.

Hypothesis 9f: Ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process,
if exploited, will outperform (in terms of profit) ventures with low levels of emotional social capital.

Hypothesis 9g: Ventures with high levels of instrumental social capital in the nascent venturing process are more likely to survive compared to ventures with low levels of instrumental social capital.

Hypothesis 9h: Ventures with high levels of instrumental social capital in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of instrumental social capital.

7.2.3 The influence of strategic choice on venture level performance

Empirical results from this study show that a strategic direction is more important in the early stages of the nascent venturing process. Strategic choice theory, however, often concerns performance in established firms. Therefore this is an opportunity to connect nascent strategies with subsequent venture level performance.

Strategic choice theory has its conceptual roots in Child’s early work, which suggested that management has strategic choice in the selection of domain/scope and the degree of latitude in selecting an organizational domain occurs at the time of founding (Andrews, 1971; Biggadike, 1979; Child, 1972; Weick, 1979). Internally-oriented models such as the strategic choice perspective suggest that the primary locus of organizational focus exists in the selection of goals and domains, with the most consequential act of domain selection being made at the time of founding (Bamford et al., 1999; Carter et al., 1997; Child, 1972; Weick, 1979).

Boeker (1988; 1989) emphasized the critical importance of initial founding conditions in determining the strategy that new ventures pursue throughout their existence. A venture is set on a course at founding and this course remains stable across time (cf. Kimberly 1979). Stinchcombe (1965) emphasized the role of social structure on the forms of new ventures, arguing that their forms were temporally stable due to the institutionalization thereof. As a result, the structural characteristics of a venture tend to persist across time, and there is a strong correlation between a venture’s current structure and the structure at initial founding. The relationship between strategic choice and performance is also supported in the literature by Sandberg and Hofer (1987) who served as a fundamental theory base for subsequent elaborations on strategic choice and its impact on subsequent venture level performance. (See for example, Carter et al., 1994; Duchesneau and Gartner, 1992; Eisenhardt and Schoonhoven 1990;
Impact of founding conditions and process characteristics on venture performance

McDougall et al., 1994; Miller and Camp, 1985). Together the strategic choice perspective argues that:

Hypothesis 10a: Nascent ventures with a strong focus in one strategic approach are more likely to survive the nascent venturing process compared to ventures without a strong focus in one strategic approach.

Hypothesis 10b: Nascent ventures with a strong focus in one strategic approach in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures without a strong focus in one strategic approach.

7.2.4 The influence of gestation behaviors on venture level performance

Prior empirical results in this study suggest that the nascent venturing process for innovative and reproducing venture opportunities is systematically different. Entrepreneurship, however, in the nascent venturing process is often viewed as a behavioral phenomenon, which in this section is related to entrepreneurship as an economic phenomenon.

The theoretical basis for this exploration is Weick’s (1979) theory of organizing. Weick (1979), views organizations as ongoing processes of interactions among individuals and also in relation to a context. Carter et al., (1996) recognize the creation of a new organization as analogous to Weick’s process of enactment, that is, the generation of specific patterns of interlocked behaviors among individuals. The general assumption is that some behaviors would be more effective in enacting a new venture compared to others (cf. Carter et al., 1996). For example, actors need to gain cognitive legitimacy for their venture in order to secure resources and to be able to exploit the venture opportunity (cf. Aldrich and Fiol, 1994).

In general, if we view the nascent exploitation process as an “enacting” process it is more likely that actors who demonstrate to others that their emerging venture was real would be more likely to create an operating venture compared to those who perform fewer gestation behaviors (cf. Carter et al., 1996; Gartner, Bird and Starr 1992). In Carter and her associates’ study actors who were able to start a business worked more aggressively in making their business “real”. They undertook more activities that made their business tangible to others. For example, they looked for facilities and equipment, sought and got financial support, formed a legal entity, organized a team, bought facilities and equipment and devoted full time to the business. They also acted with a greater level of intensity compared to other outcomes and

137
undertook more activities across time than actors that abandoned the venture opportunity.

Carter et al., (1996) discovered that those giving up were similar in their activity patterns compared to those who started their firms. This group had the same aggressive initial sequence of the nascent venturing process but as the venture unfolded across time, these actors decreased their activities and abandoned the venture. Carter et al., (1996:162) discuss this group of people as actors that either having the wisdom to test their ideas out before going into something that might lead to failure or lacking the flexibility to find more creative ways to solve problems as they evolve during the nascent venturing process.

A final group of ventures discussed by Carter et al., (1996), consists of actors that were continuously trying. The general assessment of this group is that they are not putting enough effort into the nascent exploitation process in order to be able to see whether they should start the venture or abandon it. This group undertakes fewer activities than individuals in the other two groups. This group devotes their short term efforts toward activities internal to the exploitation process (e.g., saving money, preparing a plan) and less effort toward activities that would make this venture “real” to others. Carter et al., (1996:162) formulate this as “The still trying entrepreneurs may be all talk and little action”. A behavioral perspective suggests that the “acid test” for a venture opportunity is empirical performance; acting “as if” the venture is real has performance implications. It appears from this research that “enacting” a new venture is more likely, to result in an operating venture or in an abandoned venture because the venture’s viability really gets tested. Thus, empirical and theoretical arguments in the behavioral perspective suggest that:

\[ \text{Hypothesis 11a: Nascent ventures executing gestation behaviors at a high frequency are more likely to survive compared to ventures that executing behaviors at a low frequency.} \]

\[ \text{Hypothesis 11b: Nascent ventures executing gestation behaviors at a high frequency in the nascent venturing process will outperform (in terms of profit) ventures executing gestation behaviors at a low frequency.} \]

In sum, this chapter outlined a model, based on four theoretical perspectives, linking characteristics and conditions in the nascent venturing process with subsequent venture performance. The overall model suggests that decisions made, and conditions existing during the founding of a new venture, imprint the future development of the venture, limit its strategic choice, and have a continuous impact upon the venture’s future performance.
8. Results: predicting subsequent venture level performance

8.1 Introduction

Theory suggests that venture level performance is influenced by founding conditions and characteristics in the nascent venturing process. The present chapter reports empirical results from two models of venture performance. In addition, it also discusses methodological issues in relation to prediction of venture dissolution and venture level profit.

Two sub-samples are used in this part of the study. The first sample consists of 127 ventures with complete performance data at the time for the 24 month follow-up. The rationale for this sample is that venture level profit is a prerequisite for value realization because income exceeds costs. At the same time venture level profit captures wealth through the yield consumers attach to the product or service that the venture produces because venture profit depends on the approval of the entrepreneurial conduct by the consumers. An excess of the total amount of profits over that of losses is proof that there is economic progress and an improvement in the standard of living of all strata of the population. The greater this excess is, the greater is the increment in general prosperity (cf. Von Mises, 1997).

The second sample consists of 506 ventures that had performed less than 15 gestation behaviors at the time for the first interview. This is the same original sample as I used in part 3. The rationale behind this sample is that performance is a multidimensional construct and, as pointed out above, there is reason to be careful in regarding venture level profit as the only measure of performance when we deal with nascent and new ventures. A second reason is that venture dissolution is an outcome that concerns all ventures and event history analysis correctly handles the problem with right censoring. Venture level profit and venture level dissolution, together, capture two important dimensions of performance related to the development of the new venture.

The analysis is based on information gathered during the initial 24 months of the nascent venturing process. Using such a short time frame could be problematic but to develop theory we need to develop a time order in which different outcomes are used in order to develop a better understanding of the entrepreneurial process. According to Carter et al., (1996) 24 months is a
suitable first indication whether a new venture is established or not. Venture opportunities need to be recognized but so must their productive potential and even if 24 months is a short period, it gives a first indication of whether a particular venture opportunity has the capacity to generate wealth.

8.2 Operationalization: predicting subsequent venture level performance

The reason behind multiple samples and measures of dissolution and performance is to avoid “survivor bias”. For example, gestation behaviors can appear as a success factor even if it also causes failure because the viability of the venture is confirmed or rejected. Survivor bias is to some extent not a problem if we are only interested in survivors. That is, analogous with Penrose (1959) argument that growth can only be studied with growth. On the other hand, if we are interested in different outcomes it becomes a challenging task to also include different explanations.

Since we are still dealing with the nascent venturing process many of the measures used in this part are the same as in previous parts of the study and not repeated here (See part 2 for classification of venture opportunities and table 6.1 for additional measures). The following section discusses measures that are unique for this part of the study.

8.2.1 Dependent variable: venture level performance

This research examines how initial founding conditions and characteristics of the nascent venturing process influence two main measures of performance; venture level profit and venture level dissolution. To examine venture level profit the respondent was asked about the expected profit for the fiscal year of 2000. To inform ourselves we asked – “Approximately how large do you believe the operational profit in thousands SEK will be?” This measure is time invariant and only measured at the time of the 24 month follow up.

