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Entrepreneurial Business Opportunity Recognition

Relationships between Intellectual and Social Capital, Environmental Dynamism, Opportunity Recognition Behavior, and Performance

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ABSTRACT

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Studies of entrepreneurship have shown that one of the main activities of entrepreneurship is business opportunity recognition. However, the knowledge of it is immature. The main problem is that the research is disorganized, and thus it is hard to say what is known and what is not. This study reduces this shortcoming in the knowledge of an important part of entrepreneurial behavior by combining the existing research on opportunity recognition into a comprehensive theoretical model and by testing it empirically. The research question of the study is: What are the mechanisms of entrepreneurial business opportunity recognition? The study claims that the main theoretical constructs for the study of this phenomenon are intellectual capital, social capital, perceived environmental dynamism, and opportunity recognition behavior of entrepreneurs and performance of ventures. The study hypothesizes that intellectual capital (domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity), social capital (amount of social interaction, closeness of relationships, and commitment to relationships), and perceived environmental dynamism enhance opportunity recognition behavior (knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action). Further, the study hypothesizes that opportunity recognition behavior enhances performance of young ventures (growth and newness value). The study investigated the population of metal and information and communication technology ventures established in 1998 in the regions of Jyväskylä, Oulu, and Vaasa (Finland). The informants were those responsible for the creation of an opportunity and the establishment of a venture. The whole population of ventures consisted of 223 ventures, which were all contacted. The data was obtained from 101 ventures using a 9-page questionnaire. Data was gathered in autumn 2000 by using principally a mail survey. E-mail, telephone survey, and personal visit were used when it was necessary. Non-response analysis showed that the collected data was unbiased. In the analyses, confirmatory factor analysis was used to test the theoretical constructs and multiple regression analysis and structural equation modeling to test the hypotheses. The results revealed that probably entrepreneurs first analyze the competitive arena to recognize an opportunity. They do it especially when environmental dynamism is high. To do this they use personal relationships, formal knowledge, and creativity. Second, entrepreneurs try to proactively create opportunities that would create new value in the near future. Creativity, intrinsic motivation, management experience, amount of social interaction, and commitment to relationships enhance proactive visioning. Also perception of environmental dynamism enhances proactive searching as dynamism indicates that gaps are to be found. Third, entrepreneurs need second opinions to be sure that there is a gap in a competitive arena and that the proactive opportunity they have created would fill this gap. Thus, they get involved in collective action. The amount of social interaction and commitment to relationships enhanced whereas management experience declined collective action. Fourth, the results indicated that proactive searching of future oriented opportunities and scanning of gaps in a competitive arena greatly influence the growth of young ventures. Fifth, newness value of young ventures is significantly affected by proactive searching and collective action. As a whole, allocating time and effort for opportunity recognition, and especially for competitive scanning, proactive searching, and collective action, could significantly enhance performance of young ventures. Furthermore, to make the above opportunity recognition behavior possible insight is needed that environmental dynamism creates knowledge gaps, formal knowledge to be capable of analyzing information, and creativity to create original solutions. Intrinsic motivation helps entrepreneurs to enjoy the situation despite all the insecurities of new venture creation. Flexibility in the use of management experience, active social interaction and personal relations to get relevant information, and cognitively close relations to discuss the difficult issues are also needed.

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Key words: entrepreneurship, new venture creation, business opportunity recognition.

1. INTRODUCTION

Recent research on entrepreneurship has paid growing attention to the creation of new businesses (e.g. Busenitz and Lau 1996; Low and Abrahamson 1997; Greene, Brush, and Hart 1999; Gunther McGrath 1999; Zahra 1999a; Zahra 1999b; Shane and Venkataraman 2000). This attention is based, at least partly, on the assumption that entrepreneurship in the form of new businesses is a vehicle for economic development (see, e.g. Hamel 1999; Sahlman 1999). Thus, entrepreneurship is often understood, for example, as a motor of competitiveness of nations, as a renewal capacity of organizations, as an ability to survive in the speed of change, as an ability to marshal resources, as a force to express intrinsic needs, and/or as a chance for self-employment. Because of these positive impacts on both societies and individuals, researchers and practitioners are interested in investigating and supporting entrepreneurship and new businesses. The research focused especially on business creation, then has tried to identify, e.g. types of emerging ventures, motives to start businesses, qualities of novice entrepreneurs, business venturing processes, and competitive environments of young ventures (e.g. Manimala 1992; Birley and Westhead 1994; Frank and Lueger 1997; Zahra and Neubaum 1998; Covin, Slevin, and Heeley 1999). With the above attention is connected a more specific academic interest in the ability to recognize business opportunities (e.g. Kaish and Gilad 1991; Christensen, Madsen, and Peterson 1994; Hills 1995; Sigrist 1999). The focus of this study is on the examination of this last phenomenon.

Recognition and exploitation of opportunities are seen as the major functions of entrepreneurship (e.g. Bygrave 1993; Shane and Venkataraman 2000). It is proposed that opportunities are more important to success than, e.g. the qualities of an entrepreneur (Gaglio and Taub 1992). However, as a whole, opportunity recognition is a poorly understood area of entrepreneurship (Hills, Lumpkin, and Singh 1997). Therefore, this study focuses on examining business opportunity recognition. The research on opportunity recognition is based on the seminal theory of entrepreneurial alertness by Kirzner (e.g. 1979, 1981). He has suggested that entrepreneurship is about recognizing and exploiting business opportunities. Further, he has maintained that entrepreneurs are the ones alert to opportunities existing in markets because of their skills to use and interpret market information. On the basis of this theory Kaish and Gilad (1991) made an inspiring empirical study, which indicated that the ability to recognize opportunities is dependent on skills to perceive relevant information in markets. They argue that entrepreneurs, compared to managers, recognize business opportunities more often because they gather information from multiple sources and use it

smoothly. In spite of the thought-provoking nature and importance of these studies to the domain, much remains to be done to thoroughly understand the skills of entrepreneurs to recognize opportunities. For example, Busenitz (1996) demonstrated that the phenomenon is complex and needs more extensive research in order to develop further the understanding. In his study Busenitz (1996) replicated the study by Kaish and Gilad (1991) and illustrated clearly that both the idea of information processing and opportunity recognition in general call for further considerations. On the basis of the above arguments this study concentrates on developing further the knowledge of opportunity recognition.

Entrepreneurial ability to recognize opportunities has also been part of a considerable amount of entrepreneurship research other than at mentioned above (e.g. Bird 1988; Hébert and Link 1989; Aldrich 1990; Manimala 1992; Baumol 1993; Carree and Thurik 1994; Cooper, Folta, and Woo 1995). Also several highly appreciated articles on more general organization theory refer to opportunity recognition and business creation as a mode of organizational renewal and creation of new value (e.g. Aldrich and Fiol 1994; Hamel 1998; Hamel 1999; Moran and Ghoshal 1999; Ghoshal, Bartlett, and Moran 1999). Although the above studies have not explicitly studied business opportunities, they touch upon opportunity recognition and, nevertheless, note the ability to recognize opportunities as an important part of the processes of initiating new businesses (cf. Bygrave 1993) and renewing industries. Thus, it is possible to argue that the subject is important. Yet, its theoretical and empirical understanding is in its infancy (Busenitz 1996). In fact, the first empirical studies trying to develop further the theory of opportunity recognition seem to be quite recent ones done by Long and McMullan (1984) and Kaish and Gilad (1991). For that reason it is not surprising that the knowledge is undeveloped. The lack of knowledge of an essential part of entrepreneurship creates a need for both theoretical and empirical modeling of the phenomenon. The present study aims at modeling the phenomenon theoretically and empirically by using existing research on opportunity recognition as a basis for the investigation. This has not been the case in former studies, in which the approaches have been quite limited and loose (cf. Hills 1995).

Though the area has just recently begun to really develop (see Hills and Shrader 1998) there are quite a few studies that explicitly discuss business opportunities and upon which can be theoretically relied. Sigrist (1999) reviewed this research and divided it into three research streams. According to her, the first stream has centered on studying opportunity recognition as organizing information rationally (e.g. Vesper 1991; Cadotte and Woodruff 1994; Christensen et al. 1994; Timmons and Muzyka 1994). The second stream, then, has

seen the recognition process as an intuitive creation incident, which is not a linear and/or logical combination of pieces of information (e.g. Gaglio and Taub 1992; Jenssen and Kolvereid 1992; Muzyka 1992). There is also a third stream springing up that sees opportunity recognition as including both organizing information rationally and intuitive creation (Sigrist 1999). Studies supporting this last point of view have shown the existence of both purposeful searching for possibilities and accidental, intuitive "crashing" into opportunities (Christensen and Peterson 1990; de Koning and Muzyka 1996; Hills et al. 1997; Hills and Shrader 1998). Although the latest empirical results of the phenomenon support the third type of view (Sigrist 1999), the interactive viewpoint has been quite neglected. This study examines opportunity recognition as an interactive event, in which accidental luck of finding, seeing, and/or understanding a new business is based on intensive and rational working in the field (cf. Martello 1994). Third stream's view is taken as the point of departure. The underlying assumption is that there doesn't exist simply one view to look at opportunity recognition but different angles should be taken holistically under examination to understand this complex phenomenon.

If the interactive view is taken further, it could be asked what should be the theoretical constructs under the study. Based on previous studies (e.g. Hills 1995; de Koning and Muzyka 1996; Sigrist 1999) it is suggested that those theoretical constructs are intellectual capital, social capital, environmental dynamism, opportunity recognition behavior, and performance of new ventures. First, previous research has shown that intellectual and social capital initiate opportunity recognition process (cf. de Koning and Muzyka 1996; Hills et al. 1997; Hills and Shrader 1998). Thus, it is possible to propose also here that these issues should be taken as the starting point in explaining opportunity recognition. However, the problem is that the results are scattered and there are, hence, difficulties to see what the impact of them is. Thus, it is suggested that the fragmented results of the effects of intellectual and social capital on opportunity recognition should be linked and the effects and use of these resources studied more rigorously. Second, several studies have proposed that opportunity recognition behavior is affected by the environmental dynamism perceived by entrepreneurs (e.g. Johannisson 1988; Krackhardt 1995; Hills et al. 1997; Zahra and Neubaum 1998). These studies have displayed that intellectual and social processes of entrepreneurs are different in different entrepreneurial environments. Thus, it is not so obvious that the intellectual and social processes just cause differences in opportunities. The studies haven't revealed what is the exact nature of the relationship between environment and business opportunities. Thus, the impacts of environmental dynamism on opportunity recognition behavior should be studied more thoroughly. Third, the above presented theoretical con-

structs, intellectual capital, social capital, and environmental dynamism, play an important role in opportunity recognition but they don't tell what kind of behavior is taking place in the process of opportunity recognition. This study proposes that opportunity recognition behavior is both rational organizing of the complexity and creative sense-making of a vague situation. Opportunity recognition behavior (e.g. Long and McMullan 1984; Teach, Schwartz, and Tarpley 1989; Bhave 1994; Hills 1995; Sigrist 1999) refers to behavior such as knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. This study concentrates on these lines of behavior.

Fourth, Singh, Hills, Hybels, and Lumpkin (1999) have proposed that opportunity recognition research should be more concerned with performance. Birley and Muzyka (1997) argue that business opportunity recognition is the creation of a strategic business concept to create new value. Performance reflects the value an entrepreneur and his/her venture have created by exploiting the business opportunity and, also from the point of view of the customers, how valuable the opportunity is. Thus, this study suggests that opportunity recognition is an important factor affecting the performance of a venture, which in turn reflects how customers have valued the business opportunity. Further, it is argued that, if it is found that business opportunity recognition affects performance significantly, this could have significant implications for teaching, development, and research on entrepreneurship and management. Now the "tools" are mostly aimed at assisting an existing firm in an environment that is possible to forecast and not at the renewal of a business in environment characterized by accelerating speed of change. The above relationship would suggest that the performance of a venture might be created even before the venture has been launched. Thus, the performance should be studied in detail also in opportunity recognition research.

To sum up, the object of the study is business opportunity recognition. The object is chosen because the knowledge of this part of the entrepreneurial process is undeveloped. This undeveloped state is suggested to decrease by prudent theoretical and empirical modeling. The development of the model is based on the idea of opportunity recognition as an interactive (both information organizing and creative) behavior. Further, it is suggested that opportunity recognition behavior varies among entrepreneurs and this variation is caused by the intellectual and social capital of entrepreneurs and environmental dynamism perceived by entrepreneurs. Last, the importance and value of the recognized opportunity is studied by investigating the performance of the new ventures. Building on these elements, the study aims at contributing to the development of empirical and theoretical knowledge of the entrepreneurial business opportunity recognition.

1.1. Research questions and objectives of the study

Research questions. Davis (1971) has proposed a thought-provoking and useful classification of research questions that matter and are interesting. He has indicated that, if one wants to contribute to a line of inquiry, the question(s) should focus on challenging somehow the general "wisdom". The first category of his classification suggests that the question(s) should be raised based either on showing *"(1) what seems to be a disorganized (unstructured) phenomenon is in reality an organized (structured) phenomenon or (2) what seems to be an organized (structured) phenomenon is in reality a disorganized (unstructured) phenomenon"*. The phenomenon of opportunity recognition clearly isn't thought to be simple and organized (Sigrist 1999). The situation is merely the following: researchers widely claim that the phenomenon is complex and the results are often said to be preliminary, most authors acknowledge the need for further research, and the results have until now been very fragmented. Still, if the studies are looked at more closely and in their entity, there can be found common constructs that have been and are still studied. Thus, it is reasonable to argue that there is a simpler, more organized picture behind the many facets of the present situation. This type of situation is common to younger disciplines (Davis 1971), and in this case the job of researchers is to develop propositions organizing the scattered field. On the basis of the above, this study tries to establish a more coherent basis for future studies. To achieve this the research questions and the objectives are aimed at showing that what is thought to be complex is in reality more ordered.

First, what initiates business opportunity recognition? Many studies (e.g. Christensen et al. 1994; Hills 1995; de Koning and Muzyka 1996; Hills and Shrader 1998) have indicated that intellectual capabilities and social networks of entrepreneurs are in a crucial role in opportunity recognition. Entrepreneurs who recognize opportunities possess the skill to intellectually see relevant information and shape it into an opportunity. Further, they know how to create social relationships, and how through these networks to identify information, push forward their ideas, and get evaluations of their ideas. Hereafter, it is argued that intellectual capabilities and social networks make opportunity recognition possible. Intellectual capabilities and social networks can be seen as capital on which opportunities are based. But the relationships between intellectual and social capital and opportunity recognition behavior need to be studied more thoroughly.

Second, the empirical studies of opportunity recognition have implied that the competitive environment in which opportunity recognition takes place significantly affects recognition

behavior. The competitive environment "whispers", e.g. is there room for new ventures, how tough is competition, are there opportunities at all, and if there are, of what kind might they be, of what kinds of skills and relationships are valuable, and how desirable is the industry? Thus, there is more involved than that an individual, an entrepreneur, uses his "know-how" (intellectual capital) and "know-who" (social capital) to create a profitable business opportunity. A lot of studies have shown that the environment of entrepreneurs must be taken into consideration in order to understand the behavior of entrepreneurs (e.g. Aldrich 1990; Dean, Meyer, and DeCastro 1993; Specht 1993; Zahra 1993; Aldrich and Fiol 1994; Shane, Kolvereid, and Westhead 1991; Zahra, Neubaum, and Huse 1997; Zahra and Neubaum 1998; Moran and Ghoshal 1999; Zahra 1999a). The competitive environment determines what kind of intellectual and social capital is needed, how opportunities are recognized, and what kind of opportunities exists or could be created. Thus, from the point of view of this study the effects of competitive environment are interesting.

Third, some studies have shown that opportunity recognition is not rational but rather an intuitive action (see Sigrist 1999). Many more have found in it a lot of rational thinking about the situation (e.g. Christensen et al. 1994). Probably the view of Martello (1994) that opportunity recognition involves both rational and intuitive behavior is closest to reality. The most distinctive lines of behavior regarding opportunity recognition are connected with information gathering (Kaish and Gilad 1991), market and competition scanning (Christensen et al. 1994), proactive searching for future states (de Koning and Muzyka 1996), innovative behavior (Manimala 1992), and collective discourse (Johannisson 1988). Thus, this study looks at how intellectual, social, and environmental issues are connected with these lines of behavior.

Fourth, this study is also interested in the performance of newly established ventures based on recognized opportunities. The value created by a venture is reflected in its performance. The performance, then, reflects what the business opportunity has been from the viewpoint of customers. Some have maintained that performance is already created before a venture has been launched into markets (e.g. Gaglio and Taub 1992; Shane and Venkataraman 2000). This is an interesting point since it suggests that skills to recognize opportunities are among the most crucial in business life. This would also mean that modern "digital-economy", as Hamel (1998) has termed it, is so fast in its changes that the best way to handle it is to be alert to new business opportunities (see also Kirzner 1997). Thus, this study is interested in the effects of opportunity recognition behavior on the performance of a young venture.

On the basis of the above argumentation, the study aims at organizing the scattered field of opportunity recognition research. It is suggested that overwhelming concentration on the process has caused a disorganized view of the field (see, e.g. Sigrist 1999). This disorganization is approached in this study through the main themes that rise from previous research. These themes are (1) intellectual and social capital as the generating forces behind opportunity recognition, (2) environmental dynamism as the setting providing opportunities for new business, (3) opportunity recognition as strategy-making behavior, and (4) performance as the reflection of the value the opportunity has created. By studying the relationships between these variables it is believed that a model organizing the field and creating a more solid basis for future studies will emerge. Hence, the general research question of the study is:

What are the mechanisms of entrepreneurial business opportunity recognition?

The main research question is approached by developing conceptual frameworks on intellectual capital in opportunity recognition, social capital in opportunity recognition, environmental dynamism in opportunity recognition, and opportunity recognition behavior in the creation of value measured as performance. The more specific sub-questions are the following:

(1) How does the intellectual capital of entrepreneurs influence their opportunity recognition behavior?
(2) How does the social capital of entrepreneurs influence their opportunity recognition behavior?
(3) How does the environmental dynamism perceived by entrepreneurs influence their opportunity recognition behavior?
(4) How does opportunity recognition behavior of entrepreneurs influence the performance of young ventures?

Figure 1 illustrates the research questions. From the left the first column is the main research question, in the second are the three "capital" frameworks derived from the main question and studied in order to answer the sub-questions, in the third are the "capital" sub-questions, in the fourth the "performance creation" framework, and in the last column on the right the "performance" sub-question. It is suggested in the present study that intellectual and social capital and environmental dynamism influence opportunity recognition behavior, which then influences the performance.

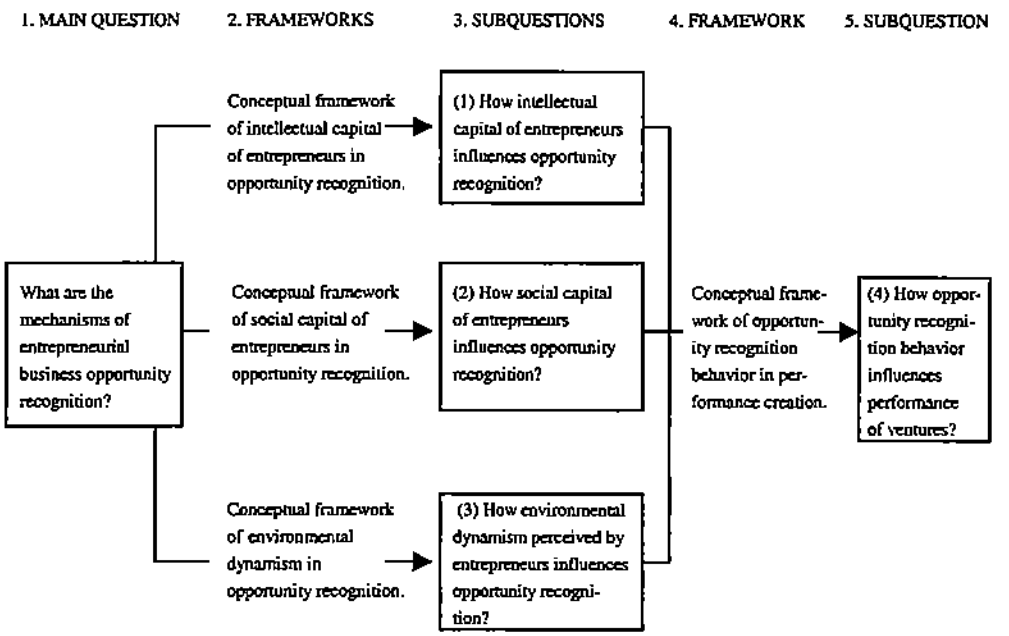


Figure 1. Research questions of the study.

Objectives. The overall objective of the study is to fill the gap in opportunity recognition research by probing a theoretical model which is derived from previous research, and by testing and developing it further through empirical investigation. More specifically, the study aims at understanding the mechanisms of how intellectual capital, social capital, and the environmental dynamism of entrepreneurs affect opportunity recognition behavior and further of how opportunity recognition behavior affects performance.

The detailed objectives of the study are the following:

1. The first objective is to conceptually analyze and define the main concepts of the study.
2. The second objective is to review, analyze, and synthesize existing literature on new venture creation in order to understand the context of the study.
3. The third objective is to review the research on opportunity recognition to build a theoretical framework and make hypotheses of the relationships between intellectual capital, social capital, environmental dynamism, opportunity recognition behavior, and performance.
4. The fourth objective is to design the methodology to test the hypotheses, which includes operationalizing the concepts, designing the research instrument, locating a sample, de-

signing the data collection, and discussing the reliability and validity of the study.

5. The fifth objective is to test empirically the hypotheses, and create an empirically valid model based on the empirical results of the study.
6. The sixth objective is to set forth the conclusions and implications, and suggest possible routes for future research.

1.2. Scope and limitations of the study

Scope. The determination of the theoretical scope begins by defining its role in the larger context of entrepreneurship discussion. Stevenson and Jarillo (1990) have proposed that in entrepreneurship research the scope could be determined either (1) by what is the result of entrepreneurs' behavior, (2) why entrepreneurs behave as they do, or (3) how entrepreneurs behave. Attention is then on the outcomes of entrepreneurs' behavior, on the psychological and/or sociological qualities of entrepreneurs, or on the real actions of entrepreneurs. The focus of this study is on the "how-question", i.e., how entrepreneurship is actualized. Psychological and sociological qualities are not the central focus of the examination per se because previous research on them have, at least partly, failed to explain the emergence of entrepreneurship (cf. Gartner 1990; Baron 1997). In fact, psychological and sociological qualities, or traits, have been shown to explain quite weakly entrepreneurial behavior because of the very complex nature of the behavior of entrepreneurs (Cooper, Dunkelberg, and Woo 1991). On the other hand, the result-approach, the "what-question", is also left out of the consideration because this part of the research is mostly economic and does not pay attention to the real actions of entrepreneurs but merely to the role of entrepreneurship in renewing economies as a whole (see Hébert and Link 1989). This approach doesn't explain the actions of a single entrepreneur and how (s)he creates new value.

Because in this study the aim is to explain opportunity recognition of entrepreneurs, the focus is on the entrepreneurs' behavior, i.e., on the "how-question". However, the research centering on the questions of "what entrepreneurship is" and "why there emerges entrepreneurship" are not left out completely because a great deal of our knowledge is based on this type of studies. This knowledge is usable as long as it is remembered that here entrepreneurship is about individuals behaving/acting in a certain way (creating and organizing new businesses) (e.g. Gartner, Bird, and Starr 1992). It is proposed that what entrepreneurs do explains what entrepreneurship is, and why they have particular inner and outer qualities, and not vice versa, which has been the viewpoint of earlier entrepreneurship research. As a conclusion, this study enters into the entrepreneurship discussion that examines entrepre-

neurship particularly as the behavior/action of entrepreneurs.

Entrepreneurial behavior, then, could be divided into "boosting", managerial, and capitalizing actions (cf. Cuevas 1994). Boosting behavior focuses on the creation of new businesses. The leading idea of this approach is that entrepreneurs create entrepreneurship by creating new businesses. Thus, entrepreneurship is in this view more about "becoming" than "being". Managerial behavior is more interested in how to plan, organize, coordinate, and control businesses. Capitalizing behavior, then, is an economic activity, which is primarily about investing capital and harvesting capital. In this study the managerial and capitalizing actions are excluded because they are seen as lines of behavior that are more essential in the later phases of the entrepreneurial process (see Scott and Bruce 1987). Although it is recognized that they are present in the early steps of business creation, opportunity recognition is seen as related especially to the boosting behavior of creating a new business.

Above were already referred to the phases of entrepreneurship. Before discussing them more deeply, it should be mentioned that the "phase-approach" is not the only possible way to study the entrepreneurial process (see Van de Ven and Poole 1995). Yet, it is the most used one and, thus, it is used also here to define the standpoint of this study. The entrepreneurial process can be seen to consist of the phases of inception, survival, growth, expansion, and maturity (Scott and Bruce 1987). Further, Scott and Bruce (1987) argue that the inception phase is about developing a product/service and finding a market-place for the product/service. The inception phase includes as an essential part business opportunity recognition (cf. Bygrave 1989). Thus, this study concentrates on the early inception of the whole entrepreneurship process. The other phases are excluded from the study because the inception phase, and business opportunity identification inside it, are such a complex phenomenon (cf. Sigrist 1999) that it is reasonable to examine this part of the entrepreneurship process alone. In sum, this study contributes to the entrepreneurship discussion, which examines it as a sequential process, but focuses on the early, i.e., inception phase.

As mentioned above, the studies of business opportunity recognition have seen it as a rational process of organizing information, as an intuitive creation process, or as a combination of these (Sigrist 1999). The rational information-organizing approach has brought a lot of knowledge to the area. Opportunity recognition as a real life problem situation does not usually appear as a situation with a clear beginning and end. It doesn't include identifiable problem elements and operations that can be used in order to organize the information into a solution. That is the case in simpler, e.g. selective problem situations (see Mayer 1992:

5–7). Business opportunity recognition as a problem situation is a very complex one, in which the start and the end are often unclear, and the solutions have to be created. Thus, the problem-solving needs intuitive creativity of an entrepreneur. The entrepreneur must see beyond the obvious information and create a new whole – business opportunity – based on the information. But the process of opportunity recognition can't be only intuitive creation, because if the entrepreneur has not gathered, analyzed, organized, and modeled the information, (s)he doesn't have a solid basis to build upon. Creativity without rational organizing is artificial. Therefore, instead of choosing either a rational or a creative approach, the present study adopts the approach that sees opportunity recognition as both a rational and a creative, interactive, process.

The practical scope of the study is the following: The study investigates entrepreneurs, not owner-managers. The interest is on the people who have discovered one or several business opportunities and established a business or businesses based on them. The entrepreneurs can be owner-managers but they don't have to be. The important people are those who have identified the opportunity and not the ones who own or run the company. The entrepreneurs under study need to have been involved in opportunity recognition quite recently. This is because it is probable that the behavior of entrepreneurs changes over time. If an entrepreneur who discovered an opportunity some ten years ago is asked, (s)he may not remember any more how (s)he did opportunity recognition ten years ago. But this doesn't mean that experienced entrepreneurs are excluded. They are included in the study if they also established new businesses as late as 1998, though their first establishment was founded a long time ago. Businesses also have to be formally established because the interest is on the business opportunities that have been realized. Finally, it is important to notice that this study investigates entrepreneurs, not firms. The behavior of firms, though it could be of the same kind as the behavior of entrepreneurs, is not under examination. Precisely, the study focuses on entrepreneurs in the provinces of Jyväskylä, Oulu, and Vaasa who registered their businesses in the Finnish Trade Register in 1998 in the metal and information- and communication technology (ICT) industries.

Limitations. The study has several limitations. First, the study concentrates on Finnish entrepreneurs. This means that the results are not necessarily generalizable as true of other countries and cultures. In other cultures the behavior in order to find business opportunities may be different. Second, the study investigates only those entrepreneurs who have established a new business. This leaves out new businesses inside established companies, i.e., intrapreneurship.

The study has also several space- and time-limitations. First, it is presumably very important whether opportunity recognition is seen to take place in networks, in an entrepreneur's mind, in a big company, in a region, etc. The present study approaches opportunity recognition as an entrepreneur's behavior. Thus, the results of the study are applicable only to the level of individual behavior, and further studies are needed to take into account these other contexts and levels. Second, the time period under study may have significant effects on the results. The business opportunity recognition studied in the present study has taken place during clear economic upward trend. It is possible that in the case of recession the entrepreneurs would have behaved somewhat differently. Thus, the favorable economic situation may explain part of opportunity recognition behavior and business emergence. To analyze the effects of the economic situation studies having comparison data from different years are needed. Finally, this study collects data retrospectively at one point of time relying on the memory of the entrepreneurs of their behavior a couple of years earlier. Thus, the present study is cross-sectional in nature and longitudinal studies are needed especially to cover the process of opportunity recognition in time.

1.3. Significance of the study

Research on business organizations has recently started to show signs of shifting the focus from the management of existing companies to the creation of new businesses (e.g. Burt 1996; Hamel 1998; Tsai and Ghoshal 1998; Ghoshal et al.1999; Moran and Ghoshal 1999; Zahra 1999a). This line of inquiry criticizes the view of the "modern" time, which sees businesses to be best developed and renewed by planning and controlling existing businesses and hoping that somehow "ruling the game will make things click". The studies argue that the reality of post-modern "knowledge" economy is far too complex, turbulent, ambiguous, and vague to be kept under control. The problem companies, and whole economies, are facing nowadays is not any more how to achieve the equilibrium position but how to live in constant disequilibrium (cf. Kirzner 1997). These studies stress that renewal capacity through creation of new businesses is crucial in the "knowledge" economy. Thus, business organizations shouldn't put so much effort into trying to reach a satisfying balance but into renewing themselves constantly. Organizing new becomes more important than managing old and, therefore, social responsibility, creativity, motivation, social interaction, and discovery come to the fore instead of adaptation to the existing situations (cf. Ghoshal et al.1999). Further, learning in organizations is not any more about finding out what are the ingredients of the game but how to renew the game. Most of the players know the game very well and to get out of this stagnated situation the game must be changed.

The speed of change in a competitive environment is accelerating all the time and the best way to handle it is to develop readiness for new businesses. Strategies are, thus, drifting from governing the competitive arena (see, e.g. Porter 1985) to continuous opportunity recognition (Hamel 1998). It could be argued that as environment can't any longer be controlled, or even planned, it is cleverer to let go one's hold, at least a bit, and concentrate on searching new possibilities and grabbing on them. The present study follows this new line of organization studies that sees entrepreneurial creativity, i.e., ability to recognize and exploit business opportunities (Kirzner 1997) to be the way to live through "ad hoc" times of "digital" economy (Hamel 1998) contributing this way to organization research in general.

New venture creation literature has many gaps, leaving a lot of possibilities for contribution. For example, in spite of the significance of the new business initiation the researchers and practitioners don't yet understand how successful entrepreneurship and/or ventures are born (see, e.g. Birley and Westhead 1994). We know, for example, what are the primary reasons for establishing a venture, what are the traits of successful entrepreneurs, what are the main strategies for approaching the markets, and what are the primary difficulties concerning new ventures. The knowledge of the area is, however, very fragmented. It needs more synthesizing of the results, empirical research, and deeper understanding. Most importantly, the knowledge of business opportunities is almost completely exploratory and requires definitely rigorous empirical research (see, e.g. Busenitz 1996). In addition, the most used theory of the ability to identify business opportunities is the theory by Kirzner (1979, 1981). This theory is valuable but it is too economist for understanding deeply the behavioral phenomenon, and it needs further development from the viewpoints of business administration, psychology, and sociology, at least. Further, the knowledge of the area as a whole is limited and, thus, generalizing to wider populations is difficult. This study strives to synthesize the existing knowledge of opportunity recognition and to apply it to widen both the theoretical and the empirical understanding of the phenomenon.

The studies of business opportunity recognition are scarce (Vesper 1991). There exist both empirical and theoretical studies but theoretical ones are more common. Despite the scarcity of studies with their main emphasis on opportunity recognition, many general entrepreneurship studies have paid attention to business opportunities showing that the issue is important. This study strives to bring to the fore some new information about business opportunity recognition for the domain of entrepreneurship. It is possible that this issue has not been studied because there hasn't existed any common understanding of what entrepreneurship is. On the basis of recent understanding of entrepreneurship (Bull and Willard

1991; Bygrave and Hofer 1991) it is possible to suggest that business opportunity recognition is an important part of entrepreneurship. In entrepreneurship studies intellectual and social matters have been widely mentioned but in opportunity recognition the knowledge of them is scattered. On the other hand, a competitive environment has often been mentioned as affecting the business-venturing process. Again, there is a serious lack of understanding of role of the competitive environment in opportunity recognition. Lastly, the effects on performance have been neglected. Thus, this study contributes to the research on opportunity recognition by investigating the relationships between the above-mentioned elements and opportunity recognition. As a conclusion, there is in general entrepreneurship research a remarkable need to understand how everything begins – "how becoming becomes".

The above discussion directs the research towards understanding the phenomenon more holistically. Studies that have adopted this approach are rather scarce (cf. Hills, Shrader, and Lumpkin 1999; Sigrist 1999). The research area of opportunity recognition needs more studies building on all the existing knowledge and not only on one narrow stream. Hence, there could emerge a common understanding of what is studied. So far there are no rigorous studies, which would have tried to synthesize existing knowledge, except the study by Sigrist (1999). Because of this, it is reasonable to propose that the primary goal is not yet to deepen the knowledge, and in that way to narrow it even more, but to connect the pieces of knowledge to each other through synthesizing. In this study it is suggested that the next step to be taken should be to link together existing research results and see where they lead. The area needs new viewpoints, ideas, and conceptual constructs but the most urgent need is to see where it has come until now and what can be said based on that. Hence, in this study is constructed and tested a framework which is based on the idea that opportunity recognition is interaction between the rational and the creative behavior of entrepreneurs.

After this, the main contributions of this study are the following: (1) synthesizing the fragmented research on opportunity recognition, (2) showing the main dimensions of opportunity recognition, (3) testing the theoretically based model by prudent empirical research, (4) indicating the basic mechanisms of opportunity recognition, and (5) showing the importance of opportunity recognition behavior as a determinant of the performance of ventures.

The practical importance of the phenomenon is in its societally and individually wealth-creating quality. Societally it is very important that new and novel business opportunities emerge, and that ventures created based on these opportunities offer jobs to people and develop the wealth of nations. Individual importance connected with business opportunities

can be understood from the angle of motives of individuals. Business opportunities and established ventures based on opportunities can be a way to secure basic needs of living (food, accommodation, etc.), satisfy social needs of life, create feelings of importance, and/or a way to express internal visions. This study wants to propose some guidelines for better understanding this important phenomenon of business emergence by explaining business opportunity recognition. It is hoped that the study helps teachers, practitioners, and others dealing with new ventures to understand more deeply how entrepreneurs recognize business opportunities, and in this way support the creation of methods to support and facilitate "good" business opportunities. Further, this study shows entrepreneurs and would-be entrepreneurs on what issues they should concentrate when they try to recognize a business opportunity.

1.4. Definition of main concepts

Entrepreneurship. The present study belongs in the discourse of entrepreneurship. Thus, in order to be able to reasonably study opportunity recognition as a part of entrepreneurship, entrepreneurship as a concept should be defined. Entrepreneurship can be defined, at least, as ownership of firms (cf. Cuevas 1994), management of small businesses (cf. Scott and Bruce 1987), innovativeness (Schumpeter 1934), networking (e.g. Larson and Starr 1993), organizing (e.g. Johannisson 1988), or making the ideas work even though the needed resources are not under control (Stevenson and Jarillo 1990). Very important to this study is the definition by Kirzner (1979, 1981, 1997) in which he claims that entrepreneurship is about alertly recognizing and exploiting market and understanding these to be opportunities for business. Muzyka, de Koning, and Churchill (1997) stated that *"entrepreneurship is a process that takes place in different environments and circumstances and causes changes in the economy through innovations, which are created by individuals recognizing economic opportunities creating value both to these individuals and societies"*. The definition by Christensen et al. (1994) is close to the above: entrepreneurship is *"opportunity driven, with an ability to make rapid commitment to opportunities that arise in a multi-stage decision mode, often using other people's resources, managing through networks of personal relations, with the expectation that one will be rewarded in direct proportion to the new value created"*. This study agrees on the last three definitions. On the basis of them, *entrepreneurship is here defined as a process of creating new businesses, in which an opportunity is recognized and then turned into a form in which it creates economic value by using own and others' resources and personal relations* (cf. Bygrave and Hofer 1991; Gartner et al. 1992; Christensen et al. 1994; Muzyka et al. 1997).