To examine venture level dissolution we asked – “How would you describe the current status of this start-up effort? a) Is it now an operating business; b) still in an active start-up phase, c) still a start-up but inactive or d) no longer being worked on by anybody”. The main interest here is whether the venture is abandoned or not. Therefore this variable is recoded into a dummy variable (1 equals abandoned by all and 0 equals still in the process/operating business). This variable is time varying. We asked this question every sixth month, which means that the venture can be abandoned any time between the initial interview and the final 24 month interview.
8.2.2 Independent variables: predicting subsequent venture level performance

Table 8.1 describes independent variables. The left side of the table displays main constructs and variable names and the right side of the table display empirical operationalizations. Organizational context is again included as a control variable. The underlying assumption is that venture opportunities exploited inside established organizations are different from venture opportunities exploited in independent new ventures.

Table 8.1 Independent variables: predicting venture level performance.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity variation</td>
<td>A classification based on four indicators of innovativeness described in Part 2. The following measures are combined in this study: R&amp;D focus, patenting, unique product/service, and alone in the market. Innovative venture opportunities are classified as “1” and reproducing venture opportunities as “0”.</td>
</tr>
<tr>
<td>Instrumental social capital</td>
<td>This measure is a count of all personal network resources in one venture during the nascent venturing process from the first interview to the 18 month follow-up interview. Its theoretical distribution ranges from 0-36.</td>
</tr>
<tr>
<td>Gestation behaviors time</td>
<td>Measured with a summation of all executed gestation behaviors at the time for the first interview and at subsequent interviews. The theoretical distribution is between 2 and 30 (see table 5.1 for a description of gestation behaviors). This measure is the accumulated number of executed gestation behaviors between the first interview and the 18-month follow-up interview.</td>
</tr>
</tbody>
</table>

Controls

Organizational context

We asked at the respondent at the time for the first interview: “First, is this business start-up effort on your own, as part of your current job for an employer, or as a mixture of both?” This question was repeated in the six month follow up. This measure was recoded into a dummy variable in which 1 equals independent start-up and 0 equals starting within an organization.

8.3 Analysis methods predicting subsequent venture level performance

The objective with this part of the study is to relate venture opportunity variation, as well as the nascent venturing process with subsequent venture level performance. The method problem is to choose an analysis technique that enables modeling that capture the outcome of the nascent venturing process regressed on a set of predictor that are both time varying and time invariant.
Two solutions are presented here. First, Ordinary Least Square regression and, second, an application of event history analysis developed by Cox (see Allison, 1985; Yamaguchi, 1991).

The solutions are based on two main arguments. First, my main interest in this part of the study is to predict outcome and not a process. Due to this OLS and event history analysis is used instead of growth modeling. Second, event history analysis is used because it handles censoring in survival data (Yamaguchi, 1991).

8.3.1 Multiple regression

Regression analysis is a statistical technique that is used to causally relate two or more variables. Here, a variable of interest, the dependent variable or response variable \( y \) venture level profit is related to a vector of one or more independent or predictor variables \( x \) which in this model consist of the following: 1) industry experience, 2) start-up experience, 3) formal education, 4) emotional social capital, 5) instrumental social capital, 6) generalist strategy, 7) specialist strategy, 8) economic growth, 9) industry competitiveness, 10) venture opportunity, 11) accumulated gestation behaviors at 18 months, 12) organizational context, and 12) time in the nascent venturing process.

The multiple regression equation takes the form \( y = b_1 x_1 + b_2 x_2 + \ldots + b_n x_n + c \). The b’s are the regression coefficients, representing the amount the dependent variable \( y \) changes when the independent changes 1 unit. The c is the constant, where the regression line intercepts the y axis, representing the amount the dependent \( y \) will be when all the independent variables are 0. The standardized version of the b coefficients is the beta weights, and the ratio of the beta coefficients is the ratio of the relative predictive power of the independent variables. Associated with multiple regressions is \( R^2 \), multiple correlations, which is the percent of variance in the dependent variable, explained collectively by all of the independent variables.

Multiple regression shares all the assumptions of correlation; linearity of relationships, interval or near-interval data, and data whose range is not truncated for correct coefficient estimates and the same precision of relationship throughout the range of the independent variable (“homoscedasticity”) for correct confidence interval.

8.3.2 Event history analysis: Cox regression

Cox regression is a particular form of event history analysis which is used to predict venture level dissolution. It was introduced in a seminal paper by Cox (1972, see also Cox and Oakes, 1984). Event history analysis takes the survival times of a group of subjects and generates a survival curve, which shows how many of the members remain alive over time. Survival time is usually defined as
the length of the interval between diagnosis and death, although other “start” events (such as surgery instead of diagnosis), and other “end” events (such as recurrence instead of death) are sometimes used (Allison, 1985; Yamaguchi, 1991).

The mathematical complication with survival analysis is that you usually do not have the luxury of waiting until the very last subject has died of old age; you normally have to analyze the data while some subjects are still alive. Also, some subjects may have moved away, and may be lost to follow-up. In both cases, the subjects were known to have survived for some amount of time (up until the time you last saw them), but you don’t know how much longer they might ultimately have survived. Several methods have been developed for using this “at least this long” information to preparing unbiased survival curve estimates, the most common being the Life Table method and the method of Kaplan and Meier (Allison, 1985; Yamaguchi, 1991).

We often need to know whether survival is influenced by one or more factors, called “predictors” or “covariates”, which may be categorical (such as two types of venture opportunities) or continuous (such as the patient’s age, weight, or the dosage of a drug). For simple situations involving a single factor with just two values (such as venture opportunity), there are methods for comparing the survival curves for the two groups of subjects. For more complicated situations we need a special kind of regression that lets us assess the effect of each predictor on the shape of the survival curve.

To understand the method of proportional hazards, first consider a “baseline” survival curve. This can be thought of as the survival curve of a hypothetical “completely average” subject - someone for whom each predictor variable is equal to the average value of that variable for the entire set of subjects in the study. This baseline survival curve doesn’t have to have any particular formula representation; it can have any shape whatever, as long as it starts at 1.0 at time 0 and descends steadily with increasing survival time. The baseline survival curve is then systematically “flexed” up or down by each of the predictor variables, while still keeping its general shape (cf. Allison, 1985; Yamaguchi, 1991).

The proportional hazards method computes a coefficient for each predictor variable that indicates the direction and degree of flexing that the predictor has on the survival curve. 0 means that a variable has no effect on the curve; a positive variable indicates that larger values of the variable are associated with greater mortality. Knowing these coefficients, we could construct a “customized” survival curve for any particular combination of predictor values. More importantly, the method provides a measure of the sampling error associated with each predictor’s coefficient. This lets us assess which variables’ coefficients are significantly different from zero; that is: which variables are significantly related to survival (cf. Allison, 1985; Yamaguchi, 1991).

This approach controls for censoring problems by analyzing when a particular event commences and ends. To analyze the data in this way it was
necessary to organize it into spells. A spell for a firm formation was a period from the start of reported business activities, which dated from 1985, to when the venture is abandoned by all. I selected Cox regression because of its suitability for modeling time-to-event data in the presence of potentially censored cases. A Cox regression incorporates predictor variables as covariates and provides estimated coefficients for each of the covariates, which facilitates the assessment of the impact of multiple covariates in the same model. A Cox regression also permits the use of categorical and continuous variables in the same equation (cf. Cox and Oakes, 1984).

8.4 Results: Predicting venture performance

This section tests whether founding conditions and process characteristics in the nascent venturing process imprints the future development of the venture. Table 8.2 and 8.3 report Cox regression results predicting venture level dissolution and table 8.4 reports multiple regressions models predicting venture level profit based on 127 cases with complete data after 24 months. Descriptive results are displayed in Appendix 4.

Table 8.2 reports the case processing summary. This sample consists of 506 ventures. The rationale for this is the same as in part 3; i.e., only ventures that performed less than 15 gestation behaviors at the time for the first interview are included and the main reason for this is to capture progress in the nascent venturing process. During the study period 127 ventures were abandoned by all and 236 ventures were censored, that is ventures that still are in the entrepreneurial process. There are 143 cases with missing values which leads to 363 ventures in the final analysis. The results from the Cox regression are reported in table 8.3.
Results: predicting subsequent nascent venture level performance

Table 8.2 Case processing summary for the Cox-regression

<table>
<thead>
<tr>
<th>Case Processing Summary</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases in analysis</td>
<td>127</td>
<td>25</td>
</tr>
<tr>
<td>Event</td>
<td>236</td>
<td>46</td>
</tr>
<tr>
<td>Censored</td>
<td>363</td>
<td>71</td>
</tr>
<tr>
<td>Cases dropped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases with missing values</td>
<td>143</td>
<td>28</td>
</tr>
<tr>
<td>Subtotal</td>
<td>143</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>506</td>
<td>100</td>
</tr>
</tbody>
</table>

Dependent Variable: time to dissolution

<table>
<thead>
<tr>
<th>Categorical Variables</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproducing vent opp.</td>
<td>314</td>
</tr>
<tr>
<td>Innovative vent opp.</td>
<td>145</td>
</tr>
<tr>
<td>Independent start-up</td>
<td>268</td>
</tr>
<tr>
<td>Intrapreneurial start-up</td>
<td>95</td>
</tr>
</tbody>
</table>

Table 8.3 Cox regression prediction of time to venture dissolution

<table>
<thead>
<tr>
<th>Covariates</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vent. Opp inn/re</td>
<td>1.15</td>
<td>0.43</td>
<td>7.37</td>
<td>1</td>
<td>0.007</td>
<td>3.17</td>
</tr>
<tr>
<td>Industry experience</td>
<td>0.02</td>
<td>0.07</td>
<td>0.07</td>
<td>1</td>
<td>0.793</td>
<td>1.02</td>
</tr>
<tr>
<td>Start-up experience</td>
<td>-0.33</td>
<td>0.18</td>
<td>3.39</td>
<td>1</td>
<td>0.066</td>
<td>0.72</td>
</tr>
<tr>
<td>Formal education</td>
<td>0.05</td>
<td>0.13</td>
<td>0.16</td>
<td>1</td>
<td>0.693</td>
<td>1.05</td>
</tr>
<tr>
<td>Social reinforcement</td>
<td>-0.03</td>
<td>0.12</td>
<td>0.08</td>
<td>1</td>
<td>0.784</td>
<td>0.97</td>
</tr>
<tr>
<td>Inst. Soccap 00</td>
<td>0.08</td>
<td>0.04</td>
<td>4.40</td>
<td>1</td>
<td>0.036</td>
<td>1.08</td>
</tr>
<tr>
<td>Inst. Soccap timevar.</td>
<td>-0.05</td>
<td>0.04</td>
<td>1.93</td>
<td>1</td>
<td>0.165</td>
<td>0.95</td>
</tr>
<tr>
<td>Generalist strategy</td>
<td>0.08</td>
<td>0.12</td>
<td>0.41</td>
<td>1</td>
<td>0.522</td>
<td>1.08</td>
</tr>
<tr>
<td>Specialist strategy</td>
<td>-0.04</td>
<td>0.10</td>
<td>0.12</td>
<td>1</td>
<td>0.734</td>
<td>0.97</td>
</tr>
<tr>
<td>Gest beh. 00</td>
<td>-0.06</td>
<td>0.04</td>
<td>2.81</td>
<td>1</td>
<td>0.094</td>
<td>0.94</td>
</tr>
<tr>
<td>Gest beh. Timevar.</td>
<td>-0.09</td>
<td>0.03</td>
<td>11.42</td>
<td>1</td>
<td>0.001</td>
<td>0.92</td>
</tr>
<tr>
<td>Economic growth</td>
<td>-0.02</td>
<td>0.14</td>
<td>0.01</td>
<td>1</td>
<td>0.914</td>
<td>0.98</td>
</tr>
<tr>
<td>Industry comp.</td>
<td>-0.04</td>
<td>0.13</td>
<td>0.10</td>
<td>1</td>
<td>0.756</td>
<td>0.96</td>
</tr>
<tr>
<td>Organizational cont.</td>
<td>-0.32</td>
<td>0.24</td>
<td>1.85</td>
<td>1</td>
<td>0.174</td>
<td>0.73</td>
</tr>
<tr>
<td>Time in expl. Proc</td>
<td>0.00</td>
<td>0.00</td>
<td>0.87</td>
<td>1</td>
<td>0.351</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Model fit

(-) 2 LL     | 1398  |
Chi-square   | 63.75 |
Df           | 15    |
Sig          | 0.00  |

It is convenient to look at individual parameter estimates first. From the column labeled “Exp(B)” in table 8.3 you can tell the percentage change in survival rates across time for continuous variables. When Exp(B) < 1, increasing values of the variable indicate increasing predicted survival times and when Exp(B) > 1, increasing values of the variable indicate decreasing predicted survival times. For dichotomous variables such as innovative venture opportunities innovative are coded as 1 and reproducing are coded as 0 the
interpretation is different. When two sequential numbers are used for coding and the larger indicates presence of the characteristics the results is interpreted as the relative risk with the variable. If the relative risk is greater than 1, a positive value for the variable is associated with decreased survival times, the hazard rate is increased.

In addition, table 8.4 reports multiple regression results from the final analysis prediction of venture level profit at the 24 month follow-up interview. Results concerning both dissolution and profit are discussed in relation to each of the proposed hypotheses in sections below table 8.4.

Table 8.4 Multiple regression predicting venture level profit at 24 month follow up (N=127)

<table>
<thead>
<tr>
<th>Covariates</th>
<th>B</th>
<th>Std. E</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture opp inn/re</td>
<td>0.16</td>
<td>0.36</td>
<td>-0.04</td>
<td>-0.45</td>
<td>0.654</td>
</tr>
<tr>
<td>Industry experience</td>
<td>0.11</td>
<td>0.10</td>
<td>0.09</td>
<td>1.06</td>
<td>0.292</td>
</tr>
<tr>
<td>Start-up experience</td>
<td>0.54</td>
<td>0.17</td>
<td>0.27</td>
<td>3.18</td>
<td>0.002</td>
</tr>
<tr>
<td>Formal education</td>
<td>0.01</td>
<td>0.26</td>
<td>0.00</td>
<td>0.04</td>
<td>0.970</td>
</tr>
<tr>
<td>Social reinforcement</td>
<td>0.47</td>
<td>0.18</td>
<td>0.21</td>
<td>2.57</td>
<td>0.011</td>
</tr>
<tr>
<td>Inst. Soc. cap 18 months</td>
<td>-0.02</td>
<td>0.03</td>
<td>-0.07</td>
<td>-0.81</td>
<td>0.419</td>
</tr>
<tr>
<td>Generalist strategy</td>
<td>0.04</td>
<td>0.17</td>
<td>0.02</td>
<td>0.25</td>
<td>0.800</td>
</tr>
<tr>
<td>Specialist strategy</td>
<td>0.05</td>
<td>0.15</td>
<td>0.03</td>
<td>0.31</td>
<td>0.759</td>
</tr>
<tr>
<td>Gest beh.18 months</td>
<td>0.06</td>
<td>0.02</td>
<td>0.26</td>
<td>3.06</td>
<td>0.003</td>
</tr>
<tr>
<td>Economic growth</td>
<td>0.35</td>
<td>0.19</td>
<td>0.15</td>
<td>1.79</td>
<td>0.077</td>
</tr>
<tr>
<td>Industry comp.</td>
<td>0.20</td>
<td>0.17</td>
<td>0.11</td>
<td>1.20</td>
<td>0.231</td>
</tr>
<tr>
<td>Organizational cont</td>
<td>-0.36</td>
<td>0.30</td>
<td>-0.10</td>
<td>-1.20</td>
<td>0.234</td>
</tr>
<tr>
<td>Time in expl. Process</td>
<td>0.00</td>
<td>0.00</td>
<td>0.05</td>
<td>0.61</td>
<td>0.542</td>
</tr>
<tr>
<td>R Square</td>
<td>0.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.4.1 Results: the influence of venture opportunity variation on venture level performance

Table 8.3 reports a significant higher relative hazard rate for innovative venture opportunities (Exp (B) 3.17, p. 0.007) compared to reproducing venture opportunities. The estimated risk of venture dissolution is 3.17 times higher for innovative venture opportunities which, gives empirical support for Hypothesis 8a: Innovative venture opportunities are less likely to survive the nascent venturing process compared to reproducing venture opportunities.

Table 8.4 reports that venture opportunity variation has no significant impact on subsequent venture level profit (Beta -0.04, p. 0.654) which allows us to reject Hypothesis 8b: Innovative venture opportunities, if exploited, will financially outperform reproducing ventures in the short run. We may explain the lack of association with venture level profit with what Schumpeter calls “the creative response” – that is “something that is outside of the range of existing
products (cf. Aldrich, 1999; Arrow, 1962) often motivated but not likely to occur because they depend on some additional deployment either not motivated or perceived. Given that innovative venture opportunities depend upon new-means relationships their future is uncertain because their exploitation is unlikely to be induced autonomously by the prevailing institutional and market mechanisms (cf. Moran and Ghoshal, 1999).