Business opportunity recognition. Business opportunity recognition has been defined in many ways. One approach sees opportunity recognition mainly as a rational information-organizing process, which aims at constructing a new strategic business concept (e.g. Cooper 1981; Peterson 1985; Timmons, Muzyka, Stevenson, and Bygrave 1987; Teach et al. 1989). A second approach argues that opportunity recognition refers to gathering and interpreting information in order to find information gaps in markets, technologies, needs, etc. (e.g. Kirzner 1979, 1981; Gilad 1984; Kaish and Gilad 1991; Woo, Folta, and Cooper 1992; Busenitz 1996; Kirzner 1997). A third approach again considers opportunity recognition to be a part of activities through which a venture is organized (e.g. Herron and Sapienza 1992; Christensen et al. 1994). Fourthly, opportunity recognition has been seen as a social discourse through which opportunities are woven through discussions (e.g. Johannisson 1988; Krackhardt 1995; de Koning and Muzyka 1996; Gunther McGrawth 1997: 38–42). Fifthly, the latest views of opportunity recognition have stressed both the rational and the intuitive parts of the phenomenon. Hereafter, the argument is that entrepreneurs' opportunity recognition is both deliberate searching for relevant information of opportunities and intuitive, creative processing of this information in order to clarify the opportunity (e.g. Hills 1995; Sigrist 1999). On the basis of the above, opportunity recognition has been seen as the creation of a strategic concept, idea screening and evaluation, market information interpreting in order to find market gaps, organizing to launch a venture, social dialogue to negotiate an idea to create an opportunity, alertness to information cues, and pattern recognition. This study defines business opportunity recognition in the following way: *Business opportunity recognition is both a rational and an intuitive search for information and both social and cognitive interpretation of information in order to recognize market gaps and to create strategic business concepts, which link the gap and the concept in order to create new value.* As can be seen the definitions of entrepreneurship and business opportunity recognition are close to each other. The reason for this is that Kirzner's (1979, 1981, 1997) views are behind both of them. What is the difference between them is that entrepreneurship includes beside business opportunity recognition also the process of organizing the real business around the opportunity. Business opportunity recognition concentrates on making sense of the information in order create a way to do business.

Opportunity recognition behavior. On the basis of the above it could then be asked, what kind of behavior is involved in business opportunity recognition? Most of the authors in the field have seen that opportunity recognition involves behavior such as knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective (networking) action (see, e.g. Johannisson 1988; Teach et al. 1989; Christensen and Peter-

son 1990; Kaish and Gilad 1991; Vesper 1991; Woo et al. 1992; Martello 1994; Hills 1995; Krackhardt 1995; Sigrist 1999). If the core of behavior is looked for, reference could be made to Muzyka (1997: 28–31). He suggests that behavior is not by nature rational strategic planning and/or market analyses. Behavior is strategic thinking, i.e., entrepreneurs think about the business situations and try to figure out what kind of possibilities there might be for new businesses. This process is experience-based searching for something valuable not yet available to customers. Entrepreneurs try to understand markets, resources, people, themselves and their skills, motivations etc., and see "between the lines" possibilities for business. The view of this study of opportunity recognition behavior is in line with Muzyka's (1997). But, also in it is involved creative information processing in which distant pieces of information are woven into a view of opportunity. It is about creating new ways of doing business rather than trying to figure out how to do business more efficiently (see Shane and Venkataraman 2000). Also, it should be underlined that behavior is not only an individual phenomenon but takes place also in social dialogue. Opportunity recognition behavior is both individual and socially structured. If summed up, it is seen here that the core of opportunity recognition behavior is both rational and creative strategic thinking about of a business situation, through which a business concept is to be constructed, and this construction to be both individual and social. Further, strategic thinking is seen to consist of types of behavior such as knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action (see, e.g. Miller 1987). These areas of behavior are in line with the studies presented above and probably summarize most of the business opportunity recognition behavior the studies have dealt with.

Business opportunity. For Teach et al. (1989) business opportunity is a market concept. Thus, they underline that business opportunity to is the way a firm is going to operate in a market. Kaish and Gilad (1991) suggest that *"opportunity, by definition, is unknown until discovered or created"*. Opportunities are disequilibrium profit opportunities, which are recognized when bumping into them. Vesper (1991) sees opportunity as the idea of a venture. This implies that opportunity is a sketch or a rough illustration of the way a business is going to be created. Herron and Sapienza (1992) see opportunity as a rough idea about the context and the strategy of a business. The opportunity is not yet well elaborated but is more on the subconscious level. It is a vision of an entrepreneur that "I would like to work in this industry with this strategy". The entrepreneur doesn't yet know whether this is feasible but he knows that it is desirable. According to Herron and Sapienza (1992), the opportunity is an intuitive cognition resulting from the creativity of an entrepreneur.

Shane and Venkataraman (2000) argue that opportunities are new means-ends relationships between goods, services, raw materials, and organizing methods. Thus, opportunities are novel ideas how to create value and not ways to a more efficient use of goods, services, raw materials, and organizing methods (see also Gilad 1984). This could mean that, if the business opportunity is seen as an artifact of a problem solving process, so the artifact is not possible to logically deduce because the "information space" is so complex that the best possible decision is impossible to "calculate". Doing things better is possible to "calculate" because the ingredients exist, but when you are creating something totally new then there doesn't exist anything ready to be grabbed but you have to create everything you can grab there and then. It is like creating a game at the same time that you are playing it (as children's games many times are) instead of trying to play the familiar game more efficiently. Thus, the opportunity is not an end-result of a logical process but merely a conglomeration of fragments that will have to be made sense of while the situation is developing.

Shane and Venkataraman (2000) have also separated the terms of entrepreneurial opportunities from business opportunities. By entrepreneurial opportunities they mean the above mentioned new means-ends and by business opportunities more efficient ways of doing business. This study recognizes the difference and by opportunities or business opportunities are meant the new means-ends. Thus, this study doesn't use the terms entrepreneurial opportunities, business opportunities, or opportunities meaning sometimes different things. Here in this study all these terms mean new means-ends, i.e. "created new games".

The view by Woo et al. (1992) is that an opportunity is a market gap caused by incomplete information. Christensen et al. (1994) define an opportunity in the following way: *"An opportunity must be defined as having sustainable profit potential, beyond pure windfall profits, and one-shot deals, ... , and an opportunity must be defined as a market position, that is, a field of activity in which a company is competitive beyond the short run, and able to reap a profit"*. Timmons (1994) suggests the opportunity *"has the qualities of being attractive, durable, and timely and is anchored in a product or service which creates or adds value for its buyer or end users"*. Also Timmons stresses the market point of view. Opportunity is something that is valuable to customers, something that customers would like to buy. Here business opportunity is defined as Christensen et al. (1994), Timmons (1994), and Shane and Venkataraman (2000) defined it above. *Thus, business opportunity is a new means-ends relationship between goods, services, raw materials, and organizing methods coming into existence as a long-term profit potential based on a recognized market position, in which a venture is competitive beyond the short run and through which a venture*

can offer products and services that are attractive, durable, and timely and add value to buyers and/or end users.

Intellectual capital of entrepreneurs. Becker (1975) in his seminal book on human capital suggested that human capital strongly affects quality of behavior in business life. He defined human capital as consisting of experience-based and formal (education and technical skills) knowledge. Gimeno, Folta, Cooper, and Woo (1997) widened this to embrace entrepreneurs as well. Sveiby (1998) and Rastogi (2000) changed the term and used instead of human capital the term intellectual capital because it more clearly shows that it is a question of cognitive, learned (and learnable) capabilities. Sveiby (1998) and Rastogi (2000) also stressed that the concept should besides knowledge include also motivation and creativity because these have been noticed to be important vehicles of knowledge processing. On the basis of the studies of opportunity recognition (Timmons et al. 1987; Christensen and Peterson 1990; Kaish and Gilad 1991; Vesper 1991; Herron and Sapienza 1992; Woo et al. 1992; Bhave 1994; Christensen et al. 1994; Timmons 1994; Hills 1995; de Koning and Muzyka 1996) it is possible to see that certain intellectual capabilities characterize those entrepreneurs who are able to recognize business opportunities. These entrepreneurs have experience-based skills in the domain where they work, their formal knowledge of the area is often high, they have previous entrepreneurial/managerial experience, their intrinsic motivation pulls them to seek opportunities, and they are able to creatively question the present business situation. *Thus, the intellectual capital of entrepreneurs is defined as an individual capability to turn complex business information into a business opportunity. This capability consists of domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity.*

Social capital of entrepreneurs. Burt (1992) states that opportunities are recognized through social relationships (see also Coleman 1994). Social relationships work as social capital making it possible to receive information. The more an entrepreneur has these types of relationships that could provide information, the more probable it is that an entrepreneur recognizes an opportunity. Burt (1992) also points out that often those ties that are not personally well known offer the most influential information (cf. Granovetter 1973). Johannisson's (1988) entrepreneur is a network user who enacts the reality with other people. Entrepreneurs use their social relationships to infuse meaning into a vague situation. This could be interpreted so that people don't have an understanding of the future and they are as individuals very insecure about it. But, through social interaction they create a meaning, what could be the future, and when there are enough people leaning on this construction, it

is to many "a guess close enough". Without these enactment processes with their network, entrepreneurs wouldn't have their visions of the future states of businesses. Johannisson (1988) stresses that personal, emotionally close relationships are needed to make the enactment possible. Based on the above, entrepreneurs' social capital consists of social relationships in order to get information and advise in opportunity recognition. Further, social capital can be divided into three important dimensions. First, entrepreneurs need to have enough relationships. Thus, the number of relevant relationships is important. Moreover, weak ties might create the most important information because the information offered by them is not known to everyone. Second, personal relationships are important because through personal contacts it is easier to transfer tacit knowledge and create common future plans. Third, emotional commitment is needed in order for the relationships to be trustworthy and reciprocal (see Johannisson 1988; Larson and Starr 1993). Hence, social capital of entrepreneurs is defined in the following way: *Social capital is potentiality included in social relationships through which entrepreneurs get information, advise, and support, and enact meanings of the present and future states. It can be divided into amount of social interaction, closeness of relationships, and commitment to relationships.*

The above view of social capital is quite individualistic. Social capital is possible to see also more collectively. For example, Putnam, Leonardi, Nanetti (1993) and Putnam (2000) have studied how societies work as social structures and stressed the importance of social capital. In addition, embeddedness of human behavior in social features has been studied a great deal (e.g. Törnroos and Möller 1993; Uzzi 1996; Mainela 1998). Also innovative milieus (Keeble, Lawson, Moore, and Wilkinson 1999) and industrial districts (Becattini 1991) have been studied to understand the social nature of business behavior. However, the point of departure of this study to explain the phenomenon is how individuals try to recognize opportunities. Also previous research on opportunity recognition has been very individualistic until now, and as this study tries to clarify the picture of the previous research by constructing a holistic model based on it, the individualistic point of view is possible to justify. This doesn't mean that the above collective approaches aren't important or needed in the research on opportunity recognition. They are very much needed but from this particular study's point of view they belong to the future. However, the above points to a very deep gap in the research on opportunity recognition and in the future this must be covered more thoroughly.

Environmental dynamism in opportunity recognition. In prior studies of opportunity recognition (Christensen and Peterson 1990; Kaish and Gilad 1991; Christensen et al.

1994; Timmons 1994; Busenitz 1996), environmental dynamism is mostly seen as change that creates gaps and possibilities of new business. It is turbulence that constantly creates knowledge gaps and new knowledge. Thus, environmental dynamism works as some kind of "information capital" to entrepreneurs, who can seize this information by using their intellectual and social capital. Environmental dynamism is defined in the following way: *Environmental dynamism is turbulence taking place in the business arena (industry, technology, the market, etc.), which produces new information to be acquired.*

Performance in opportunity recognition. Performance has been studied in many ways (see Yli-Renko 1999). The studies of performance in opportunity recognition have proposed that performance deals mostly with the growth, profitability, and newness value of the business concept (Cooper 1981; Timmons et al. 1987; Timmons 1994; Timmons and Muzyka 1994; Birley, Muzyka, and Hay 1999). Further, the studies propose that performance is a result of value created for customers. However, here profitability is declined because it has been shown that among young ventures profitability poorly describes performance (cf. Yli-Renko 1999). Thus, this study defines *performance as value created for customers, or for end users, and could be seen as growth and newness value.* By growth is here meant growth of sales, market value, and number of employees. Newness value is seen as the new value added by the products and services to customers in comparison with competitors' products and services.

1.5. Structure of the study

The study consists of six chapters. The first chapter introduces the studied subject, presents the research problems and objectives of the study, shows the scope and limitations of the study, argues for the significance of the study, defines the main concepts of the study, and illustrates the structure of the study. In the second chapter the intellectual context of opportunity recognition research is presented when the new venture creation literature is briefly reviewed. The third chapter analyzes the studies of opportunity recognition and proposes hypotheses to be tested. The fourth chapter describes the sources of information, methods of data collection, methods of data analysis and interpretation, and discusses the validity and reliability of the study. The fifth chapter, again, presents the results of the empirical inquiry. The last chapter introduces the conclusions deduced from the empirical results and discusses the theoretical and practical implications of the study.

2. CONCEPTUAL CONTEXT OF BUSINESS OPPORTUNITY RECOGNITION: OVERVIEW OF RESEARCH ON NEW VENTURE CREATION

Above were presented the objectives of the study, how these objectives are to be reached, and definitions of the main concepts. Next, the purpose is to show from what theoretical backgrounds the study evolves. This chapter concentrates on the conceptual context of business opportunity recognition research, namely the new venture creation literature. Without knowledge of the context it is difficult to understand the focal phenomenon, business opportunity recognition, under study. The following overview presents the ground on which the studies of opportunity recognition should be based, and from which the conceptual tools used in opportunity recognition literature are mainly derived.

The purpose of the overview is not to cover all possible angles, but only the most influential ones, because the present study tries to understand opportunity recognition and not new venture creation per se. It is possible to suggest that the most influential approaches to new venture creation are economic approach, population-ecology approach, stage approach, social network approach, and strategic approach. The other possible approaches might be, e.g. trait, institutional, transaction, and discourse approaches (see, e.g. Taylor 1999). The last approaches are excluded from the overview because they haven't played, at least so far, a very important role in opportunity recognition research, although they maybe have done so in the new venture creation literature. Thus, these excluded approaches have mostly neglected the view that new venture creation is the behavior of entrepreneurs, and thus a processual phenomenon, which is the point of departure of this study.

2.1. The economic approach of new venture creation

The following approaches are more complex than it is possible to show here. Here are presented only those points that concern new venture creation/entrepreneurship. The theories are originally economic theories and their point of departure is the explanation of whole economies and not particularly entrepreneurship. These theories have, however, considered entrepreneurship and venture creation as an important part of economies, and based on them the modern view of entrepreneurship and new venture creation has been created.

Entrepreneurship and new venture creation research have been said to start from Cantillon's point of view of entrepreneurship. In 1734 he proposed that entrepreneurship and new venture creation are about seeing the link between what you have to offer and what is

needed. The new venture creator is a broker who operates between owners and workers taking the risks of buying at a certain price but selling at an uncertain price. The Physiocratic School also saw the risk involved especially in new venture creation. But, their view of risk was that investing capital was risky and they were not concerned about the uncertain incomes. Thus, to Physiocrats entrepreneurship and new venture creation were capitalistic actions and they saw that owners who invested capital were entrepreneurs. Smith and Ricardo, representing the Classical School, didn't accept the existence of entrepreneurship at all. To them capitalism and investing and harvesting capital were entrepreneurship, and thus, there wasn't any point in studying it separately. Bentham criticized this view and considered economies to grow only through the cleverness of new venture creators, because the lack of capital restricted the growth only by capitalistic actions. Thus, Bentham proposed that there was something else explaining the growth of economies than only investment of capital. That was entrepreneurial new venture creation. With this discourse, and discourses before that, in mind, Say then considered entrepreneurship to be action in which resources are organized into a venture. Thus, entrepreneurs were primarily coordinators, who produced economic solutions, and only secondarily capitalists. Thünen also distinguished entrepreneurship from capitalism, but also from management. To him entrepreneurship and new venture creation was about taking economic risks, which were not based on certain beforehand known incomes, as was the case among capitalists and managers. The incomes of entrepreneurs were, according to Thünen, grounded on entrepreneurs' ability to recognize opportunities to make profit. An entrepreneur was, thus, to him a person who was able to take creatively economic risks. (Cf. Hébert and Link 1989; Cuevas 1994; Gopakumar 1995.)

Like Say, the Marxist School saw that entrepreneurship/new venture creation was about combining resources. But, entrepreneurship was to Marxists about creating new capital by using resources and not the other way round as it was to Say. An entrepreneur was to Marxists a collector of capital, which caused the struggle between classes. The Marginalistic School suggested that venture creation and entrepreneurship were the managing of a venture. They saw that managing was rational directing of a venture based on economic information, calculations, organizing, and control, and the purpose was to maximize profit. An entrepreneur was to them an owner-manager, who didn't differ from employed managers. The Neoclassical School, then, saw that because entrepreneurship doesn't have a distinctive role, different from management, there is no need to study entrepreneurship. It could be proposed that they fully neglected new venture creation as a distinctive behavior. This view still holds in public opinions and often entrepreneurship and new venture crea-

tion are still seen as small-business management. In respect of this, the Neoclassical School returned to the ideas of Smith and Ricardo. However, Marshall of the Neoclassicists noticed that entrepreneurship has to do with skills to organize. On the basis of this, it is proposed that according to the Neoclassicists new venture creation was the rational organizing of actions, in which an entrepreneur in a deterministic way adapts into to the larger economic laws. (Cuevas 1994; Gopakumar 1995.)

Knight, who represented the Chicago School, defined entrepreneurship as tolerance of ambiguity. He saw, like Cantillon, that entrepreneurs were risk takers, but considered entrepreneurial risk to be the kind of risk that it wasn't possible to share. In this respect Knight agrees with Thünen's ideas. An entrepreneur was an actor who was able to handle the economic risks, which could not be removed by sharing them. Institutionalism considered new venture creation to be located in larger companies as well. Thus, Institutionalists launched the idea that new venture creation and entrepreneurship (intrapreneurship) could be found also in other contexts than in the creation of a new and usually small venture. (Cf. Hébert and Link; Cuevas 1994; Gopakumar 1995.)