8.4.2 Results: the influence of resources on venture level performance

Table 8.3 reports no relationship between industry experience and survival. Start-up experience, however, is associated with increased survival times (Exp(B) = 0.72, p = 0.07). One additional start-up experience decreases the hazard rate by 28% (Exp(B) = 0.72), which allows us to accept a reformulated hypothesis 9a: ventures with high levels of tacit knowledge (in the form of start-up experience) in the nascent venturing process are more likely to survive compared to ventures with low levels of tacit knowledge.

Table 8.4, in addition, reports that initial founding conditions concerning start-up experience (beta = 0.27, p = 0.002) have a positive impact on subsequent venture level profit. Again, industry experience is without effect on venture level performance. Together these two results give empirical support for a reformulated hypothesis 9b: Ventures with high levels of tacit knowledge (in the form of start-up experience) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of tacit knowledge.

It is interesting to see that both venture level survival and profit depends more on “generic entrepreneurship competencies” coming from start-up experience than from “craft competencies” coming from industry experience. It is also interesting to see that start-up experience also had a significant impact on progress in the nascent venturing process as reported in part 3. Together, these results show that tacit knowledge in the form start-up experience is one of the strongest explanations in the entrepreneurial process during the nascent stages and during subsequent development.

Another human capital variable that surprisingly comes out non-significant here is formal education. It is possible that both industry experience and formal education actually are important but only for certain types of venture opportunities such as innovative venture opportunities or in certain stages of the entrepreneurial process when other capabilities are more important (cf. Davidsson and Honig, 2003). Thus it is possible to reject Hypothesis 9c: ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing process are more likely to survive compared to ventures with low levels of formal knowledge and ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing
process, if exploited, will outperform (in terms of profit) ventures with low levels of codified knowledge.

Table 8.3 shows that emotional capital has no effect on survival in this study. Thus it is possible to reject hypothesis 9e: Ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process are more likely to survive compared to ventures with low levels of emotional social capital. Emotional capital, however, has a significant impact on subsequent venture level profit (beta 0.28, sig. 0.01). This gives support for hypothesis 9f: ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of emotional social capital.

Actors that are socially reinforced during the nascent venturing process show a greater venture level profit compared to those that are not socially reinforced in the process. These results point at the social dimension of the entrepreneurial process. Enterprising actors are more likely to perform if their behaviors are socially reinforced in their social environment.

Another interesting result is that initial status in instrumental social capital has a negative relation to survival (Exp(B) 1.08, p. 0.04). This means that a larger initial pool of instrumental social capital increases the risk of venture dissolution with 8% (Exp(B)=1.08). Based on this result it is possible to reject hypothesis 9g: ventures with high levels of instrumental social capital in the nascent venturing process are more likely to survive compared to ventures with low levels of instrumental social capital.

Table 8.3, however, indicates that the instrumental social capital becomes positively related to survival (not significant), as the nascent venturing process develops across time. In addition, there is no effect of instrumental social capital on subsequent venture level performance. Thus it is also possible to reject hypothesis 9h: ventures with high levels of instrumental social capital in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of instrumental social capital. The results, however, indicate that an initial stock of instrumental social capital in itself is not very useful; instead, instrumental social capital utilized in the venturing process becomes more useful in order to exploit the new venture successfully. Although, this result clearly deviates from other results inside the resource based perspective it has some unique characteristics that can explain this deviation. The empirical setting is a unique longitudinal study of the nascent venturing process with real time information compared to other “new venture” studies that often use data from ventures aged 3-8 years (cf. Bamford et al., 1999) and the measure of instrumental social capital consist of all possible resources utilized through one’s personal network. It is a measure based on content rather than relationship type or organizational belongings. This study also deviates somewhat from other studies using the same data set. Davidsson and Honig (2003) found a strong and persistent relationship between social capital and
discovery of new venture opportunities as well as new venture emergence. The reason, however, could be that the authors use a different part of the data set which, does not deal with variation in initial status, another method, and single indicator measures in large models not considering right censoring. However, the overall interpretation of their results shows that we interpret our results in a similar way. Davidsson and Honig (2003), for example, argue that weak ties connected to specific resources not in ones immediate social surrounding becomes increasingly important as the process evolves.

In sum, the empirical results suggest that resources in the form of start-up experience and social reinforcement are predictors of venture level profit and venture level survival. In addition, innovative venture opportunities are less likely to survive the nascent venturing process compared to reproducing venture opportunities.

8.4.3 Results: the influence of strategic choice on venture level performance

It is evident from Table 8.3 and 8.4 that strategic choice variables have no significant effect on subsequent venture level performance either as predictors of venture level profit or as predictors of venture level survival. Thus it is possible to reject both hypothesis 10a: ventures with a strong focus in one strategic approach are more likely to survive the nascent venturing process compared to ventures without a strong focus in one strategic approach and hypothesis 10b: nascent ventures with a strong focus in one strategic approach in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures without a strong focus in one strategic approach.

Lack of association is surprising; however, there are two potential explanations. 1) Strategy is measured at the outset of the nascent venturing process in which most venture only have strategic intentions and no strategic history, and 2) other more important variables cancel out the effect of strategy in the regression equations. The same tendency is evident in the longitudinal growth model in which strategy has an early impact which diminishes as time passes. This research suggests that strategies in the nascent venturing process are not very well articulated and it is difficult to measure and capture their relation to subsequent venture level performance.

8.4.4 Results: the influence of gestation behavior on venture level performance

The final results in table 8.3 and 8.4 strongly support the idea of entrepreneurship as a behavioral phenomenon. Cox regression results in table 8.3 reports the significance of gestation behaviors in the nascent venturing process and its influence on subsequent venture level performance. It is evident that the initial number of gestation behaviors has a positive impact on venture
level survival. Having executed one additional gestation behavior at the time for the first interview decrease the hazard rate by 6% (Exp(b)=0.94, p. 0.094 ). More important, however, is that the importance of performing gestation behaviors accelerates across time. Executing one additional gestation behavior across time increase survival by 8% (Exp(b)=0.92, p. 0.001).

Table 8.4, in addition, shows that an increase in the number of gestation behaviors executed in the nascent venturing process has a significant positive impact on subsequent venture level profit (Beta 0.26 p. 0.003). The execution of gestation behaviors are clearly a key to future venture level success in terms of venture dissolution and venture level profit. This study empirically supports both hypothesis 11a: nascent ventures executing gestation behaviors at a high frequency are more likely to survive compared to ventures that executing behaviors at a low frequency and hypothesis 11b: nascent ventures executing gestation behaviors at a high frequency in the nascent venturing process will outperform (in terms of profit) ventures executing gestation behaviors at a low frequency.

These results clearly show that gestation behaviors are a central explanation to both survival and venture level profit. The significance of gestation behaviors should not exclude resource based explanations, which this study showed in part 3; instead more detailed models of the nascent venturing process need to be developed that handle complex relationships between distal and more central explanations to both processes inside the nascent venturing process and outcomes from these processes.

8.4.5 Control variables’ influence on subsequent venture level performance

Table 8.4 indicates that local economic growth has a positive impact on subsequent venture level profit (Beta 0.195 p. 0.077). A benign environment in the nascent venturing increase subsequent venture level profit. On the other hand, economic growth has no effect on survival which is an interesting result because it is normally conceived as being a strong predictor of survival (cf. Dean and Meyer, 1996).

It is also interesting to see that none of the other control variables have any impact on either venture level profit or survival in the entrepreneurial process. Organization context – that is exploiting inside an established organization or in an independent start-up have no effect on venture level performance. The same result is evident for time in the process that has no effect on venture level performance. These are all results in the expected direction and show that behaviors and social capital in the form of start-up experience is strong and robust predictors of performance in the nascent venturing process.
8.4.6 Summarizing results concerning subsequent venture level performance

This section summarizes empirical results from this part of the study. Table 8.5 reports the final results from this part and how each hypothesis came out. The results support the overall interpretation that entrepreneurship is a behavioral phenomenon that takes place in a limited social context where tacit knowledge in the form of start-up experience has a profound effect on both survival and profit. Other more distal variables have only limited effect on this process which may be controversial. The nascent stages of the entrepreneurial process, however, concerns a limited number of actors and resources which suggests that other more distal variable may amplify as the venture develops and play a more central role further on in the lives of the evolving venture.

The implicit relationship between gestation behaviors and start-up experience are also noticeable. The former emanates from the latter and suggests that even venture dissolution actually develops tacit knowledge, which might lead to greater probability to succeed in future nascent venturing processes.