Schumpeter introduced the basis of the German-Austrian modern view of entrepreneurship in 1934. He radically renewed the views of new venture creation and entrepreneurship by suggesting that entrepreneurship is about innovativeness. Schumpeter thought that entrepreneurs were economic agents, who caused changes and developments in economies by creatively destroying old ones. The Harvard School has adopted Schumpeter's legacy. Leibenstein developed further the ideas of Schumpeter and maintained that entrepreneurship is about finding effectiveness gaps, filling these gaps, and in this way developing economies. The view of the modern Austrian School is best illustrated by the ideas of Kirzner (e.g. 1979, 1981, 1997). He suggested that entrepreneurship and new venture creation presupposed alertness to market gaps and, thus, business opportunity recognition and exploitation. As it is possible to see, the present study leans on Kirzner when arguing that opportunity recognition is a crucial part of new venture creation. (Cf. Hébert and Link 1989; Stevenson and Jarillo 1990; Cuevas 1994; Gopakumar 1995.)

Critique. The above approaches have suggested that new venture creation and entrepreneurship imply allocation of resources and ownership, marshalling the ingredients of production, organizing, creation of capital, innovativeness, risk bearing, way of managing, alertness to business opportunities, and skills to refine. These views don't cover all the possible angles but probably the most important ones. The above can be to divided into

three larger streams: (1) capitalistic, (2) management, and (3) "boosting" approaches (Cuevas 1994). Capitalistic approaches stress ownership and capitalism. Into these theories new venture creation and entrepreneurship are about creating new capital through investing capital, owning the resources of production, and controlling the production. Of the above approaches, Physiocrats, Classiests, and Marxists belong to this category. Managerial approaches see new venture creation and entrepreneurship as managing the everyday duties of a venture. These approaches don't distinguish new venture creation/entrepreneurship from management. With respect to this, the school is close to the later presented life cycle approach to new venture creation, which also stresses managerial issues along the ventures' historical development process. In managerial approaches an entrepreneur is a manager of a firm's actions, and in a small firm there is one of these persons and in larger companies many. Of course the small business demands that management deals with all the possible angles but anyhow the content of actions is the same as it is in large companies. The most influential argument of these approaches has been that entrepreneurship doesn't have any particular effects or role in the economy, which is heavily criticized by boosting approaches. Managerial approaches of the above are represented by the Marginalistic School, Neoclassical School, Institutionalism, and in some respects Cantillon's ideas. The view of boosting approaches is that new venture creation and entrepreneurship are about creating, developing, and maintaining new businesses, and thus about creating new economic value. Here it is proposed that the approaches in this category have created the modern research on new venture creation. The view of boosting approaches could be seen as creativity that comes into the fore as innovativeness, a need to find opportunities, and tolerance of risks. Entrepreneurship is the force that pulls entrepreneurs to look for new possibilities. Entrepreneurs are, thus, creative and active individuals, who have a strong internal need to concentrate their creativity and energy on business activities. The approaches in this category are typical of the German-Austrian School, the Chicago School, the Modern Austrian School, and basically also of Cantillon's approach. (Cf. Cuevas 1994.)

None of the approaches is right or wrong, good or bad. Every one of them describes new venture creation from a somewhat different perspective. Entrepreneurship most probably consists of all the three lines of boosting, managing, and capitalizing behavior. Capitalistic function illustrates what motivates people to start ventures. For example, it shows that entrepreneurship creates wealth, through which new venture creation finds new targets to create new wealth. The main problem with the capitalistic approaches is that they give a too rationalistic and homogeneous picture of entrepreneurship. New venture creation is not always about maximizing wealth. The strength of the managerial approaches is that they

have tried to illustrate what entrepreneurs really do. The problem in these approaches is that they haven't differentiated entrepreneurship from management. It is so probably because they have studied wrong behavior. It is quite inevitable to find the same behavior, if it is thought that small business management is about entrepreneurship and large business management about management. It could be asked why should entrepreneurship be studied at all if it is only small business management or owner-managing. The boosting approaches give an answer to this – because it is a different phenomenon. The main strength of the boosting approaches is that they see the core of entrepreneurship and new venture creation. They have argued strongly what entrepreneurship is and how it is different from other areas of economic behavior. The problem these approaches have is that they have poorly explained how and why entrepreneurship and new venture creation behavior come into existence. However, the boosting approaches, and the other approaches above as well, have introduced the ingredients on which the later research on new venture creation has been built.

2.2. The population-ecology model of new venture creation

The seminal work by Hannan and Freeman (1977) proposed the interesting new idea that behavior and development of entrepreneurs should be looked at rather on the level of whole population than on the level of the individual entrepreneur. Later Aldrich and Zimmer (1986) elaborated the model further and suggested that the populations of entrepreneurs and enterprises could be very influential with regard to new venture creation. Thus, entrepreneurs are not venturing alone by themselves but as part of a population. The population-ecology model is grounded on three basic ideas: variation, selection, and retention. First, by variation is meant that a population produces many kinds of alternative solutions and that this "testing of ideas" secures the development of the population. Second, it is thought that of these variations the environment selects the variations having the best chances of surviving. Third, other actors start to imitate the selected variations because it seems that in this way their own success is secured. Based on the above, it could be seen that in population-ecology model the environment governs the pace of new venture creation. Social, economic, and political issues in the environment are the "motors" that influence what kind of ventures are created and how new ventures vary.

One of the most important observations made through the population-ecology model is the notion of the number of new ventures which are dependent on the resources in the environment (Aldrich 1990; Specht 1993). Thus, the carrying capacity of the environment can not be crossed although how good ideas and potential entrepreneurs are there. This is sup-

ported by the empirical results showing that the number of new ventures is dependent on the number of ventures founded and closed in the past. First, the growing number of ventures in the population could tell possible entrepreneurs that there are exploitable opportunities, and thus, the formation of ventures increases (Aldrich 1990). Second, the deaths of prior ventures affect, on the one hand, issues so that, when these ventures release resources, free resources encourage new entrepreneurs to establish businesses. On the other hand, deaths of ventures could also scare possible entrepreneurs (e.g. Halliday, Powell, and Granfors 1987). Also it has been shown that these effects are dependent on the phase of the population in its own life cycle. According to Aldrich (1990), earlier established ventures affect issues so that in the beginning of the life cycle the influence is mildly positive because entrepreneurs see new opportunities. In the middle of the life cycle of a population, when the legitimacy has been earned, the establishments show that there are plenty of opportunities, and thus, the effect is very positive. Later in the life cycle, when the number of ventures increases all the time, the influence becomes negative because there are too many taking a part of the profit (see, e.g. Delacroix and Carroll 1983; Hannan and Freeman 1987; Carroll and Hannan 1989; Barnett and Amburgey 1990; Ranger-Moore, Banaszak-Holl, and Hannan 1991). These results are important as they show that by analyzing the prior births and deaths of ventures it is possible to roughly see the present carrying capacity.

Another interesting finding is that a population and its internal processes are dependent on the size of the population itself (Aldrich 1990). The size of the population has both positive and negative influences on new venture creation. When the number of ventures increases, the legitimacy of and respect for these types of venture increases. This way they earn their place among the other populations of ventures (see, e.g. Halliday et al. 1987; Carroll and Hannan 1989; Barnett and Amburgey 1990). On the other hand, the rise in the size of the population causes also there to be more skills and knowledge how to establish a venture, furthering the possibilities of surviving (e.g. Hannan and Freeman 1987; Romanelli 1989). In addition, the increase of the same kind of ventures makes collaboration possible, and this also helps the population to survive (e.g. Hannan and Freeman 1989). The size of the population has still its negative effects: The more ventures there are, the more there are those who want a share (e.g. Hannan and Freeman 1987). Too many ventures also lead to an excess of the carrying capacity of the environment. This, again, is a bad sign for venture capitalists and other resource holders (e.g. Aldrich 1990).

Earlier was mentioned that the phase in the life cycle is an important affecting factor. Aldrich (1990) suggests that certain types of organization forms survive best in certain phases

of the life cycle of a population. Based on his views, in the early phases the best organization form is the quickly moving specialist offering services to one segment flexibly according to that segment's needs (see also Lambkin and Day 1989). When this early "ecstasy" is over and "normal" business started, the most effective ventures are those that use their resources more efficiently and serve all kinds of customers. Then, when the population is approaching its latest phases and its carrying capacity, the most viable organization form is still the one that uses its resources efficiently. What has changed is how the different segments of customers are served. Now the service and the products are customized to fulfill the requirements of each segment separately. The above results are extremely interesting since they show that knowing one's population and the phase in the life cycle are very important when planning the strategy and the way of doing business (cf. Barnett 1997).

The population-ecology model could be divided into the phases of variations, survival, legitimacy, re-productivity, and uniformity (e.g. Nelson 1995). In the first phase the entrepreneurs of the population produce different types of variations, i.e., businesses. It could be thought that entrepreneurs don't know what kinds of businesses succeed. Hence, they must produce all kinds of alternatives in order to see which work and which don't. In the second phase the selection system chooses the most applicable solutions. The idea is that the best ideas survive and the worst ones disappear (Odagiri 1997). In the business world markets work as a selection system. In the third phase the successful variations have gained legitimacy in the eyes of entrepreneurs and customers and these variations are imitated. Legitimacy leads to growth in the number of these types of variation because they seem to have a place in the selection of markets. The content of the fourth phase is, thus, that certain kinds of variation are created again and again. In the fifth phase there is a uniform opinion that just this variation is the best one and the specific kinds of businesses need to be established if success is to be secured. Almost all the variations are alike. It is no more asked if there is a need for new kinds of variation and would new types of variation be a key to new developments. As a result, the next phase could then create a radical variation, which differs a lot from the successful one. It starts the above process again (see Nelson 1995). It is also possible that the number of variations starts to sink and that the number of ventures in the population starts to decrease as the carrying capacity is exceeded (see, e.g. Aldrich 1990). It is important to notice that in an economy there can be numerous population-ecology processes, which go on in different phases. Thus, analyzing an economy is difficult.

What kind of behavior, then, is the one presented above? If it is examined strictly on the level of the population, the view is very deterministic, antivoluntaristic (see Burrell and

Morgan 1979), and an entrepreneur has no other function than adapting. Nevertheless, modern population-ecology doesn't see an individual not able to think himself/herself or that (s)he must accept the situation as such (e.g. Greenfield and Strickon 1981). Merely it is seen that an individual is aware of the mechanisms of variation and selection. Even though (s)he couldn't, thus, know for sure what variations are going to be selected, (s)he has the ability of abstract imagination, through which the selection could be imagined. What is essential to notice here is that entrepreneurs have the opportunity and ability to "read" the selection mechanism and create new variations based on the knowledge. On the other hand, it is still possible that an entrepreneur doesn't care about reading the information. Thus, (s)he just might try his/her luck randomly. The above suggests that in the population-ecology model an entrepreneur is seen more as a decision-maker than as a sense-maker. This is here seen to be so because of the role of entrepreneurs to read the past and to make their future decisions based on that. The basic assumption in the model is that the environment is given based on which the individual then tries to make as rational decisions as possible. Entrepreneurs don't create their future, they adapt to it, even though they understand what has happened before. What an individual can do is to act, in given frames, as rationally as possible. Thus, it is possible to propose that the population-ecological model of new venture creation is rational decision-making under given circumstances.

How should the dynamism between an individual and the whole population then be seen? It is possible to suggest that variation- and selection mechanisms don't exist without an individual. When we are talking about variations of human beings, it is quite clear that they don't emerge in a completely random way. It is merely a question of skills of individuals to create variations. An individual has the possibility of influencing variations, and also selection, because (s)he is an intellectual being. However, the unit of analyses in the population-ecology model is usually the whole population and not an individual, or a firm. Even though it recognizes the importance of an individual and intellectuality of human beings, it wants to study human behavior in larger populations because it is also clear that there are wider patterns concerning wider groups of people. The model suggests that there are population level laws, which should also be understood (e.g. Hannan and Freeman 1977; Weick 1979; Delacroix and Carroll 1983). Therefore, the point of departure of new ventures in this model is the population and not an entrepreneur or his/her venture.

Critique. What are the strengths of this model? Greenfield and Strickon (1981) have claimed that the population-ecology model of entrepreneurship is initiated as a critique of the inability of economic approach, trait approach, and stage models to explain how

economies and societies develop from one phase to another. According to this claim, economic, trait, and stage models describe the phases but not the movement from one phase to another – they describe the characteristics of the different phases but do not analyze the process itself. The critique concentrated also on the individualistic point of view of the trait and stage models (see Aldrich and Zimmer 1986; Aldrich 1990) and the inclination of those models to see the creation of entrepreneurship to be a result of individual or firm characteristics. By contrast with this, the population-ecology model sees venture creation to be initiated by dynamism of the whole population. The population-ecology model has had an important effect on venture creation literature as it has indicated that establishing a business is not only an individual process but also a populational process. Population-ecological model has pointed out that venture creation could be and should be scrutinized also in the wider context than that of individual entrepreneurs. New venture creation is not just organizing a single venture but a part of larger, population level business initiation. In post-modern digital-economy this is clear (see, e.g. Hamel 1998; Castells 2000; Himanen, Castells, and Torvalds 2001).

As a critique of the population-ecology model, the following could be put forward: The claim that the carrying capacity of the environment is not possible to exceed is, at least partly, an overestimation. It forgets that an entrepreneur as a thinking and creative being is able to create needs, affect his/her environment, and in this way stretch the carrying capacity of an environment. By inventing, for example, cheaper solutions the carrying capacity of the environment could change dramatically. On the other hand, many of the results are still contradictory (see Aldrich 1990), even though they have shown the importance of the population. Bygrave and Hofer (1991) have proposed that based on the model it has not predicted the development of a population reliably and the results, which have been indicated, are mostly grounded on historical analyses, and thus, they are not reliable. Another important deficit in the model is that it puts the individual's creativity aside (cf. Aldrich and Zimmer 1986). Although it recognizes it (e.g. Greenfield and Strickon 1981; Specht 1993), the creativity of entrepreneurs stays in the shadow of the selection of a market. Bygrave and Hofer (1991) also criticize the inability of the model to predict the future entrepreneurs or the futures of the established ventures. According to Bygrave and Hofer (1991), it is not enough to be able to forecast the number of new ventures. To new venture creation the most interesting and important entrepreneurs and ventures are those that are different from the normal population, because they renew the industry and "kick" the whole economy forward. The population-ecology model can't locate these, and therefore, the population-ecology model is not alone enough when studying new venture creation. Creation of

variations is critical in new venture creation and it is quite impossible without individual imagination. Authors using the population-ecology model have tried to solve this problem by proposing that entrepreneurs and new variations will emerge if there are enough resources in the environment and if access to these resources is secured (Romanelli 1989). As a whole, the problems of the model could be results of the empirical enthusiasm that has prevented theoretical developments from gaining enough attention (Specht 1993).

2.3. The stage approach of new venture creation

Ardichvili, Harmon, Cardozo, Reynolds, and Williams (1998) divide stage approaches to new venture creation into (1) organization development models and (2) life-cycle models. Organization development models concentrate on phases leading to organization development while life-cycle models usually concentrate on the phases from the organization's initiation to its decline. Although the life cycle models also deal with the later phases than the venture creation, they usually include organization development and, thus, opportunity recognition as the first stage. Thus, the approach is reviewed using the above classification.

Organization development models. These models see that organizations should be understood by analyzing how new organizations are developed. There exist many organization-development models (see Ardichvili et al. 1998). Thus, next are presented only those that are interesting from the point of view of this study. The following models include in some form opportunity recognition as an important part of organization formation.

Bird (1992) maintained that new venture creation proceeds as a development of intentions in time. By this she means that, based on environmental rhythms, individual characteristics, cognitions, windows of opportunities, and markets, entrepreneurs' intentions developed according in conformity with some directions. This might or might not be a new venture creation. She proposes that, first, future time perspectives and energy-level persuade some individuals to think about entrepreneurship. Second, she sees that this interest interacts with environmental dynamism and technological developments and may cause cognition of an opportunity. This cognition combines personal interests and environmental possibilities. Fourth, entrepreneurs decide what is the timetable of venture creation. Fifth, entrepreneurs plan the business more closely and decide on the schedule of the activities. Lastly, (s)he decides whether this whole process is valid and whether to proceed or not.

Hansen and Allen (1992) suggested that environmental load initiates new venture creation.

By this they meant that, when the environment is changing fast, there exist opportunities and the skillful entrepreneurs start to analyze the information in order to find possibilities of new businesses. Second, the authors saw that entrepreneurs cognitively process environmental information. Entrepreneurs process in order to connect the information and to find gaps in the environment. Third, they claim that, if environmental dynamism and information processing of entrepreneurs meet, new venture creation is likely to occur.

Herron and Sapienza (1992) present a somewhat more complicated model. They see that entrepreneurs' values, their contexts, and personality traits develop aspirations to new venture creations. Thus, they see that attitudes and training influence what the entrepreneurs' skills are like. This then affects the aspiration. Second, Herron and Sapienza (1992) argue that, if an entrepreneur has an aspiration to new venture creation, this leads to dissatisfaction with the present situation and thinking of new possibilities. If entrepreneurs see that they have the needed skills, they start to search for business opportunities. Often the search for opportunities ends up with the discovery of a strategy that works in a certain business context. Next, entrepreneurs evaluate the opportunity more closely. Last, they activate the launching, if the evaluations support this.

Learned (1992) introduced a model in which, first, traits and backgrounds of entrepreneurs lead to a propensity to start a business. Second, he claims that the situation determines whether intentionality to venture creation is created or not. Third, entrepreneurs try to cognitively make sense of the situation and create an opportunity in their minds. If the result is positive, then the intention will lead entrepreneurs to decide to establish a venture.

VanderWerf (1993) suggested that new venture creation should take place in a funnel. He argues that new venture creation happens quite quickly, if certain circumstances are present. First, he argues that entrepreneurs should perceive industry to be attractive and opportunities to exist. Second, entrepreneurs should see the pool of potential entrants to be suitable. Third, the author sees perceiving positive publicity to be important. Fourth, entrepreneurs should think that capabilities and resources are strong enough. Fifth, competition shouldn't be too hard. Last, if these are present and entrepreneurs perceive them as positive, then new venture creation is likely.