The empirical results in this part of the study give support to the general hypothesis: initial founding conditions and characteristics in the nascent venturing process have an impact on venture level performance in the years subsequent to founding. The strongest predictors of venture level performance, both survival and venture level profit, are the number of gestation behaviors executed in the nascent venturing process and start-up experience.
Table 8.5 Summing up hypotheses and their outcome

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 8a: Innovative venture opportunities are less likely to survive the nascent venturing process compared to reproducing venture opportunities.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 8b: Innovative venture opportunities, if exploited, will financially outperform reproducing ventures in the short run.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 9a: Ventures with high levels of tacit knowledge (in the form of start-up experience and industry experience) in the nascent venturing process are more likely to survive compared to ventures with low levels of tacit knowledge.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 9b: Ventures with high levels of tacit knowledge (in the form of start-up experience and industry experience) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of tacit knowledge.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 9c: Ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing process are more likely to survive compared to ventures with low levels of formal knowledge.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 9d: Ventures with high levels of codified knowledge (in the form of a formal education) in the nascent venturing process, if exploited, will outperform (both in terms of survival and profit) ventures with low levels of codified knowledge.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 9e: Ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process are more likely to survive compared to ventures with low levels of emotional social capital.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 9f: Ventures with high levels of emotional social capital (in the form of social reinforcement) in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of emotional social capital.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 9g: Ventures with high levels of instrumental social capital in the nascent venturing process are more likely to survive compared to ventures with low levels of instrumental social capital.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 9h: Ventures with high levels of instrumental social capital in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures with low levels of instrumental social capital.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 10a: Nascent ventures with a strong focus in one strategic approach are more likely to survive the nascent venturing process compared to ventures without a strong focus in one strategic approach.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 10b: Nascent ventures with a strong focus in one strategic approach in the nascent venturing process, if exploited, will outperform (in terms of profit) ventures without a strong focus in one strategic approach.</td>
<td>No</td>
</tr>
<tr>
<td>Hypothesis 11a: Nascent ventures executing gestation behaviors at a high frequency are more likely to survive compared to ventures that executing behaviors at a low frequency.</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothesis 11b: Nascent ventures executing gestation behaviors at a high frequency in the nascent venturing process will outperform (in terms of profit) ventures executing gestation behaviors at a low frequency.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Part 5

Conclusions and implications for entrepreneurship theory, research and practice
9. Conclusions

This study contributes, empirically, theoretically and methodologically, to entrepreneurship research, theory, and practice. I provide answers to three major questions regarding venture opportunity variation, variation in the nascent venturing process, and outcomes from this process. Conclusions and implications are based on theoretically derived hypotheses and empirical information from 622 venture opportunities, which we followed from discovery throughout the nascent venturing process and beyond.

New survey design as well as state of the art longitudinal statistical methods made it possible to extend our knowledge into the nascent stages of the entrepreneurial process. This research is an extension and empirical test of recent conceptual discussions in the field and moves the entrepreneurship research toward an opportunity based theory of the creation of new economic activity (cf. Aldrich and Martinez, 2001; Davidsson, 2003; Shane and Venkataraman, 2000).

9.1 Main conclusions

This final part attempts to provide a formal analytical infrastructure, which accommodate both optimizing and creative change in supply and demand in entrepreneurship theory, research and practice. It is possible to conclude that this research has theoretically derived and empirically confirmed; 1) the existence of two main venture opportunities here called innovative and reproducing venture opportunities; 2) that the nascent venturing process for innovative venture opportunities is systematically different from the process for reproducing venture opportunities, and 3) that founding conditions as well as characteristics in the nascent venturing process has a profound effect on subsequent venture level performance.

9.1.1 The existence of venture opportunity variation

Part 2 in this study theoretically derives and empirically verifies venture opportunity variation and the existence of innovative and reproducing venture opportunities. I distinguish, in a random sample, between two main types of venture opportunities – innovative and reproducing, where reproducing venture opportunities (88%) vastly outnumber innovative venture opportunities (12%). If we aim at understanding entrepreneurship as an economic phenomenon,
both types of opportunities should be included in entrepreneurship theories and research.

9.1.2 Venture opportunity variation and its impact on the nascent venturing process

Part 3 theoretically argued and empirically verified that exploiting innovative venture opportunities is systematically different from exploiting reproducing venture opportunities. Perhaps the strongest indication of differences between the two processes is found in the R-Square values in table 6.5. The model is well suited to explain progress in the nascent venturing process for innovative venture opportunities (R-square initial status = .87, growth rate = 0.49) but largely fails to do so for reproducing venture opportunities (R-square initial status = 0.06, growth rate = 0.18). This result indicates that many better-chosen covariates are needed to explain progress in the nascent venturing process for reproducing venture opportunities.

Combinations of start-up experience, formal education, and instrumental social capital explains progress in the nascent venturing process for innovative venture opportunities. Instrumental social capital is the only strong predictor of progress in the nascent venturing process for reproducing venture opportunities.

9.1.3 The nascent venturing process impact on subsequent venture level performance

Part 4 theoretically argued and empirically verified that subsequent venture level performance is path dependent. That is, decisions, and conditions during the founding stage imprint the future development of the venture, and have an impact upon the venture’s future performance. Gestation behaviors together with start-up experience are robust and strong predictors of subsequent venture level performance. These results can be understood as reflecting a learning process in which actors create their future through an “acting” process.

9.2 Implications for our understanding of entrepreneurship as an economic phenomenon

It is possible to identify a range of important implications here but I will focus on two main theoretical implications: 1) entrepreneurship as a behavioral and economic phenomenon, which includes both innovative and reproducing venture opportunities and 2) a holistic view of entrepreneurship.
9.2.1 Entrepreneurship as an economic phenomenon

Using an information-based definition of venture opportunities (see section 3.2) helps us understand and develop knowledge around the controversy whether entrepreneurship should include only what Shane and Venkataraman (2000) call “entrepreneurial opportunities” or both innovative and reproducing venture opportunities. Starting with an informational approach increases our ability to study venture opportunities in real time and augment our understanding of the concept. Information exists independently from actors because it can be transmitted through different media, however, to be an objective entity actors need to make a conjecture about the information and its value now and in the future (cf. Casson, 1982) which is captured in the proposed definition.

Economic development is based on the existence of different types of venture opportunities – innovative and reproducing venture ones (as empirically verified in part 2). On the one side, a Schumpeterian camp emphasizing the role of creative change and developmental processes leading to innovative venture opportunities. Moran and Goshal (1999) discuss this in terms of allocative efficiency. On the other side, is the neoclassical economist, emphasizing the role of optimizing change and reproducing venture opportunities (Khalil, 1997; Kirzner, 1973). This is sometimes referred to as adaptive efficiency (cf. Moran and Goshal, 1999).

This is important for us if we regard entrepreneurship as the creation and emergence of new economic activity because an entrepreneurship theory needs to facilitate explanations for how both innovative and reproducing ventures are recognized and exploited into new economic activity (cf. Davidsson et al., 2001; Low and McMillan, 1988; Shane and Venkataraman, 2000). The implication is that theories and research only including innovative venture opportunities may arrive at a limited understanding of entrepreneurship as an economic phenomenon because most venture opportunities are reproducing rather than innovative. An even more important implication, as shown empirically in part 3, is that entrepreneurship research fails to provide explanations to the development of reproducing venture opportunities.

Entrepreneurship in this perspective concerns economic development and in particular the nascent stages of the entrepreneurial process. If we reconnect back to the evolutionary model suggested by Reynolds (1997) it is possible to argue that entrepreneurship defined as an economic phenomenon includes recognition and exploitation of venture opportunities which concern conception and gestation in the entrepreneurial process. Figure 9.1 illustrates the venture level model of entrepreneurship that underlies this argument. It is possible to argue that entrepreneurship concerns how resources are transformed into a wealth creating venture.
Figure 9.1 illustrates how the venture opportunity conceptually captures resource combinations. The venture opportunity becomes the main locus in entrepreneurship because it delimitates resource combinations into one activity, if exploited, either lead to adaptive or allocative efficiency through the improvement within an existing constitutional allocation, or through changes in the rules and practices that define what is efficient, via a change in that constitutional allocation (cf. Moran and Ghoshal, 1999). If we assume that factor markets are effective it is possible to argue that venture level profit capture the economic outcome we need in order to evaluate whether resources are used in an efficient way. Hence, entrepreneurship in this perspective makes an economic impact.

This does not say that other outcomes from the nascent venturing process are unimportant. As empirically shown here also venture level dissolution is an important outcome; not as a sign of entrepreneurship in itself but rather as an important antecedent to future entrepreneurship as it provides human actors with skills and capabilities needed in future nascent venturing processes. The entrepreneurial process can be viewed as an investment in social, human and intellectual capital at least in a longitudinal perspective. Firm formation experience may contribute to the development and growth of individuals increasing their knowledge and their future abilities to locate and pursue venture opportunities (cf. Zahra and Dess, 2001) because as shown here start-up experience is one of the strongest predictors of both progress in the nascent venturing process and subsequent performance. It is not productive, however, to view the venture opportunity in isolation (cf. Davidsson, 2000; Low and
Conclusions

McMillan, 1998; Shane and Venkataraman, 2000). Human actors are both the foundation and the fountain head of resources, the environment, decisions and behaviors utilized in order to exploit the venture opportunity. It is therefore important to discuss entrepreneurship as a behavioral phenomenon with economical outcomes as well as other types of outcomes.

9.2.2 The holistic view of entrepreneurship

A holistic view of entrepreneurship emphasizes the organic or functional relation between parts and the whole. Entrepreneurship needs to be holistic in order to understand how new economic activity comes into existence at the same time as it needs to be particularistic in order to achieve a more detailed understanding of different parts of this process. In this section, I discuss two main implications for a holistic view of entrepreneurship; 1) variation in outcomes and variation in explanations, and 2) the issue of time.

Entrepreneurship is ultimately measured by economic impact. However, as shown in this study there are numerous potential outcomes and explanations in the nascent venturing process influencing venture level performance. The sequential model proposed by Katz and Gartner (1988) suggests that the nascent venturing process consists of at least four sequences that could be captured with different outcomes. Together multiple outcomes suggest multiple explanations across time, which is empirically supported in this study.

It is possible to argue that economic change in supply and demand explained venture opportunity variation (explanation 1 and outcome 1). Figure 9.1 also illustrates that resources, the venture opportunity, strategy, and the environment explain progress in the nascent venturing process (explanation 2 and outcome 2). This study also verified that resources, venture opportunity variation, and gestation behaviors explain subsequent venture level performance (explanation 3 and outcome 3) - three different outcomes with three different explanations all in a very short time period but they are also internally related across time as empirically established in this study. Hence, we cannot understand entrepreneurship as an economic phenomenon without a thorough understanding of the whole.

This study show that prediction of progress in the nascent venturing process as well as venture level performance varies given venture opportunity variation. The formal test of nascent venturing process variation showed that exploiting innovative venture opportunities is systematically different from exploiting reproducing venture opportunities and that each process is predicted by different background variables. That is, entrepreneurship defined as the creation and emergence of new economic activity consist of at least two main processes, one optimizing within a given mean-ends framework and one creating new mean-ends.

R-square values (see table 6.5) show how entrepreneurship theories sufficiently explain the nascent venturing process for innovative venture
opportunities but not for reproducing venture opportunities. The reason could be that researchers have overestimated the innovative capacity among individual actors (cf. Aldrich and Martinez, 2001). The implication, however, is that entrepreneurship research needs to develop better explanations, especially concerning reproducing venture opportunities. This might be found in the disciplines or developed inside a conceptually distinct entrepreneurship domain.

The final part of this study developed a model aimed at explaining venture level performance subsequent to the nascent venturing process. Two different outcomes were used, survival and venture level performance. Profit captures an economic dimension of entrepreneurship that is necessary according to the definition proposed here. Survival is used in order to test whether the same factors that explain venture level profit also explain venture level dissolution. It is interesting to see that profit as well as survival is strongly related to the behavioral perspective as well as codified knowledge in the form of start-up experience. It seems that other variables such as tacit knowledge in the form of industry experience as well as codified knowledge in the form of formal education has little or no effect on survival or venture level profit. The model does not test a formal relationship between gestation behaviors and start-up experience but this study is in line with the notion that “acting as if” enactment is a strong explanation in entrepreneurship research (cf. Carter et al., 1996, Weick, 1979).

The issue of time is captured in the final section reinforcing that entrepreneurship is a highly dynamic and sequential process. Accordingly, entrepreneurship theory needs to develop holistic venture level models focusing on multiple explanations as well as multiple outcomes. The issue of time concerns both the lengths of the entrepreneurial process, the sequence and order of particular outcomes, and whether this process is path dependent or not. We followed a random sample of venture opportunities for a period of 24 months. The wealth creating process, however, is a continuous process over considerable lengths of time (cf. Schumpeter, 1942).

The overall implication here is that entrepreneurship theories need to provide short and long term explanations for both innovative and reproducing venture opportunities in order to develop knowledge of how new economic activity comes into existence. An entrepreneurship theory needs to be holistic.

9.3 Implications for entrepreneurship research, method and design

A holistic view of Entrepreneurship theory also implies that entrepreneurship research needs holistic research designs. This study is part of a larger multinational research project in which is it possible to investigate how new
Conclusions

economic activity comes into existence as well as to study organic or functional relations between parts and the whole.

Entrepreneurship research has only recently developed longitudinal large scale systematic studies on the nascent stages of the entrepreneurial process. This, together with recently developed statistical developments makes it possible to start with a venture opportunity and follow the economic activity across time. The end point here is venture level dissolution and profit but could easily be extended into the future and include different outcomes along the way.

Empirical results from this study as well as knowledge from our research project imply that holistic entrepreneurship research needs to further develop large scale longitudinal research designs and methods. The research design presented in this study shows that it is possible (and perhaps a necessity) for entrepreneurship research to test and extend theory with longitudinal venture level models of entrepreneurship and to empirically confirm or reject them in large samples of venture opportunities using state of the art statistical techniques. Despite its advantages over cross sectional design and statistics, this effort also suffers from limitations, which suggests two main research implications; 1) a further need to develop longitudinal research designs and 2) the development of measures that capture different dimensions of the entrepreneurial process across time.

9.3.1 Implications for longitudinal research designs

This section discusses three main implications for longitudinal research designs 1) increase in sample size, 2) more homogeneous samples, and 3) the issue of time or how long the entrepreneurial process is. These three issues are interrelated and will be discussed side by side in the section below.

The uneven distribution of venture opportunities as well as a high level of venture dissolution in the nascent venturing process suggests that larger sample sizes are an important implication. This research empirically classified two types of venture opportunities if we want to confirm and extend this classification further it would require larger sample size in order to capture a sufficient number of innovative venture opportunities and to follow them across time. In addition, we need to test and confirm empirical results in different contexts in order to allow more robust generalizations.

Another aspect of sample size concerns the issue of model development. To be able to extend and develop entrepreneurship models we need to have much larger sample sizes if we want to achieve an acceptable level of statistical power across time. The result from this research clearly shows that entrepreneurship is a process that develops across time and that both founding condition and real time factors affect this process. Models need to include more variables both time varying and time invariant as well as encompass variation in the process as
such. Together, more variables and more complex models require larger sample sizes.

Advanced models and complex multilevel research designs also demand a more advanced set of statistical analysis techniques. This study shows that the latent variable framework developed by Muthén (1998) handles this complexity well. As stated earlier, overall improvement in both research design and analytical tools are needed. In support for larger sample size is also common longitudinal problems such as non-compliance, missing data, and sample shrinkage across time. In addition, if we want to study the nascent venturing process our sample needs to be in the beginning of this process. I made a trade off between including as many cases as possible on the account of homogeneity. The ultimate study would start at the outset of the entrepreneurial process and follow the venture opportunity from the initial conjecture and forward in time.

Time in itself is a problematic area for process studies. The question is partly related to temporal endurance and partly to how long longitudinal studies should be? The question remains whether even earlier processes before and during opportunity recognition may imprint the venture in the future and how long the imprinting last. Bamford et al., (1999) found a diminishing impact across time which is not found in this study. The second issue concerns how long we need to study the entrepreneurial process. The simple answer to that question is as long as it takes to achieve venture level profit or venture level dissolution and beyond.

Together, these issues reinforce the need for large scale coordinated research efforts in which it is possible to collect substantial amounts of information from recognition of venture opportunity and forward in time. In addition, this discussion opens up for more creative use of data through, for example, meta studies, mergers of samples, and better use of secondary data.

9.3.2 The development of measurements

This study shows that existing theories and models of the nascent venturing process have limited explanatory power especially regarding reproducing venture opportunities. However, if we are interested in explaining the emergence of new economic activity in general our research needs to include both innovative and reproducing venture opportunities. Therefore, entrepreneurship research needs to create better measurements that capture additional venture opportunity variation and predictors of the nascent venturing process especially for reproducing venture opportunities.

The issue of measurements improvement should be developed both in terms of using established and tested measurements as well as in combination with in-depth longitudinal studies of the nascent venturing process. This could be done through a series of in-depth studies during different sequences in the nascent venturing process identified by the survey. Qualitative in-depth results can then be used in the surveys to test their general applicability. The problem is that this
Conclusions

strategy requires both monetary and personal resources. Monetary, because of high costs involved in finding and interviewing venture opportunities early in the nascent venturing process and personal because combining in-depth interviews with longitudinal research demands that researchers involved in this process possess a set of capabilities regarding statistical development as well as available time to do in-depth interviews.