Busenitz and Lau (1996) proposed that social context (network, ecological niche, and market conditions), cultural values (individualism, uncertainty avoidance, power distance, masculinity, and time orientation), and personal values (risk-taking, locus of control, and

achievement motivation) interact promoting the context of venture creation. Second, an entrepreneur cognitively processes all the above tangible and intangible information. The authors claim that entrepreneurs try to construct a schema, a cognitive map of the situation. This cognitive map shows what the business opportunity is and where it is to be found. Third, this schema of opportunity is processed into heuristics by entrepreneurs. This means that the schema is still too complicated and, thus, it is processed into simpler behavioral rules (heuristics). Fourth, the intention to start new venture creation is created based on heuristics. Last, these intentions tell entrepreneurs it is reasonable to proceed to realization of the new venture creation.

Mitchell, Smith, Seawrigth, and Morse (2000) have presented a similar type of model as Busenitz and Lau (1996). Mitchell et al. (2000) claim that cultural values establish interest in venture creation. Then, entrepreneurs cognitively process the environmental information. The authors claim that entrepreneurs try to understand how the business should be organized, how willing they are to start a venture, and how capable they are to do so. In other words, they try to recognize an opportunity. Then, entrepreneurs look again at the situation and what the cultural values advise them to do. Last, they make the decision to create or not to create a new venture.

If concluded, it is possible to see that the models propose that the interaction between individual qualities, environmental situation, social processes, and cultural values cause an interest in venture creation. The cognitive processes of entrepreneurs are then involved the sense making of the situation. Entrepreneurs want to understand how capable they are, where they can find resources, what the markets are like, whether there is room for new ventures, and whether venture creation is wanted in their social context. This is the rough sketch of an opportunity. Then, the business is evaluated and planned more closely, i.e., the opportunity is elaborated and a strategic concept developed. Last, if the above phases support new venture creation, it is decided to proceed to actual venture establishment.

Critique. The above models are very important when trying to understand new venture creation. However, they are mostly too broad and describe the process at a general level but don't tell what entrepreneurs really do in the various phases. Most of the models underline the cognitive processes of entrepreneurs. These are, for sure, present in the new venture creation, but the models are not able to show what happens in entrepreneurs' minds when they perceive and interpret the information. Thus, the effects of individual qualities, environmental situation, social processes, and cultural values have been studied quite superfi-

cially. The models don't explain, for example, if the processes are somehow different in different environments. Thus, the models are merely loose descriptions of the new venture creation but not precise enough for empirical studies.

Life-cycle models. Life-cycle models basically study growth of ventures. However, new venture creation is an essential part of this growth process. Many studies (see Hanks, Watson, Jansen, and Chandler 1993) have used the life-cycle approach also to understand the initiation of new ventures. The life-cycle approach presents the evolutional context for opportunity recognition, and thus it is important to review it here.

New venture creation as a life-cycle process has been analyzed in many studies (e.g. Greiner 1972; Swayne and Tucker 1973; Webster 1976; Vesper 1980; Timmons 1981; Churchill and Lewis 1983; Miller and Friesen 1984; Scott and Bruce 1987; Kazanjian 1988). These studies have looked at new venture creation from the viewpoints of crises, content, or success factors. The goal of these studies has been to model new venture growth as an evolutionary phenomenon that includes phases from creation to decline. The point of departure in many studies has been the study by Greiner (1972), in which the new venture creation is seen to be developed through crises. Greiner (1972) has proposed the following phases: (1) growth by creativity, (2) management crisis, (3) growth by concentration, (4) independence crisis, (5) growth by delegation, (6) control crisis, (7) growth by coordination, (8) bureaucracy crisis, (9) growth by cooperation, and (10) unknown crisis. In Greiner's model new venture creation takes place in the creativity-phase.

The model by Greiner (1972) shows how ventures of all sizes develop. On the other hand, Swayne and Tucker (1973) have seen the entrepreneurial process as consisting of conceptualizing, planning, and action. This model stresses the content of new venture creation. Vesper (1980) and Timmons (1981), then, concentrated more on the early phases of the entrepreneurial process and described the process through success factors. Vesper (1980: 109) has proposed that the process includes the following phases: knowledge acquisition, business opportunity identification, relationship creating, obtaining physical resources, and getting orders from customers. In Timmons's (1981: 130) model the ingredients are competencies of an entrepreneur/a team, business opportunity, business plan, and finance. Scott and Bruce (1987) have indicated that the new venture creation process includes the following phases: initiation, survival, growth, expanding, and maturity. The model by Scott and Bruce (1987) is based mainly on the model by Greiner (1972). They use it to explain creation of small, independent businesses. Whether it is possible to model the new venture

creation so rationally as the above studies have proposed is a question that can be asked. It is not answered here but is only recognized that life-cycle models have been proposed and illustrate one view of how new venture creation can be explained.

If the empirical results of the life-cycle models are described, the following could be said. First, the conceptual phase includes the interaction between the social context and the entrepreneurs' own experiences, knowledge, and skills. As a result of this phase, an entrepreneur becomes sure that (s)he wants to start a venture (cf. Scott and Bruce 1987). Through the interaction of the above issues entrepreneurs also construct a business opportunity in their minds. To the conceptual phase also belongs further development of the opportunity and evaluation of it and planning the business concretely (cf. Scott and Bruce 1987). The core of the conceptual phase is to turn the dream of the venture into realizable business activities and in strategies for doing business. The crisis of the phase is how the entrepreneur can change his/her vague ideas into a business opportunity and a business plan that has possibilities of success. The initiation phase is about creating an organization. An organization is created in order to exploit the recognized opportunity (Bygrave 1993). This phase includes, among other things, legal establishment of the venture, organizing the management team, constructing the production system, developing the products/services, organizing the finance, and commercializing the products/services (cf. Scott and Bruce 1987). The main ingredient of this phase is to turn a realizable business into a real business. Crises are about how to get enough capital, coordinate activities, and organize the time schedule of the entrepreneur (cf. Scott and Bruce 1987). The survival phase is about stabilizing the business venture as a firm (Scott and Bruce 1987). This phase consists of solving the main problems of the venture, "throwing out" shareholders who are not fully committed, and taking control of the business activities (Scott and Bruce 1987). The main ingredient is to change the real business into a steady business. Crises are now more complicated. They concern selling, basis of competition, and knowledge acquisition (Scott and Bruce 1987). To solve these problems, entrepreneurs must create management systems either by educating themselves or by hiring professional managers.

The growth phase is about "wrestling" with the profitability. The phase includes coordination of the work of managers, formalizing the policies, developing control-systems, starting R&D-activities, and starting to live with fast growth (Scott and Bruce 1987). The most important thing is not any more to survive but keep the activities under control. The main content is now how to turn a stable business into a profitable business. Crises are in this phase threads of large companies and need to expand to new markets. These crises require

new management skills both from the entrepreneur and his/her employed managers. The phase of expanding is concentrating on controlling the activities more firmly. This controlling is taking place as budgets, formal reports, and control systems. The aim of the operations is now to develop official policies in order to control the various activities (Scott and Bruce 1987). The main issue is to turn the profitable entrepreneurship into a professional business. Crises are created by the fact that managers are now far away from the real "hands-on" business and that customers should be known more closely (Scott and Bruce 1987). What is normal to the maturity phase is that the venture leans on its old opportunity and doesn't start to search for new possibilities. Cost controlling and efficiency characterize this phase (Scott and Bruce 1987). Now the main challenge is to change the professional management into the effective management. In the declining phase, the venture is "dying" or new opportunities are recognized. The main purpose is now "to get rid of the old" in companies that renew their activities and "to squeeze the rest of the juice" out of dying companies. The crises concern the renewing of the business.

To what kind of behavior does the above refer – to decision-making or to sense-making? The approach expects new venture creation to develop like an organism. The "laws" of the stages govern the development of this "venture-organism" and order how a venture grows from birth to death. An entrepreneur tries to understand and learn on the basis of what (s)he has experienced. A venture develops cumulatively in its historical context. Greiner (1998) proposes that new venture development is affected more by earlier decisions than by present situation and market dynamics. A venture proceeds like with its back turned in the walking direction and the eyes on the past trying in this way to make sure that it learns from what has happened. The view of an individual is a bit distant because the phases are so important. However, it is possible to see between the lines that individuals are sense-makers and learners of their past experiences. Thus, individual behavior is more sense-making than decision-making. In the approach sense-making and learning are "past-oriented" and, thus, individuals don't try to enact the future but live in the present.

What is the relationship between individual and context in the approach? The focus of the approach is clearly on one entrepreneur and one firm. The approach sees the world through the eyes of a venture. The outside world affects the venture and the entrepreneur but the effect is distilled through sense-making. For example, Greiner (1998) proposed that the industry affects the length of a phase. This suggests that industry dynamics is not so important but the venture that is affected by the dynamics. Processes and dynamics take place at the venture, not the industry, level. General social- and contextual processes, in which an

entrepreneur or a venture would be in the background, are not relevant in the model.

The model has received a lot of empirical support (Greiner 1998). The discussion has been removed from the length of the phases to the internal dynamics of the phases. One important notion that this approach has offered is that every phase should be managed differently. It has also shown the importance of learning because every phase is very different requiring different skills. A third important result is that it has indicated that the past affects the present very strongly. These models have also shown the role of opportunity recognition in a wider evolutionary process of venture development. This is important to this study.

Critique. The life-cycle approach describes the new venture creation process by defining where the process starts and where it ends, and tries to explain the change from one situation to another using various phases. The main research procedure is to study the variables affecting process development and based on changes in them to elaborate the process model. For example, it is possible to study what kind of information an entrepreneur is looking for before (s)he has established a venture and what kind of information (s)he needs two years later. Then it is compared how and what kind of information is needed and deduced some kinds of phases which should represent the process. The problem is that this procedure doesn't really study the process but behavior at two ends (Frank and Lueger 1997). To study how the process is really proceeding different kinds of tools are needed. Another critique is centered on the lack of context in the approach. Based on the latest research (Sigrist 1999), context and social processes are impossible to leave out of the phenomenon. However, the life-cycle approach tries to move the context to a control variable. It is, thus, proposed here that if it is wanted to develop the approach further, social and contextual processes should be included in the model. Third, it is critized that in the model an entrepreneur is not an intentional actor. (S)he doesn't think about the future but behaves here and now only. Fourth, Vinnell and Hamilton (1999) have indicated that the phases are embedded in time. The same venture can be sometimes growing fast, sometimes it is dying, then organized again, and finally again growing. Thus, the phases are not universal but very unstable and influenced by both internal and external changes.

2.4. The network approach of new venture creation

The seminal articles, like those by Johannisson (1984), Birley (1985), and Aldrich and Zimmer (1986) proposed that businesses are created by social interaction. The network approach of new venture creation differs from the other approaches in that according to it

new businesses are created together by several individuals and not by an entrepreneur alone (Larson and Starr 1993). The basic idea of network theory is that venture creation is socially embedded action and achieved through social relationships (see also Coleman 1994). The critique suggested by the network theory points at the traditional individualistic view of entrepreneurship. Johannisson, Alexandersson, Nowicki, and Senneseth (1994), for example, criticize strongly that entrepreneurs are often seen as anarchists, who through ventures prop up their own independence. According to them, entrepreneurs are rather social actors, who through their social networks organize things to happen. The view of network theory of the new venture creation is, thus, that entrepreneurs create ideas of ventures together with their social relationships, start to discuss and enact with people the possible future vision, and begin to organize resources in order to realize the vision. The main ideas are that the acting unit is the social community, behavior is socially embedded, and the guiding forces are trustworthiness, reciprocity, and value creation.

The comprehensive review of the results of network theory by Huggins (2000) suggests that the main results concern (1) learning through interaction, (2) the effects of size and function of networks, (3) embeddedness in context, (4) the importance of trust and reciprocity, and (5) organizing through a network. First, the studies of the dialogical network model of the new venture creation suggest that establishment of a business is a collective process (e.g. Reynolds 1991; Johannisson et al. 1994; Keeble, Lawson, Smith, Moore and Wilkinson 1998; Keeble, Lawson, Moore, and Wilkinson 1999), in which a venture is created by cooperation with many instances and in which the entrepreneur is the driving force that has the capability to legitimate the use of resources in his/her own venture. As a result of learning, an innovative milieu is created, in which knowledge, skills, and other resources are in interaction. Learning together in the innovative milieu works as social and mental support in the vague new venture creation situation (cf. Keeble et al. 1999).

A second important result is the role of weak links in bringing up new information (e.g. Granovetter 1973; Burt 1992). It has been seen that well known relationships don't bring much new information based on which something new could be created. Therefore, the relations to weak ties, friends of friends and people you meet every now and then, and who don't belong to your immediate social network, can bring that kind of new information that creation of something new is possible. Burt (1992) talks about the same phenomenon by using the concept of structural holes. He has noticed that the best things are done and innovated by individuals who locate in the network so that they are the only link between two or more networks. Thus, such a person has access to information of all these networks

while the others know only their own network's information. On the other hand, the number of relationships matters (Birley 1985; Aldrich and Zimmer 1986). Close relationships with many people offer a fast route to different resources. If you don't know anybody, who could help you in new venture creation, and you are yourself not too familiar with it, the new venture creation is very difficult. A wide social network serves as the route to information gathering, the ground for idea evaluation, a resource base, and a learning context. Thus, a wide social network has an important role in new venture creation.

Third, Reynolds (1991) suggests that the most central notion of social networks in new venture creation is that almost always new ventures are established in the familiar environment close to home and with familiar ways of handling issues. Thus, it is suggested that new venture creation is embedded in entrepreneurs' social context (e.g. Aldrich and Zimmer 1986; Starr and Fondas 1992; Oliver and Liebeskind 1998). This notion supports the idea that a new venture is created together with the social relationships. If this were not the case, entrepreneurs would go there where new venture creation is the easiest. But because they don't have contacts in the new environment, they stay where they are at the moment. In familiar contexts entrepreneurs know the possible investors, customers, suppliers, etc. The network offers them significantly information and the resources needed. This has been indicated by Johannisson (1988), who pointed out the value of the social network in business formation. Further, the research on networks has also pointed out that new venture creation is not characterized by the profit optimizing but, as was stated before, by the social embeddedness (e.g. Johannisson et al. 1994; Zafirovski and Levine 1999). New venture creation behavior is initiated by the interaction with the social community you live within, and often greediness is not acceptable in the entrepreneurial community, if the community has helped and advised the new entrepreneur.

Fourth, it has been indicated that success requires trustworthy and reciprocal relationships (e.g. Nahapiet and Ghoshal 1998; Oliver and Liebeskind 1998; Floyd and Woolridge 1999). Venture creation is not about choosing the most efficient option possible but merely about the creation of trustworthy and reciprocal relationships, in which both parties want to invest in the long term development of the venture. It has been seen that in venture creation the creation of the needed actions is about creating a "social contract" (Starr and MacMillan 1990; Taylor 1999). It requires relationships that are based on trust and reciprocity.

Fifth, based on the above results, it could be seen that social network theory defines new venture creation as a dialectic phenomenon, in which the entrepreneur and resource provid-

ers in the context initiate the new venture through interaction (cf. Reynolds 1991). Larson and Starr (1993) have proposed what is probably the most comprehensive model of the new venture creation process – how a venture is organized using networks (see also Ring and Van de Ven 1994; Keeble et al. 1999). They suggested that in the process are studied, experimented, evaluated, and chosen social relationships in order to use them in business formation. According to them, the dialogical new venture creation process proceeds so that first an entrepreneur observes the people whom (s)he knows and who could help in the creation of a business. (S)he talks with them and tries to convince them that it is reasonable to invest resources in his/her venture. The entrepreneur also tries to find out the relationships of his/her relationships. Both parties evaluate each other and try to find features that would create a feeling of trust so that the cooperation could start. The first phase could be summarized by saying that the entrepreneur scans different types of relationships and their resources and tries to construct trustworthy relationships. The end of the first phase is that the picture of the business the entrepreneur has in his/her mind turns into a concrete plan of actions, in which is known where the resources can be obtained. In the second phase, according to Larson and Starr (1993), it is a question of turning the one-sided relations into two-sided relations, from which both parties profit. Thus, in new venture creation it is not a question of the entrepreneur wanting something and using relationships to get this but to find together with his/her supporters win-win situations in which both sides are satisfied economically and socially. Thus, it is a question of reciprocity and trust building. Without of these, relationships won't work. Larson and Starr (1993) suggest that this happens by the skills of entrepreneurs to argument, justify, and work as "bridge builders". The building of trust and reciprocity is about taking risks in small steps and learning through trial and error, in which the value of the relationship is constantly evaluated and in which through this constant evaluation the meaning of the relationship is created. The second phase ends by a common understanding of the nature of the relationship being created, or not, and both parties being ready to invest in it in order to reach the purpose of the relationship.

In the third phase, then, the relationship becomes more formalized and more layers characterize it (Larson and Starr 1993). The early relations were quite simple and personal to the entrepreneur and his/her contacts. Now, the relationships involve, for example, transportation, marketing, paper work, research and development, etc. The exchange touches many other individuals than the original parties only. On the other hand, layers in the relationships mean that certain individuals have closer contacts with their colleagues and sub-relationships start to emerge. Third, norms and routines also start to emerge. In the fourth phase, in which the network as a new venture creator is crystallized (Larson and Starr

1993), enough relationships has emerged and they are stable enough to be able to say that the new venture has emerged. Thus, the network theory sees that a new venture has been created when relationships, and resources through them, are at such a level that the achieved benefits satisfy all parties. Hence, a temporary network coalition is created in order to create value (Taylor 1999).

So, how can the behavior of entrepreneurs be described? The network model sees the behavior as socially constructed, i.e., dialogical (Larson and Starr 1993). An entrepreneur in cooperation with his/her social context builds on the basis of personal relations, common understanding, and experience. Using this common ground the entrepreneur then tries to create a network of relations that would be stable with respect to the resources flowing through the relations. In this situation, in which the relationship is stable, both parties benefit from it, and trust each other, it is not achieved by making the decision that "this is the way we do it and this is the way to achieve it". The situation is achieved by continuous, incremental learning, in which learning takes place by creation of common understanding through interaction. Thus, social systems are not decision-makers but sense-makers (Weick 1979). It should be stressed that in the network model this sense-making is not an individual, cognitive process but created by using social interaction, discussions, and enactment of common worlds of meanings. The behavior is, thus, meaning-building and reality-construction and not decision-making under the circumstances. Thus, there aren't solutions that could be deduced by logical reasoning but they must be created together with others in that social situation in which those individuals live within.