Another issue concerns the high number of team initiatives. This study actually used team based measures as far as possible which led to some interesting results. The questions is whether to rely on single informants or develop designs that incorporate other actors in the process as well and seek to capture for example social capital with aggregated measures from the entire team instead of only experience from one person. Again this implies that large scale research efforts are a necessity but the question is whether such a large scale effort is worth it?

The question is not easy to answer however there are one main argument for this approach. It is evident from this research that approximately 40 percent of all new venture opportunities are abandoned during the nascent venturing process. This means that a considerable amount of resources are used in the nascent venturing process which to some extent gives impetus for this type of effort.

This study also generates implications for entrepreneurship research in the area of outcomes and performance. The results in this study show that different sequences in the nascent venturing process and subsequent performance are influenced differently by various factors in the proposed models. Great care needs to be taken developing a set of performance measures that are comparable and capture a theoretically derived performance consistent with the theoretical framework that underlies the empirical research (cf. Bamford et al., 1999). In sum, this study has three main implications for entrepreneurship research: 1) research designs need to be developed in order to increase sample size and reduce heterogeneity in initial status, 2) entrepreneurship research needs to develop longitudinal research designs that capture both development (outcomes) and explanations across time, and 3) statistical analysis need to be consistent with the longitudinal research design. Together these three implications suggest that future entrepreneurship research is to concentrate on a few coordinated large scale longitudinal efforts instead of many small cross-sectional studies.

9.4 Implications for entrepreneurship practice

Our quest for increased knowledge is a waste of time if we fail to distribute our knowledge to a broader audience such as practitioners, policy makers, and educators. Today, much of our normative claims are vague and unspecific, which may be unproductive for individual actors as well as for society as a whole. This study improves our ability to give potential entrepreneurs an easily
accessible classification tool that enables us as teachers, advisors, and policy makers to give better and more efficient advice and support. If we fail to appreciate opportunity variation there is a risk that resources are used in an unproductive way. This research brings a message about the importance of pluralism to economic development. Creative change and optimizing change in supply and demand are antecedents of economic change and development. This means that any system – whether a firm or a society need to have the flexibility to pursue both routes to progress.

The main implication for practitioners is that entrepreneurship and the nascent venturing process could be viewed as a behavioral process and as such it should be possible to train actors to develop knowledge needed to exploit venture opportunities as well as develop entrepreneurial framework conditions that give an effective support both for innovative and reproducing venture opportunities. The following sections cover implications for potential enterprising actors and nascent entrepreneurs already engaged in the nascent venturing process followed by implications for educators.

9.4.1 Implications for potential enterprising actors and entrepreneurs already engaged in the nascent venturing process

This study points at entrepreneurship as a behavioral and economic phenomenon. In terms of advice to individuals considering exploiting a venture opportunity, it seems that the results from this study provide evidence that exploiting actors should make an effort in order to establish whether their venture opportunity is innovative or reproducing because there is variation between the two when it comes to the nascent venturing process. One empirical example here is related to the instrumental social network that has a positive impact during the nascent venturing process for reproducing ventures but only in the later stages for innovative ventures (See table, 6.5).

If we give the advice to nascent entrepreneurs exploiting innovative venture opportunities that they should go out and work on their social network instead of being at home developing their product/service concept in order to make that understandable we may actually give advice counterproductive to progress in the nascent venturing process. Instead, if they focus on making their innovation more “real” before they start working on a larger social network they are more likely to be socially reinforced because their closest social network understands and gives their social support also for an innovative venture opportunity.

There are differences in the nascent venturing process between innovative and reproducing venture opportunities that need to be developed into a more specific set of advices to entrepreneurs. Table 9.1 is an attempt to summarize two basic profiles of general advice to actors in the nascent venturing process depending on the venture opportunity they are pursuing.
Conclusions

Table 9.1 Advice to entrepreneurs in the nascent venturing process

<table>
<thead>
<tr>
<th>Innovative venture opportunists</th>
<th>Reproducing venture opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The team should use codified and tacit knowledge, in the form of formal education and start-up experience.</td>
<td>1. Know your competitors</td>
</tr>
<tr>
<td>2. Develop a prototype and/or service concept first.</td>
<td>2. Use your social network</td>
</tr>
<tr>
<td>3. Adopt a generalist strategy</td>
<td></td>
</tr>
<tr>
<td>4. Develop/use your social network after developing your concept</td>
<td></td>
</tr>
</tbody>
</table>

The general advice to entrepreneurs exploiting innovative venture opportunities is that they need to have or acquire all those things mentioned in our contemporary theories. They need to be prepared to explain what their venture opportunity means and to gather instrumental social capital to secure a substantial amount of resources in order to transform the innovative venture opportunity into a profitable new venture.

The advice to entrepreneurs exploiting reproducing venture opportunities is simple, know your competitors and use your social network. Reproducing venture opportunities comes from an optimizing process built on information that is easy to access and understand which implies that reproducing venture opportunities are best exploited as fast as possible.

If we also look at how the nascent venturing process influences subsequent venture level performance the main finding and its implication for potential enterprising actors are uncomplicated – “act as if” (cf. Carter et al., 1996). This research clearly shows that high performing ventures in the nascent venturing process are more profitable at the time for the 24 months follow-up interview and less likely to be disbanded in the nascent venturing process. The “acid” test for a venture opportunity is the act of doing, trying and being accepted or not as a new venture. The only way to know whether a perceived venture opportunity is a true venture opportunity is to exploit it.

Another interesting finding in this study is how tacit knowledge and formal knowledge are related to different stages in the venturing process. It appears that more generic capabilities coming from start-up experience are far more important in the nascent stage compared to specific industry experience and formal education. This implies that potential entrepreneurs should either acquire these capabilities through a process of trial and error, or surround themselves with a team consisting of persons with previous start-up experience.

One more implication from this study is the complexity that is hidden behind the simple act of recognizing and exploiting venture opportunities. For example, strategy is important early in the process, instrumental social capital is important in the later stages of the process and without effect on profit; start-up
experience has a continuous impact on the process etc. Complexity, however, could be reduced to entrepreneurship as a social process. These results point at one key issue for entrepreneurs; surround yourself with people with different resources and allow them to join the process during important stages in your entrepreneurial endeavor. Exploiting venture opportunities consists of a range of different sequences that could be developed through the use of outside competencies. This suggests that support systems should also be more targeted toward capabilities related to start-up sequences than generally given advice geared toward other aspects of the entrepreneurial process.

9.4.2 Implications for entrepreneurship educators

This is perhaps too obvious but this study clearly points at the heart of our educational system and the way we teach entrepreneurship and its inability to capture the distinction between innovative and reproducing venture opportunities. Venture opportunity variation is seldom discussed and tacit knowledge in the form of industry and start-up experience are seldom acquired by our students. One can argue that the purpose with higher education is not to become an entrepreneur. Nevertheless, few schools today would deny a strong focus on entrepreneurship. Empirical results in part 3 and 4 in this study showed that start-up experience and performance of gestation behaviors are strong predictors of progress in the nascent venturing process, survival and subsequent venture profit.

Based on this we can give two main advice to educators; 1) develop curricula including innovative and reproducing venture opportunities and 2) train gestation behaviors because generic entrepreneurial capabilities has a positive impact on progress in the nascent venturing process as well as subsequent performance.

It is important to increase the entrepreneurial activity in higher education. The curriculum in the Swedish undergraduate system is basically focused either on developing a deep understanding in one topic or to give a combined knowledge of combinations of different topics. In addition, education in business administration is very “general” in that it is still focusing more on theory and planning than actually doing. Few undergraduate and graduate students are given the opportunity to train and simulate or actually go through the process of recognizing and exploiting new venture opportunities. Educators need to include new venture creation activities in their curricula, not at the cost of deep knowledge in a specific area, which we need in order to develop innovative venture opportunities. A typical curriculum in any topic should include at least one semester of actual training performing gestation behaviors.

Table 6.5 also reports that the instrumental social network has a positive impact on progress in the nascent venturing process as well as on subsequent performance. This suggests that entrepreneurship courses should include students from many different subjects in order to create a dynamic and cross
Conclusions

cultural group of people. In sum, the educational system needs to develop a curriculum that increases individuals’ entrepreneurial capacity to recognize and exploit venture opportunities.

9.5 In sum

Entrepreneurship is a large part of our daily lives and an increased knowledge of this process is important for both society and individuals engaged in entrepreneurial processes. So why is it that some venture opportunities are turned into wealth creating new ventures, through the exploitation process, and some not?