Where does this type of behavior then initiate – from an individual or from a context? The network model doesn't like the population-ecology model see that individuals are not in an important role. *"An individual is a whole personality and social-economic actor, who has his/her own history, private problems, and economic interests"*, according to Larson and Starr (1993). As Johannisson et al. (1994) have stated it, they see entrepreneurs rather as organizers who control dependencies, than as anarchists who need independence. However, an individual is not an "island" but individuals behave as systems of communities (Larson and Starr 1993). The behavior is, thus, more established by the contexts than by individuals. Thus, the focus of the model is more social than individual.

Critique. What is positive about the network theory is that it has pointed out the social nature of venture creation. Venture creation doesn't happen in an entrepreneur's mind, but also through the discourse of a social community and through common meaning building

(Johannisson et al. 1994). Its strength compared with other models is that it takes into consideration both individuals and contexts. It reflects more realistically entrepreneurs' actions when it sees behavior to be socially embedded. Thus, the model doesn't artificially restrict individual economic behavior from other social behavior. Thus, economic behavior is not governed only by market prices, rational utilities, and/or transaction costs.

The model has been criticized for too often concentrating on the structure of networks and not on the dynamics (Mønsted 1995; Huggins 2000). Also the research often pays less attention to the business dimension of new venture creation and focuses too much on social interaction. It is sometimes like studying social organizations in business context forgetting that business should be the phenomenon under study. Third, some even suggest (e.g. Amin 1993; Curran, Jarvis, Blackburn, and Black 1993) that social embeddedness of business actions is often overestimated and doesn't have strong empirical support.

2.5. The strategic approach of new venture creation

This approach sees that new venture creation is a way to lead a company strategically. It argues that this way to lead a company comes into existence as entrepreneurial orientation, i.e., as general philosophy or a posture in which is involved constant search for possibilities of creating new ventures (Miles and Arnold 1991). New venture creation is about leading a firm entrepreneurially. Thus, new venture creation in this approach is a strategic behavior pattern through which new businesses are searched for. Covin and Slevin (1991) argue that it is behavior, not individual or organizational attributes, because only actions give meaning to the entrepreneurial process. New venture creation is, thus, not so much about establishing a company but about creating, renewing, and transforming businesses (see, e.g. Covin and Slevin 1991; Hamel 1998). Lumpkin and Dess (1996) propose that new venture creation in this approach is not aimed at the establishment of a company, but the approach is more interested in the behavior before the venture launching that leads to the establishment. Nevertheless, new venture creation has been seen as behavior which seeks to innovate new opportunities, exploit opportunities, and move organizations and society forward (Miles and Arnold 1991). It is also important to notice that this approach sees that new venture creation is the behavior of a firm (Zahra 1993). It takes place as a kind of overall strategic philosophy describing the actions of the firm and not the individual entrepreneur, although in the case of small firms it could be the same thing. The overall claim of the approach is that the strategic posture of a firm on creating effortlessly new businesses enhances the performance of the firm. If summarized, this approach sees new venture crea-

tion as the strategic orientation of a firm. Thus, according to this approach the new venture creation of an entrepreneur is involved in his/her way of thinking about the business situation. New venture creation is a behavioral pattern of entrepreneurs aimed at creating new businesses, not only establishing new ventures but also reshaping existing ventures.

What is the strategic new venture creation behavior like, which takes place in a venture? Miller and Friesen (1978) proposed that this type of behavior should include adaptiveness, analysis, integration, risk taking, and product-market innovation. Covin and Slevin (1991) argue, leaning on Miller (1983), that new venture creation as a strategic posture involves risk taking, innovativeness, and proactiveness. In other words, ventures are ready to get involved in highly risky projects pursuing boldly and aggressively opportunities (Covin and Slevin 1991). Lumpkin and Dess (1996) see this behavior to come to the fore as experimenting with new ideas, willingness to think of opportunities, and readiness to take risky actions. They claim it to be more specifically autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness. Lumpkin and Dess (1996) argue that autonomy involves independent action. According to them, entrepreneurs are able to lean on themselves and make free decisions regardless of constraints. This behavior is very important in new venture creation because mostly a new venture is based on an entrepreneur's vision of the business situation and because constraints, turbulence, lack of capital, etc. restrict the thoughts of an entrepreneur. Thus, (s)he must have a strong belief in his/her own judgment.

However, as studies of opportunity recognition (e.g. Hills 1995) have shown, entrepreneurs who have performed well in opportunity recognition often connect themselves in collective action. This means that they rely also on the opinions of other people. Innovativeness refers to behavior including novelty, experimentation, and creative processes in order to produce new products, services, technologies, etc. (Lumpkin and Dess 1996). Entrepreneurs have a will to do things better and they change the ways business is done. They have inside them a child, who wants to play new games constantly, and entrepreneurs find these new games by innovating. This ability is important, because the same type of solutions that already exist in the market, don't have strong competitive advantage compared with competitors. Lumpkin and Dess (1996) divide risk taking into *"venturing into the unknown, committing a relatively large portion of assets, and borrowing heavily"*. Based on the authors, it is possible to say that entrepreneurs initiate actions that they are not able to control. On the other hand, entrepreneurs take responsibility for employers, machines, buildings, etc. Thus, because the future is unknown and entrepreneurs have financial obligations, they are taking high financial risks. On the whole, entrepreneurs interpret the cues of risks in such a way

that, despite the risks, it is realistic to create new ventures. Fourth, proactiveness is about taking the initiative before others recognize the opportunity. Thus, proactiveness refers to seeing the future before others and showing willingness to seize the opportunity quickly (Lumpkin and Dess 1996). This is very important behavior because it has been seen that windows of opportunities exist only for some time (see Timmons 1994). Finally, competitive aggressiveness could be seen as behavior which is aimed at analyzing competitors in the business arena and treating them aggressively. Entrepreneurs behave so that they find a gap from the competitive arena because they know that by doing so they can enhance the survival of their venture. If the new venture creation is looked at from the viewpoint of the strategic approach, it involves behavior in which entrepreneurs want to take independent action because it is the way to survive in the turbulence (although many still perform collective actions as well), innovate new things because innovations most probably lead to success, take risks because thorough knowledge of the future is impossible to achieve, behave proactively because opportunities exist to be recognized and exploited only for a limited time, and compete aggressively because competitors let a new-comer in to the business arena only if the new venture finds its place by itself.

What is the role of an entrepreneur in the strategic approach, then? The authors advocating on this approach have tried to argue that the behavior of a firm is more important than an individual's behavior. This is an important notion because entrepreneurship research often concentrates too much on what individuals are doing. The strategic approach pays attention to what happens at the firm level. Thus, the view of the strategic approach is more social than individual. However, when the studies concerned with the approach describe new venture creation behavior, they describe mostly the behavior of an individual entrepreneur (see, e.g. Lumpkin and Dess 1996). Thus, even though the primary interest is in the behavior of a firm, the actor in the study is an entrepreneur. An entrepreneur is, thus, very important in the strategic approach, although researchers want to separate themselves from the "individual school of entrepreneurship". The environment is treated as an information space, which could be analyzed and in which a goal can be deduced. Thus, the environment consists of analyzable information. However, the view is not completely rationalistic because researchers using this approach see that the complexity of the environment creates a need for both intuitive and rational behavior in order to seize opportunities.

Critique. Probably the most influential notion of the school is that entrepreneurial behavior rather than actions of individuals should be studied. Thus, entrepreneurial behavior that is studied could take place in different contexts, like for example at the start-up of a new

firm, in a large multinational corporation, or in internationalized medium sized companies. The behavior aimed at finding a new business is important and not the context, which is normally the start-up context. The strategic approach to new venture creation, thus, points to the main areas of behavior involved in new venture creation.

The main problem of this approach is that it has studied the behavior of entrepreneurs but neglected how the process proceeds It is important to know how entrepreneurs behave, when they create ventures, but it is also very important to know what are the patterns entrepreneurs use. Second, although the approach stresses that it is the behavior of firms that should be studied, entrepreneurs' behavior is actually studied. Studying entrepreneurs' behavior is important but it neglects the social arena within which entrepreneurs live. A lot is still to be done to understand the social behavior of entrepreneurial communities.

2.6. Summary, conclusions, and applicability of the approaches

Summary. It could be seen that the areas of behavior that suggest an economic approach are boosting new ventures, managing new ventures, and collecting capital in order to create new capital. The most important of these is assumed to be the boosting view. It suggests that new venture creation includes innovativeness, alertness to opportunities, and risk-taking. An entrepreneur according to this approach is the central figure, who initiates all the actions. (S)he is a central economic actor, who renews the economy by creating new ventures. Environment is seen as a place in which opportunities are found. Environment exists regardless of an entrepreneur, and thus, an entrepreneur must "destroy" it before creation of something new is possible.

The population-ecology model sees that entrepreneurs cause variations of new businesses and the best of these are to be chosen by the business environment. Businesses develop incrementally through these variation- and selection processes without clear direction. This behavior includes behavior such as variation, survival, liability, re-productivity, and uniformity. The role of an entrepreneur is to produce variations in the name of development. The environment orders the direction and pace of change. Success is based on a variation that answers the development needs of the environment at that particular moment.

The stage approach could be summarized by saying that new venture creation is the early phase of the establishment of a firm and creation of a new stage. The process consists of before-birth-actions, birth, survival, growth, maturity, decline, and death. In the approach

an entrepreneur is the central actor, who takes the venture from one stage to another. Environment is the context, to which a venture tries to adapt. The success of the venture is dependent on the survival in each phase and skills to proceed from one stage to another.

The network approach sees that new venture creation to be about discussing the needs of the social context so that it initiates new businesses that satisfy the needs of the social context. On the basis of this idea, businesses are created so that they are socially constructed and needed. The process of new venture creation is behavior, in which entrepreneurs mobilize the social context to support their business idea. An entrepreneur in this approach is a negotiator, who tries to make a deal with his/her social context about the use of resources in order to introduce something that would be valuable to the whole social context. The environment is here an active discussion partner whose various points of view must be negotiated into a compromise. A success factor is the entrepreneur's skill to convince the social context that the use of resources in his/her venture benefits the whole social context.

The strategic approach sees venture creation to be value creation that brings profit to an entrepreneur and value to customers. Thus, an entrepreneur sets a strategic goal, which should create new value. The process is here about seeing an opportunity, grabbing it, accumulating the needed resources, creating value for customers, collecting profits, and investing the profits again in a new opportunity. An entrepreneur is a strategic actor, who rationally searches for opportunities to invest resources so that the investment should create profit. The environment here offers the resources and the possibility of creating profit. Success is dependent on ability to create value. Table 1 shows summaries of the approaches.

Table 1. Summary of the new venture creation approaches.

Approaches	Concept of new venture creation	Process of new venture creation	Role of an entrepreneur	Role of environment
Economist	Destroying old business models and boosting new.	Be alert, innovate new, and tolerate risks.	Initiator of boosting actions.	A place where opportunities exist.
Population-ecology	Cause variations of new businesses for the environmental selection.	Variation, survival, liability, re-productivity, and uniformity.	Producer of variations.	Orders the direction and pace of change.
Stage	Early phase of a firm creation.	Development, birth, survival, growth, maturity, decline, and death.	Leading a firm from one stage to another.	Circumstances to which must be adapted.
Network	Discussing the social context to support an idea.	Mobilizing the resources through social dialogue.	Negotiator.	Active negotiation partner.
Strategic	Value creation to earn profit.	Strategic goal setting.	Strategic actor to create value.	Resource stock.

Conclusions: strengths and weaknesses of the approaches from the viewpoint of opportunity recognition. The main strength of the economic approach is that it has introduced the idea that opportunity recognition is an important part of new venture creation. Kirzner (1979) proposed that alertness to opportunities is the key element if a venture is going to be established. Further, the approach suggests that the behavior of entrepreneurs, rather than characteristics of them, should be studied in order to understand new venture creation and, thus, opportunity recognition. The approach also proposes the main elements of intellectual capital namely innovativeness, risk-taking ability, and alertness. In addition, the approach acknowledges that environmental dynamism creates opportunities to be recognized. Thus, the economic approach offers the basic conceptual guidelines through which opportunity recognition can be studied. However, because the approach analyzes opportunity recognition more on the general economic level (Kirzner 1979), the closer analysis of the real behavior of an entrepreneur is missing. The second deficit of the approach is that it has neglected the social level of actions. Thus, the approach doesn't give any tools to analyze social capital and behavior of entrepreneurs. As a whole, the approach gives the basic theoretical starting points but a more thorough examination of opportunity recognition behavior using this approach is difficult and, thus, other approaches are needed.

The main strength of the population-ecology model from the viewpoint of opportunity recognition is that the approach has stressed the importance of environment in business processes. The approach has very illustratively indicated how larger environmental processes are involved in new venture creation. The approach has suggested that the population should be known in order to see where the opportunities exist. Thus, the model has brought a lot of tools to analyze environmental dynamism. The weaknesses of the model are that individual creativity is left out of consideration and that carrying capacity is not possible to exceed. Other studies elsewhere (e.g. Sigrist 1999) have shown that creativity is a capability that creates wholly new business lines and, thus, widens the carrying capacity. As a whole, it is suggested that population-ecology model offers tools to understand environmental dynamism and also opens the discussion on the role of social capital of entrepreneurs but misses theoretical constructs to understand intellectual capital in opportunity recognition.

The stage approach has suggested that opportunity recognition is the beginning of new venture creation. Therefore, it shows what is the place of business opportunity recognition in the wider evolutionary context. The approach has also introduced the idea that opportunity recognition might be a sequential process. This has caused most of the research to attempt

to find out what are the stages of opportunity recognition process but by using the stage models it is difficult to thoroughly understand the behavioral processes. Thus, the approach has to a great extent neglected contextual and social issues of opportunity recognition. As a whole, the approach has introduced tools to analyze the process of opportunity recognition and the basic areas of behavior in opportunity recognition have been noticed.

The main strength of the network model is that it has shown that opportunity recognition is also very much social behavior. Thus, it has introduced the social capital constructs that should be used to analyze the social part of opportunity recognition. The model has brought opportunity recognition to its realistic, social, context. This is a very important issue since based on the current knowledge the behavior of human beings is socially embedded (see, e.g. Burt 1992). The main problem of this is that the model users are so enthusiastic about the social level that they often forget individual-level actions. Thus, to study opportunity recognition also other approaches than only network approach are needed.

The strategic approach has launched the main theoretical constructs for understanding the behavior of entrepreneurs in opportunity recognition. Thus, it is suggested that the strategic approach is the most important approach as the modern view of entrepreneurship supports the use of behavioral models. The approach has also emphasized that performance is an important part to study. The approach claims that opportunity recognition is value creation, and to understand this, the performance of a venture should be known. The main deficit of the approach is that it sees opportunity recognition quite rationally although it also requires intuitive behavior. Table 2 summarizes the strengths and weaknesses of the approaches.

Table 2. Strengths and weaknesses of the new venture creation approaches.

Approach	Strengths	Weaknesses
Economic	Content of opportunity recognition, important part of venture creation.	Tries to explain whole economies, closer analysis of the behavior is missing, neglects the social level.
Population-ecology	Indicated that opportunity recognition is heavily affected by the environment.	Neglects individual creativity, the idea of carrying capacity restricts human initiation.
Stage	Introduced the idea that opportunity recognition might involve stages, the idea that opportunity recognition a part of wider venture process.	Context and social level neglected, takes process analysis in wrong directions.
Network	The social part of opportunity recognition, a more realistic standpoint.	Forgets that opportunity recognition is also an individual-level phenomenon.
Strategic	Offered the tools to analyze opportunity recognition behavior and value creation.	The approach is quite rationalistic though opportunity is obviously also intuitive.

Applicability of the approaches to the research on opportunity recognition behavior. Of the above approaches the economic approach introduces the basic theoretical concepts to understand opportunity recognition. It has proposed what opportunity recognition is and what kind of behavior it involves. However, the views of the approach concentrate too much on the economic, macro level. Thus, the approach doesn't offer tools to analyze individual behavior, when the entrepreneur is trying to recognize an opportunity. Nevertheless, the approach is very interesting because it creates the starting point of all opportunity recognition studies. Especially the theory of entrepreneurship by Kirzner (e.g. 1979) is crucial to research on opportunity recognition. It is also important for the present study because it proposes the main elements for studying intellectual capital in opportunity recognition.

The population-ecology model suggests that environment is important in order to understand opportunity recognition. It gives to this study the theoretical concepts to analyze environmental dynamism. However, it does not play a very important part in this study because it neglects the free, creative ability of an individual. This is contrary to recent observations of opportunity recognition (Hills et al. 1999), and thus the population-ecology model has a minor role in the present study.

The stage approach has suggested that also business opportunity recognition could be studied as a sequential process. It has also pointed out that business opportunity recognition is the very beginning of the new venture creation process. In this respect the stage approach is important as it shows in which sequential context business opportunity recognition belongs. In addition, it has indicated some of the main areas of behavior in opportunity recognition. But, because stage processes have been shown to poorly explain processes (Frank and Lueger 1997), this study doesn't consider the stage approach to be very important to this study.

Network approach has brought social phenomena into new venture creation and business opportunity recognition research. The approach has shown how individuals wove together social reality, based on which they then behave. The network approach is very important to this study. It offers the tools for analysis of social capital in business opportunity recognition.

The strategic approach is the most important approach in this study. As has been stated before, in this study business opportunity recognition is seen as the behavior of entrepreneurs. Because the strategic approach gives concepts to analyze especially the behavior of indi-

viduals when they try to construct a strategic concept in order to establish or renew a venture, the concepts of the approach are central in the present study.

As a whole, none of the approaches alone is enough. The economic approach provides the main theoretical basis and elements of intellectual capital, the population-ecology model the constructs to analyze environmental dynamism, the stage approach an understanding of the whole new venture creation process, the network approach the tools to understand social capital in opportunity recognition, and the strategic approach the concepts to analyze recognition behavior and value creation (performance).

Although all the approaches are important, it could be said that the most important and applicable approaches to this study are the strategic approach and the network approach. These are the most suitable because they offer the most realistic starting points when the aim is to understand opportunity recognition as behavior. They stress individual behavior and social behavior involved in opportunity recognition. But because economic approach offers the basic theoretical concepts and the population-ecology model the concepts to understand environmental dynamism, they are also included. The stage approach is of minor importance because it only shows the place of opportunity recognition in the wider new venture creation process. Figure 2 illustrates the positioning of the study based on the importance of the above approaches to the study.