It would be pretentious to claim that this study could give a comprehensive answer to that question. However, it is possible to argue that entrepreneurship needs to acknowledge the existence of venture opportunity variation, systematic differences in exploitation processes between innovative and reproducing venture opportunities, and how this process is related to subsequent venture level performance.

Wealth creating innovative venture opportunities is best exploited by experienced enterprising actors who are able to balance characteristics of the venture opportunity, resources, and behaviors. Wealth creating reproducing venture opportunities is best exploited in a fast pace, by enterprising actors with start-up experience, who have a high competitive awareness.
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181


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Appendix 1 sample description

72% males; 28% females
Mean age 40 years
50% no prior start-up experience
80% with industry experience (mean 9 years)
89% born in Sweden; 8% not born in Sweden
68% entrepreneurs; 30% intrapreneurs
38% solo efforts, 62% teams (mean 2.4 owners)
41.5% with an undergraduate education; 1.6% have a PhD
17.5% want to grow as much as possible; 74% prefer self-employment
38% abandoned the initiative during the initial 2 years
Mean number of months in the process before abandonment are 9-10 months
Mean number of months in the process until a positive cash flow is 8-9 months
35% of the ventures are sole proprieties
13% of the ventures are general partnerships
38% of the ventures are incorporated

Table A1 describes each ventures line of business.

<table>
<thead>
<tr>
<th>line of business</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refused</td>
<td>7</td>
<td>1.13</td>
<td>1.25</td>
<td>1.25</td>
</tr>
<tr>
<td>N/A</td>
<td>138</td>
<td>22.19</td>
<td>24.73</td>
<td>25.99</td>
</tr>
<tr>
<td>Farming, forestry, fishing</td>
<td>12</td>
<td>1.93</td>
<td>2.15</td>
<td>28.14</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>36</td>
<td>5.79</td>
<td>6.45</td>
<td>34.59</td>
</tr>
<tr>
<td>Building</td>
<td>20</td>
<td>3.22</td>
<td>3.58</td>
<td>38.17</td>
</tr>
<tr>
<td>Trading, hotel and restaurant</td>
<td>73</td>
<td>11.74</td>
<td>13.08</td>
<td>51.25</td>
</tr>
<tr>
<td>Transportation</td>
<td>12</td>
<td>1.93</td>
<td>2.15</td>
<td>53.41</td>
</tr>
<tr>
<td>Other services</td>
<td>188</td>
<td>30.23</td>
<td>33.69</td>
<td>87.10</td>
</tr>
<tr>
<td>Culture</td>
<td>13</td>
<td>2.09</td>
<td>2.33</td>
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</table>

Most ventures are inside trading (13%), other services (30%), and computer and IT (9%).
Appendix

Appendix 2 Missing data analysis

This study has a unique sample of venture opportunities with well above normal overall response rates (cf. Chandler and Lyon, 2001). However, the research design is complex with five consecutive phone surveys with two mail surveys in between. The entire database consists of approximately 2230 variables. The complexity and number of questions can of course be problematic to the respondent who may suffer from time constraints, which in turn may have an impact on the ability and willingness to answer all the questions in each survey. In a complex survey design such as this, there are usually two types of non-response. First, individuals included in the sample may not respond. This case is often referred to as unit non-response and is here applied to the first screening interview in which no missing data analysis was performed. The strategy most researchers use to deal with unit non-response is information from respondents assuming that non-response is ignorable (see Little and Rubin, 1987). This is also the strategy adopted here, mainly because the author was not involved in the first screening survey making unit non-response analysis impossible.

The other non-response type is when individuals respond, but intentionally or unintentionally choose not to answer some items of the survey. This case is referred to as item non-response (Little and Rubin, 1987). Item non-response also causes trouble for the researcher, especially in situations with complex survey designs as in this study. Some items can more or less suffer from item non-response which can have an influence on the empirical results and consequently on our interpretation of the results.

The literature discusses three missing data analysis strategies: a) choose to use the sample leaving out cases with missing data without any further discussion; b) use as much information as possible together with imputation techniques or; c) use a smaller data set where all observations with missing data are deleted – so called listwise deletion. The main problem is that regardless of choice, missing data may bias model estimates and therefore each strategy needs to be evaluated and discussed. Despite progress in entrepreneurship research designs the common practice in recent studies on the by now available longitudinal databases are to use strategy “a”, leaving this without any further discussion. However, in other research areas it is now common practice that researchers prefer to use the second alternative, where missing data in survey items are imputed (replaced) using information from those who responded (cf Åstebro and Chen, 2003). The strategy adopting missing data analysis and imputation can enhance entrepreneurship research and limit biases in empirical results due to better use of all available information in a data set.

However, imputation of data is far from non-controversial and raises the issue of how missing data should be imputed. Despite data imputation becoming the norm in larger data collection efforts (Åstebro and Chen, 2003) there are still procedures that are neither efficient nor unbiased. Little and
Rubin (1987) summarize the proposed methods into four categories. The first category is procedures based on only completely recorded units, which can lead to serious biases which usually are not efficient because the sample properties will be affected if cases from the original sample are deleted. The second is imputation-based procedures, for example, mean imputation and regression imputation. The results of such analyses systematically underestimate variance and covariance because the method treats imputed values, as they were known with certainty (Little and Rubin, 1987). Either one of the two initial categories are often found in entrepreneurship literature, which is cumbersome because researchers using listwise deletion, and/or mean imputation may form their conclusions on highly biased results. The third category that actually compensates for unequal selection probabilities is a weighting procedure that assigns a weight to sampled units. The weighting procedure is a standard technique that improves the estimates based on responding units. It weights the responding units’ missing data by implicitly assuming non-response bias beyond that explained by the measured background variables. However, the apparent simplicity of the method disappears with multivariate outcomes and item non-response since each unit then has, in principle a different weight for each item (Little and Rubin, 1987). The fourth category is model-based procedures. These procedures define a model for partially missing data and base inferences on the likelihood under that model. The main advantages with this approach are flexibility, the avoidance of ad hoc methods, and availability of large sample estimates of variance (Little and Rubin, 1987).

There are two ways of doing this. The first is to use maximum likelihood to estimate your model. This approach generates parameter estimates such as standard errors and Chi Square that are consistent, and estimates are efficient, given that correct assumptions, that data are missing either completely at random (MCAR) or missing at random (MAR). The other approach is multiple imputations using all available data. This is a Bayesian approach also justifiable under MCAR and MAR. A typical estimation with missing data is to compute maximum likelihood estimates from incomplete data via the EM algorithm proposed by Dempster et al., (1977) and developed by Schafer (1997). However, it is also possible to use multiple imputations using all available data, which is a Bayesian approach that gives credibility intervals that are justifiable under MCAR and MAR. Based on this short introduction it is evident that imputation is most efficient and consistent using maximum likelihood imputation based on available data.

Maximum likelihood with EM estimation depends on the assumption that the pattern of missing values does not depend on the data values (MCAR) and on the assumption that the pattern of missing data is related to the observed data only (MAR). This assumption allows estimates to be adjusted using available information. Table A2 shows item response rates that suffered from item non-response in this study. The other items in this study contained only complete data or non-negligible item non-response rates (one or two cases with
item non-responses). Table A2 reports item response rate for items with item non-response. The lowest item response rate is actually 87.7% (Economic growth) and the highest is 99.2% (Generalist strategy).

![Table A2 Item response rates N = 259](image)

However, the listwise approach would in a situation like this reduce the sample to approximately 197 (75.8%) cases, implying that it is not appropriate to reduce the sample by just eliminating those observations with missing data. A missing value analysis verified a visual indication that data were missing completely at random (Little's MCAR test: Chi square = 30.450, df = 32, Prob = .545). The p value of 0.545 indicates no significance, so we do not reject the null hypothesis that the data are MCAR. The analysis was performed in SPSS and it describes the pattern of missing data: where the missing values are located, how extensive they are, whether pairs of variables tend to have values missing in different cases, whether data values are extreme, and whether values are missing randomly. The patterns of missing data are found to be random and an EM analysis is used to estimate the means, correlations, and covariance. Missing values are replaced by imputed values and saved into a new data file to be used for further analysis. Actually, the estimated means are exactly the same as the sample means in this study, which can be attributed to a rather limited number of item non-responses. The missing data analysis is partly one of the main requirements for a discussion about reliability and validity.
Appendix 3 Descriptive results

Table A3 Descriptive results from the growth model mean values, standard deviation, and correlations innovative venture opportunities (N=40)

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**Table A4** Descriptive results from the growth model mean values, standard deviation, and correlations reproducing venture opportunities (N=219)

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**Appendix**
Table A5 Descriptive results mean standard deviation and correlations multiple regression predicting venture level performance (N = 127)

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