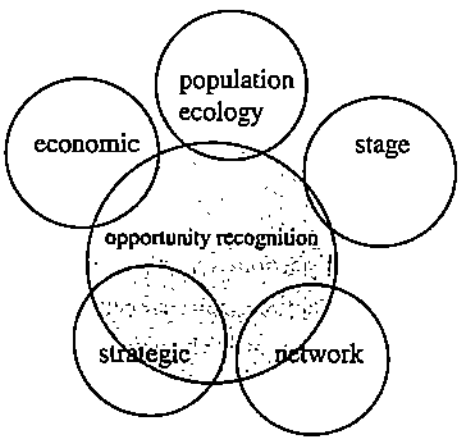


Figure 2. Positioning of the study based on the new venture creation approaches.

3. THEORETICAL FRAMEWORK AND HYPOTHESES

In the above chapters, the objectives of the study and the theoretical backgrounds of the study are presented. In this chapter the literature on business opportunity recognition is reviewed and based on that theoretical hypotheses are presented for empirical testing. The chapter is constructed in the following way: First, business opportunity recognition literature is reviewed. Second, the conceptual framework and hypotheses on the influences of intellectual capital on opportunity recognition behavior are presented. Third, the conceptual framework and hypotheses on the influences of social capital on opportunity recognition behavior are presented. Fourth, the conceptual framework and hypotheses on the influences of environmental dynamism on opportunity recognition behavior are presented. Last, the conceptual framework and hypotheses on the influences of opportunity recognition behavior on performance of young ventures are presented.

3.1. Business opportunity recognition literature

Business opportunity recognition is an important part of the venture creation process (Bygrave and Hofer 1991; Bygrave 1993; Birley and Muzyka 1997: ix–x). Anyhow, understanding of has not until now been developed (Hills and Shrader 1998). Hills et al. (1999) propose that opportunity recognition is greatly influenced by individual attributes, social forces, and business environment. In many other studies these same elements are also to be found (cf. Sigrist 1999). Thus, in this study it is also thought that the elements that most strongly affect opportunity recognition behavior are connected with intellectual, social, and environmental factors. The results concerning these factors in opportunity recognition literature are reviewed below. Further, the core of opportunity recognition is, of course, still recognition behavior. Thus, behavior is the most studied part of opportunity recognition phenomenon (see, for example, the review by Hills and Shrader 1997), and because of its importance it is reviewed also here after the above three factors. Performance is also included in the review. In many of the more general entrepreneurship studies (e.g. Zahra 1993; Dess, Lumpkin, and Covin 1997; Gimeno et al. 1997; Zahra et al.1997; Yli-Renko 1999) the outcome of behavior, performance, is thought to be an extremely important issue to be studied. In opportunity recognition literature this is often overlooked (cf. Hills et al. 1997). Still, it is here proposed that the best business concept that is created, as a result of recognition behavior, could be studied as the performance of a young venture. The performance of a young venture indicates what the opportunity recognized by an entrepreneur has been like from the market point of view – has it created value to customers? This study

follows, thus, the recommendation by Hills et al. (1997) and investigates also how opportunity recognition behavior affects the performance of a venture.

3.1.1. Intellectual capital

Almost all of the research on opportunity recognition has indicated the importance of the intellectual capabilities of an entrepreneur, seen here as intellectual capital (see, e.g. Hills and Lumpkin 1997; Sigrist 1999; Shane and Venkataraman 2000). The purpose of this subchapter is to review the research and show what intellectual factors have been found to have the strongest influences on opportunity recognition. This is approached in such a way that the most important intellectual factors are defined and discussed.

Domain knowledge. Cooper (1981) already stressed the importance of knowledge of the domain to be one of the main factors affecting opportunity recognition. The domain-specific experience is important in order to be able to alertly scan the market and find gaps that could be filled (cf. Kirzner 1979). Without the domain knowledge it is very difficult to interpret the information cues in the industry because the information processing of entrepreneurs, and in fact of all human beings, is tied to existing knowledge structures, e.g. domain knowledge (Manimala 1992; Shane and Venkataraman 2000). Former experiences and knowledge of the area are required to see opportunities that others don't recognize (Kaish and Gilad 1991). The domain knowledge is needed to scan relevant information, give it appropriate meaning, and make good judgments based on it. Human beings don't just perceive information, interpret it, and act based on it as rationally as possible but are guided by the knowledge they already have acquired in their processes of perceiving, interpreting, and acting (e.g. Woo et al. 1992; de Koning and Muzyka 1996). Thus, less experienced entrepreneurs might miss relevant information, understand poorly what they perceive, and make decisions and actions that are unwise.

Muzyka, Birley, and Leleux (1996) revealed professional investors to respect, first of all, prior experience of entrepreneurs in their investment decisions. This is an interesting notion as venture capitalists must count on entrepreneurs in order to gain their own profit. An interesting finding is also the one by Woo et al. (1992) that those entrepreneurs who had little domain knowledge searched the least for the needed information. The authors argue this to be the result of cognitive barriers caused by knowledge structures inappropriate to opportunity recognition. These biased structures guided the inexperienced entrepreneurs to behave unwisely. Also Hills and Lumpkin (1997) and Hills et al. (1997) indicated how op-

portunities are often recognized, and often more than once, in the domain that is familiar to an entrepreneur. The above shows illustratively how domain knowledge increases the search for information and probably the likelihood of finding a valuable opportunity (cf. Hills and Lumpkin 1997; Hills et al. 1999; Zietsma 1999). Gaglio and Taub (1992) argued that domain experience helps entrepreneurs to frame the situation. In their experiment, in which they wanted entrepreneurs and managers to create opportunities based on the information the authors gave, the entrepreneurs were not willing to do this because they had not enough knowledge of the customers, competitors, technology, goals, motivations, etc. In other words, they were not able to frame the situation because normally they rely on their domain knowledge. Bhave's (1994) suggestion that entrepreneurs should use their domain knowledge to eliminate probably unsuccessful opportunities is in line with the above.

According to Baron (1997; 1998), the situation facing an entrepreneur is characterized by uncertainty, novelty, time pressures, and emotions. Because of these, the situation is so complicated that rational behavior is almost impossible, and thus, entrepreneurs use their domain knowledge structures to guide their acts (see also Zietsma 1999). Because of this complexity, Martello (1994) underlines the meaning of serendipity in the creation of business insights. By this he means that opportunity recognition is about working in the field intensively and finding an opportunity in that field almost as a result of accidental luck. When an entrepreneur is working in the field, (s)he is subconsciously alert to ideas, and when (s)he finds one, (s)he often thinks that it was an accident. But actually it needed readiness of an alert mind (Kirzner 1979). Thus, without working in the area and being alert it would never have happened. This shows that domain knowledge is important in order to be so lucky that a good opportunity crosses one's life in a complex business world.

What is this domain knowledge more specifically? Christensen and Peterson (1990) suggested knowledge of the industry, the market, and the specific problems in that domain as important in opportunity recognition. Thus, the authors stress domain knowledge, and see it to be about knowing competitors, suppliers, policies, etc. in the industry, customers and their needs in the market, and problems, i.e., knowledge gaps that could be the ground for new businesses. Woo et al. (1992), again, propose that domain knowledge is grounded on how close prior employers' products and services, customers, and suppliers are to the entrepreneur's present ones. Ray (1992) saw this to be the case when he studied opportunity recognition in an international business context. In an international context there are many issues, such as cultural aspects, and increasing complexity. In this context entrepreneurs, who were searching for opportunities, counted most on their knowledge of that particular

industry, the ways of doing business in it, and their willingness to travel close to possible opportunity spots. Hills and Shrader (1998) also stress that the knowledge of markets and customers is the domain knowledge out of which ideas could be generated.

How is this knowledge achieved? Christensen et al. (1994) argued that knowledge of technology and market in the particular industry is to be developed by learning from previous experience. Thus, it is proposed that domain knowledge is created by acting in the field, talking with many and different kinds of people, and often thinking of the business (cf. Rea, Maggiore, and Allegro 1999). It also consists in making mistakes and correcting them, which requires quite a lot of time (Johannisson 1988). This type of process is also illustrated by Sigrist (1999) who found that domain knowledge was developed by long periods of interaction between passionate interest in something (e.g. a hobby), more rational interest in, e.g. work or school, and working in the area for some time. The interaction of these creates an understanding of customer needs, the latest technological developments, qualities of products and services, possible gaps to be found, reliability of suppliers, and so on. This is domain knowledge on which is heavily relied in opportunity recognition.

Formal knowledge. Cooper (1981) was the first to suggest that also formal knowledge would help to use domain specific experience. Formal knowledge creates knowledge structures that don't have to be learned by trial and error but by education and training. Thus, acquiring needed knowledge can also happen more abstractly. Christensen and Peterson (1990) saw that domain experience is to the fore but also that entrepreneurs need general alertness to problems in the domain. It is suggested here that in order to see problems formal education and training are needed because this type of more general knowledge gives capabilities to examine issues in their entity. Experience-based knowledge as the only knowledge type could cause entrepreneurs to have a quite narrow views, which could sometimes be even dangerous because it might create biases and errors in thinking of entrepreneurs (cf. Baron 1997, 1998; Zietsma 1999). Hills and Lumpkin (1997) indicated that opportunity recognition skills are removable to unknown domains in some cases. This indicates that opportunity recognition is not only about knowing one's industry well but also knowing how to look at a situation more generally. Thus, opportunity recognition requires, besides domain specific expertise, general competencies to be alert to opportunities (see also Kirzner 1997). Herron and Sapienza (1992) stress that an entrepreneur needs formal skills as well, which could be achieved through formal training. They argue that better formal knowledge leads to higher intrinsic motivation, and further to more intense opportunity searching behavior. Bhave (1994) also claimed that formal knowledge, among other things,

is involved in motivating an entrepreneur to start the search for an opportunity

Thakur (1999) called attention to the meaning of formal knowledge in opportunity recognition. He stressed that managerial skills are crucial when aiming at organizing information. Thus, it could be asked how managerial skills are usually achieved? Of course by acting as a manager, but also importantly by education. Rea et al. (1999) find as a result of wide consultation work in Italy that formal education and training are important in the development of needed professional competencies. Hills et al. (1999) also proposed that formal training and skills are important in opportunity recognition, and especially in evaluating and elaborating the survival capacity of an opportunity (see also Bhave 1994). Finally, Zietsma (1999) emphasized that technical knowledge is important in order to go from ideas to realizable opportunity, i.e. higher formal education furthered the process. According to a study by Gaglio and Taub (1992), entrepreneurs need formal knowledge to compare their situation with theories and models. Formal theories and models reflect how things have been done before and what others have experienced. Because a single individual's experiences are restricted, formal knowledge gives to an entrepreneur the capability to look at the situation from the viewpoint of other people, and thus more generally. On the basis of the above, formal knowledge includes formal education/training and formal skills.

Shane and Venkataraman (2000) argue that two factors influence opportunity recognition: (1) the information an entrepreneur possesses, and (2) his/her cognitive capabilities. Here it is proposed that these are developed by the interaction of formal knowledge and domain knowledge. The importance of formal knowledge in the creation of excellence is clearly verified in the studies of expert problem solving (see Mayer 1992). First, every individual has a certain stock of information, and this information has an impact on a person's behavior, and also on opportunity recognition (Shane and Venkataraman 2000). Furthermore, such prior information is stored as mental schema to our minds, and these are like "roadmaps" guiding our thinking, behaving, and discovery of new information. This information we possess could, for example, be knowledge of cheap raw material, the latest research results of digital communication, customers' values, etc. Thus, it is experience-based and formal knowledge. Second, every individual processes this information differently. Some are able to connect many kinds of old and new pieces of information into a new value-adding opportunity. What is here suggested is that this second ability is mostly in the form of formal knowledge and achieved through formal education and training. This suggestion relies on Sigrist's (1999) notion that entrepreneurs have a "serious" skill, i.e., formal knowledge that guids them to use their "passionate" skill, i.e., domain knowledge.

Management experience. Thakur (1999) proposed on the basis of nearly 50 case studies that managerial capabilities are more important to opportunity recognition than has been thought. The author stresses entrepreneurs' capabilities to manage resources to be the core of opportunity recognition and exploitation. Without managerial skills it would be almost impossible. The discovery by Hills et al. (1997) and Hills and Shrader (1998) that entrepreneurs are experienced opportunity-recognizers indicates that entrepreneurs who discover opportunities might have suitable entrepreneurship and management experience.

The study done by Muzyka et al. (1996) revealed that investors highly appreciate management experience. The most important things in venture creation are the leadership potential of the lead entrepreneur and the management team, industry experience, and track record of the leading entrepreneur and the management team. This clearly indicates the importance of management experience in opportunity recognition, because professional investors are people who put their money only in ventures which they believe to have the best chances to produce interest on their investments. These professional investors could even ignore some other criteria, such as financial, product-market, and strategic-competitiveness, if the management skills are strong.

Basically similar results were reported by Birley et al. (1999). They indicated that investors trust management competencies of a leading entrepreneur and a team to hold in any investment opportunity. Furthermore, the authors stress that the leader capabilities of an entrepreneur are important to investors, i.e., the skills to build a team, inspire others, manage the winds of change, and think strategically of the whole business situation. The skills in daily tasks and administration and consistency of decision-making were ranked by investors to be of very little importance. Thus, it could be seen that entrepreneurial management skills are important in opportunity recognition. By entrepreneurial management skills are meant skills to achieve goals by clever vision building and sharing even though an entrepreneur doesn't possess the needed resources (cf. Stevenson and Jarillo 1990).

Also opposite results have been found. Woo et al. (1992) found that differences in the management and entrepreneurial experiences didn't have significant influence on entrepreneurial search strategies. In their study only domain experience and industry-familiarity had significant effects. However, Gimeno et al., (1997), using almost the same survey-instrument, offered illustration that management and entrepreneurial experiences have significant effects on the survival of new ventures. Therefore, it is seen that these observations should be included in the theoretical framework. More specifically, the issues connected

with the management experience should in opportunity recognition research be the entrepreneurial experience and the management/leadership experience.

Intrinsic motivation. Intrinsic motivation is in many studies seen to be an important inspiring factor in opportunity recognition. Cooper (1981) stresses that motivation makes skills, knowledge, and perception work together so that they are made use of in opportunity search. Without intrinsic motivation it could happen that, although entrepreneurs were experienced and their expertise was high, success made them satisfied with the situation (Kaish and Gilad 1991). Thus, despite being skilled they were not any more internally motivated to search for opportunities. Thus, intrinsic motivation is the driver that sets an entrepreneur's "internal motor" going. Sigrist (1999) claims that an entrepreneur's own personal line is crucial. By this she means that an entrepreneur's subjective principles, ideas, and style lead him/her to create a unique kind of venture. This underlines the importance of intrinsic motivation in the form of a personal way to do things. She also found that inner strength is needed in order to achieve goals because often entrepreneurs don't get enough social support. Thus, an entrepreneurs must have a very strong intrinsic need to search for a business opportunity and confidence to go on even though some might advise him/her not to. The above argues the motivational aspects to be powerful in opportunity recognition.

In the model by Herron and Sapienza (1992) the initiation of intrinsic motivation occupies remarkable position. They argue that intrinsic motivation to search for opportunities is established in interaction between values, traits, context, and skills. This interaction creates an aspiration to establish a business and dissatisfaction with the present situation. This, then, affects strongly the searching behavior. But it is also to be remembered that motivation alone is not enough. As Woo et al. (1992) illustrated, entrepreneurs without domain experience were unable to search for opportunities although they were probably motivated. Thus, it is here suggested, leaning on Herron and Sapienza (1992), that opportunity recognition needs both intrinsic motivation and skills and experiences. The above is supported by the results of Muzyka et al. (1996), who showed that entrepreneurs should put 100 per cent effort into their new business along with all their skills before venture capitalists are willing to put their money into the investment opportunity. Therefore, from entrepreneurs is always required full commitment (see Drucker 1998).

Gaglio and Taub (1992) found that entrepreneurs relied heavily on their own opinions and decisions. This indicates strong internal motivation of these people. It is suggested that individuals who are less internally motivated wouldn't care so much whose decisions are fol-

lowed. The same result was found by de Koning and Muzyka (1996). According to them, expertise gives entrepreneurs a feeling of confidence, which then shows up as high intrinsic motivation to search new for opportunities. Manimala (1992) found high-innovative entrepreneurs to be intrinsically rather than extrinsically oriented. Thus, high-innovative opportunity searchers, who were also successful, were motivated by entrepreneurship itself and not by the possible visible rewards (such as wealth and power). An interesting observation was made by Baron (1997, 1998) of the state of mind of entrepreneurs. Baron (1997, 1998) hypothesized that entrepreneurs would think more than others of missed opportunities and thus feel more regret. But, the empirical results indicated just the opposite. In fact, entrepreneurs didn't think of what had happened before and they didn't feel regret. They merely had their eyes fixed on the future and on opportunities not discovered until now. This is, according to the author, one reason why entrepreneurs see more opportunities than other people. They don't hold on to the past but let it go, forget it easily and proactively turn their attention to the future. This shows that entrepreneurs don't keep their eyes on outer issues and "hard" motivators. They have a strong motivation to look at the future and create new businesses without regrets for what they have done or what could have been. They merely forget the past and search for new opportunity once again.

Motivation doesn't always emerge in the same phase as opportunity recognition. Bhave (1994) in his study of opportunity recognition process indicated motivational factors to be important issues preceding or following opportunity recognition behavior. Some entrepreneurs were first motivated to begin to search for an opportunity while others first found an opportunity and because of this sudden possibility then became motivated to start a venture. Martello's (1994) point that opportunity recognition is serendipitous is in line with Bhave's (1994) findings. Serendipity means that opportunity recognition happens suddenly after a long period of working in the field without serious deliberate search. Bhave's findings indicated that the motivation to search, find, and realize an opportunity is embedded in the whole entrepreneurial process.

Internal commitment is, thus, what drives entrepreneurs forward, not their special personality (Drucker 1998). According to Drucker, entrepreneurs are people who are tied to search for innovations, i.e., opportunities. Their intrinsic, i.e., internal motivation pulls them to look for changes in the environment and opportunities for new business. According to Bird (1988), this commitment, or intrinsic motivation, is close to the idea of intention. Bird (1988) claims that *"intentionality is a state of mind directing a person's attention (and therefore experience and action) toward a specific object (goal) or a path in order to*

achieve something (means)". This is what is here meant by intrinsic motivation. The expression of intrinsic motivation is used because the term intentionality carries a connotation of rationality or even opportunism, which is not wanted here.

Creativity. Gilad (1984) was the first to suggest opportunity recognition was due to the creativity of entrepreneurs. His point of view is based on Kirzner's (see, e.g. 1979) idea that entrepreneurs are more alert to opportunities in the market than others. Gilad (1984) sees that others than entrepreneurs overlook possibilities to establish a new business. The ability to discover inconsistencies by linking information cues requires creativity. Creativity in his case could be understood as the seeing of links between many types of information and finding a solution that doesn't exist yet. Thus, creativity in opportunity recognition is not about routinely searching for the best solution from solutions that already exist – *"it is non programmable, non standardized, and unpredictable insight about the true nature of reality"* (Gilad 1984). In creativity in general Gilad sees the most important factors to be unusualness, appropriateness, transformation, and condensation. As a whole, this claim of Gilad's leans on the information processing view of human behavior (see, e.g. Mayer 1992) and, thus, is not concerned with creative traits of entrepreneurs. This is seen here to be a good thing supporting the use of the same approach to entrepreneurial creativity because in many studies the trait approach has been shown to "hit a dead end" (e.g. Gartner 1990).

Other studies have also seen creativity to be important. Entrepreneurs told to Hills and Lumpkin (1997) that they spend quite a lot of time thinking creatively about business situations and playing with many kinds of ideas. Hills et al. (1997) and Hills and Shrader (1998) proposed also the same. Hills et al. (1999) see opportunity recognition to be a special case of creativity. They see that opportunity recognition consists of creative behavior such as preparation, incubation, insight, evaluation, and elaboration, and that in these areas of behavior background, training, work experience, knowledge of the field, and skills to evaluate and elaborate the survival capacity of a business play critical roles. Christensen et al. (1994) mentioned a very meaningful factor affecting opportunity recognition namely ability to turn problems into opportunities. Here this is seen to be a creative ability to create something new out of things not directly or easily connected with each other (cf. Mayer 1992). Also Gaglio and Taub (1992) proposed creative problem-solving to be involved in opportunity recognition. Based on large consultation work in Italy, Rea et al. (1999) mention creativity to be an important professional capability helping entrepreneurs to look situations from new points of view. Finally, de Koning and Muzyka (1996) noted that creative skills of entrepreneurs were very important in opportunity recognition.

Shane and Venkataraman (2000) argue that every individual processes information differently. Some can link old and new pieces of information into a new solution while others don't see the connections. Opportunity recognition is not a situation where it is possible to mechanically calculate the best solution based on a given set of alternatives because information is fragmented and there are not simple links between these pieces of information. This skill is in this study seen to be the creativity of an entrepreneur (cf. Mayer 1992). It is suggested also that creativity of entrepreneurs to create opportunities out of pieces of information should be studied more deeply. Sigrist (1999) underlines also the above kind of heuristic competence of entrepreneurs. Creativity as a mental thinking and behaving device gives confidence in uncertain problem-solving situations. This skill gives the possibility of flexibly learning from customers, intuitively reading market dynamics, and impulsively reacting to new situations. These notions are very close to the idea of creativity in this study.

Critique. Intellectual capital has often been considered in terms of years spent working in a specific industry, years of formal education, and so on. This disregards that hobbies and informal education, for example, can develop intellectual capital that the years spent working in the field don't measure. On the other hand, if the evaluation is entrusted to the entrepreneurs, the view could be even more biased. Thus, the main problem of the intellectual capital is in measuring it. On the other hand, intellectual capital could be linked to traits of entrepreneurs, which have already been shown to explain entrepreneurial behavior poorly. Here intellectual capital is not about traits but about behavior based on experiences that have been stored as cognitions that are used to recognize business opportunities. As Herron and Sapienza (1992) propose, the intellectual aspects cannot be forgotten although the trait approach hasn't been successful. Third, intellectual capital alone is only potentiality because it is capital that must be put into action. Thus, it must be connected with behavior, which in the case of this study is business opportunity recognition behavior. Fourth, often intellectual, or human, capital is restricted to issues like experience, knowledge, and/or education (cf. Becker 1975). Recent developments have indicated that this conception is too narrow. For example, both Rastogi (2000) and Shane and Venkataraman (2000) suggest that intellectual capital is also about skills to process information and is not only about stocks of processed information, like education and experiences. Skills to process information refer to creative ability to connect pieces of information into a novel solution, i.e., to see things from different viewpoints, and to intrinsic motivation to work with even naive ideas. Here a more comprehensive view of intellectual capital is adopted when both stocks of information and skills to process the information are included in the concept.

Summary concerning intellectual capital in business opportunity recognition

In opportunity recognition the intellectual capital of entrepreneurs consists of the capabilities to perceive and interpret business information. These capabilities could be divided into domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity. Figure 3 illustrates the content of intellectual capital.

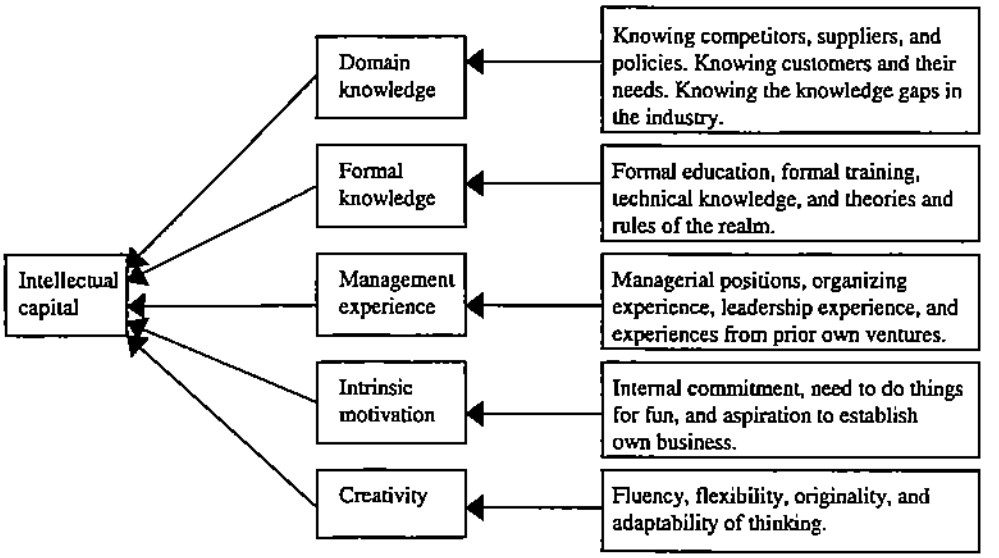


Figure 3. Content of intellectual capital.

First, domain knowledge is about being aware of people, information, and possibilities in the particular industry. It consists of knowing competitors, suppliers, and policies in the industry, knowing customers and their needs, and knowing knowledge gaps in the industry. Second, formal knowledge offers entrepreneurs all the knowledge that has been collected until now, which helps to analyze information more widely. Formal knowledge is grounded on formal education, formal training, technical knowledge, and knowledge of theories and rules of the area. Third, management experience is experience in leading and managing people and ventures. More specifically, it could be seen as managerial positions, organizing experience, leadership experience, and experiences in establishing and leading own ventures. Fourth, intrinsic motivation pulls entrepreneurs to opportunity recognition and establishing a venture because of entrepreneurship itself. Money and fame are not such important motivators as fun and independence. Thus, intrinsic motivation could be studied as internal commitment, need to do things because of themselves, and aspiration to establish own businesses. Fifth, creativity is a general capability to interpret information into novel

solutions. It is fluent, flexible, original, and adaptive thinking style of entrepreneurs.

3.1.2. Social capital

Singh et al. (1999) indicated that social relationships, seen as social capital in this study, are essential in opportunity recognition. It is claimed that entrepreneurs need relationships to get information, resources, and opinions about their ideas (see also Coleman 1994). Elsewhere in entrepreneurship research has been stressed the meaningfulness and importance of relationships to frame complex situations and cognitively simplify the insecurity of venture creation (see, e.g. Burt 1992; Tsai and Ghoshal 1998; Yli-Renko 1999). Social dialogue is important because venture creation is insecure and risky. In the next section the results of the research on social relationships and networks in opportunity recognition are reviewed. This is approached, as above, in such a way that the most important social factors are defined and discussed. The dimensions below are in line with the studies by Tsai and Ghoshal (1998), Singh et al. (1999), and Yli-Renko (1999). It is stressed that the following discussion is based on opportunity recognition literature and, thus, most of the dialogue concerning social capital as a more collective phenomenon is left out because opportunity recognition literature hasn't touched collective features yet.

Structural dimension. By structural dimension of social capital is meant the structure of the social network, i.e., how many relationships an entrepreneur has, how much social interaction an entrepreneur has, how dense the relationships are, what is the hierarchical structure of the network, etc. (cf. Tsai and Ghoshal 1998). It was claimed already by Peterson (1985) that entrepreneurs need around them a holographic, flat, and personal network type of organization in order to ensure the needed information. This suggests that information is crucial to entrepreneurs and that hierarchical, formal, and complicated systems of relationships hinder the fluent flow of information. It also suggests that an entrepreneur should be in the middle of information flows and be tied by personal ties to the most important informants. The idea of structural holes presented by Burt (1992) is in line with the above. He proposes that entrepreneurs should recognize opportunities when they are in the middle of two or more networks and when these networks have links to each other only through the entrepreneur. Then the entrepreneur is structurally in the position where (s)he can exploit and connect the information from all the networks without the risk that someone else is doing it also. Of course this is an ideal situation and unlikely to exist as such in reality. However, structurally loose networks include information which is not shared by all the members of the network. Thus, there are information gaps that alert entrepreneurs could

recognize. Also many other studies have stressed the importance of networks, primarily the number of social relationships (Christensen and Peterson 1990; Christensen et al. 1994; Gunther McGrath 1994; de Koning and Muzyka 1996; Hills and Lumpkin 1997; Rea et al. 1999; Sigrist 1999). The problem of the studies is that they haven't studied if the social structures have a significant impact on opportunity recognition. However, the above suggests that the structure of social relationships might have an influence on opportunity recognition.

Of what elements does the structural dimension of social relationships consist? Singh et al. (1999) studied the effects of structural factors of social relationships on opportunity recognition. Their claim was that network size, weak ties, and structural holes have a positive influence on opportunity recognition. This claim is based on the notion that, as an individual's capability to process information is cognitively bounded, relationships could be used to extend the personal limits. The relationships can bring information and knowledge in already processed form to entrepreneurs. Their central finding was that the size of the network and the number of weak ties were significantly and positively related to the number of opportunities recognized but the number of structural holes was not significantly, although positively, related.

How does this structural dimension work in opportunity recognition? Looking more closely at Burt's (1992) ideas, he stresses that structural holes make it possible for an entrepreneur to recognize opportunities because in this situation (s)he is in the position to receive information from different networks. This requires that the entrepreneur has enough relationships in general and that these relationships are loosely connected. This, then, could be interpreted so that a few close and strong relationships are needed. They need to be numerous enough in order to have access to a wider relationship network of weak ties. Weak ties are not emotionally very close relationships but they are known and it is possible to get valuable information through them (Granovetter 1973). It is proposed that many kinds of weak ties are the most important in opportunity recognition. However, also a few strong ties are needed to gain social and emotional support to evaluate ideas, and to offer access to the contacts of strong-ties and contacts of contacts. As a whole, an active and wide base of relationships, both strong and weak, is important in opportunity recognition.

Further, Krackhardt (1995) studied the use of relationships in opportunity recognizing using Burt's (1992) theory of structural holes. In this theory the basic idea is that an individual could gain from his/her relationships if (s)he is between – in other words in the hole –

two networks getting information from both networks. The other requirement is that these two networks shouldn't have many other links than this one individual. Krackhardt (1995) proposes that an entrepreneur can recognize an opportunity when (s)he is in the structural hole situation where (s)he is able to connect the information offered by these two networks that are loosely linked. If these two networks are densely linked, most of the members in the networks have access to the information, and thus there are no information gaps as a basis for business opportunities. The study by Krackhardt (1995) confirms empirically the above theoretical proposition: In the dense network it is difficult to find business opportunities. It means that a lot of ties are generally good, but when these ties are densely connected to each other, this density could create constraints (for example social norms) that could prohibit opportunity recognition behavior. Thus, the best situation for opportunity recognition is when an entrepreneur has a number of relationships, which are not closely interrelated. Based on the above study, the number and nature of social ties of entrepreneurs should be studied when trying to explain opportunity recognition behavior.

Relational dimension. By the relational dimension of social relationships in opportunity recognition is meant the nature of communication between the entrepreneurs and social ties, i.e., how well the relationships are known, how often they are in communication, how important they are to the entrepreneur, etc. (cf. Tsai and Ghoshal 1998). Kaish and Gilad (1991) found that entrepreneurs, and also managers, were not very active in social, interactive verbal search. Still, entrepreneurs were quite eager to talk about their ideas with other people. The above could be interpreted so that entrepreneurs didn't search for information by talking with others but searched for evaluations and opinions by discussing with them. Yet, the results of Kaish and Gilad (1991) must be regarded with caution because as Busenitz (1996) indicated there are some problems with the scales used by Kaish and Gilad (1991). Ray (1992) found that networks were not very important in recognizing international opportunities. This might be true because in international contexts the entrepreneur can be ahead of his/her domestic network with regard to knowledge, networks are difficult to develop, and networks are more important in the evaluation phase than in the recognition phase (Ray 1992). When you are not in constant communication the social relationship may feel meaningless. Of the importance of constant communication an example is the study by Steyaert, Bouwen, and Van Looy (1996). They see opportunities to be created through conversational construction of new meaning. Without conversations common understanding cannot be created and the possible importance of the relationship is neglected. The meaning of the opportunity develops step by step as a dialogue (cf. Johannisson 1988).

Christensen and Peterson (1990) recognized the importance of informal contacts to opportunity recognition. Furthermore, Christensen et al. (1994) propose building networks with long-term relationships to be an effective way of doing business. A long-term network of ventures might create competitive advantages, for example through its lighter administration. Hills and Shrader (1998) found that focusing on the market and the customers increases the probability of recognizing opportunities. Knowing the market and the customers requires purposeful dialogue with them. Finally, Hills and Lumpkin (1997) indicated that the nature of social relationships expands the area in which an entrepreneur is able to behave. Without experience and knowledge of certain relationships, such as customers, researchers, suppliers, and/or investors, it would be almost impossible to establish a business in the industry you don't know, for example. These results indicate that the nature of the relationships, which could be informal, long-term, customer based, advisory, etc., might affect opportunity recognition.

The cognitive dimension. In this study the cognitive dimension refers to the extent of emotional commitment of the parties to the relationship, i.e., trusting each other, understanding and supporting each other, believing the other will not let you down, accepting the goals of each other, etc. Johannisson (1988) claims business formation, and thus also opportunity recognition, to be a result of successful development and maintenance of personal networks. He sees that networks are organizing contexts that help entrepreneurs together with other people in the network to understand the business situation. Without other people an entrepreneur is seen t be unable to give meaning to influential issues. In interaction with other people a situation is created which makes it possible to do business. Thus, the network is the vehicle by which the fragmented present reality is enacted to make possible a future reality, which is seen as a business opportunity. Johannisson's (1988) idea could be interpreted so that the creation of a meaning – an opportunity – is not only a cognitive process, which is taking place in an entrepreneur's mind, but it is a social cognitive process that is realized through the dialogue of network members, which is also involves individual cognitive processing. The author suggests that the network is the main resource in business formation. Only through it can an entrepreneur obtain the needed resources, legitimate the venture in the market, maintain the motivation as the network gives mental and social support, and find new opportunities as the network creates possibilities to existing firms of intensifying the acts of the whole network.

With respect to the emotional commitment, Krackhardt's (1995) study shows how emotionally too dense networks can sometimes interfere with opportunity recognition by too

strict norms, rules, etc. But it shows also how cognitively connected relationships need to have access to a wider network of information. It is proposed here that without trusting relationships individuals are not willing to share their knowledge. Manimala (1992) found, when studying the opportunities and behavior of high- and low innovative entrepreneurs, that high innovative entrepreneurs were more people oriented. They were sharing their ideas more readily and thought that the venture belonged to the other people as well and not only to themselves. Low innovative entrepreneurs were, instead, thinking that the opportunity and the organization were created in the first place to gain money for themselves, and only for themselves. Thus, more innovative entrepreneurs created their opportunities together with their network and also showed appreciation of the success to this network. Low innovative entrepreneurs wanted to keep the ideas and gains to themselves. This shows how cognitive commitment can affect opportunity recognition. This is supported by the study by Steyaert et al. (1996), which showed how trusting each other in conversations created the ground for building new meanings, i.e., opportunities.

Critique. Studies of social relationships in opportunity recognition domain have widely stressed the importance of networks and social ties. The problem is that the studies have investigated this mostly on the level that those are important. More theoretically demanding studies are lacking. Research on social relationships has a long time recognized different dimensions of relationships (see, e.g. Yli-Renko 1999). Only Singh et al. (1999) in business opportunity recognition have noticed it and studied more deeply the effects of relationships on opportunity recognition. Thus, it is proposed here that social relationships should be studied more specifically also in connection with opportunity recognition.

Summary concerning social capital in business opportunity recognition

Social capital in opportunity recognition is here seen as social interaction, which could bring information, resources, support, and ideas under the intellectual processes of entrepreneurs. Social capital could be divided into a structural dimension, relational dimension, and cognitive dimension. The structural dimension refers to the amount of social interaction entrepreneurs have with their social relationships, in other words, how active an entrepreneur is in social dialogue with his/her relationships. More precisely, it is about the number of relationships and the amount of interaction with these relationships. The relational dimension refers to the closeness of relational ties, i.e., how much of the communication happens between personally acquainted people. The relational dimension is about how close the relationships are and how important relationships are to an entrepreneur. The

cognitive dimension refers to emotional commitment to the relationship. More specifically, it is a question about how deeply the parties trust each other, how well they understand and support each other, and how much the parties believe each other to be available to help in case of problems. Figure 4 illustrates the content of intellectual capital.

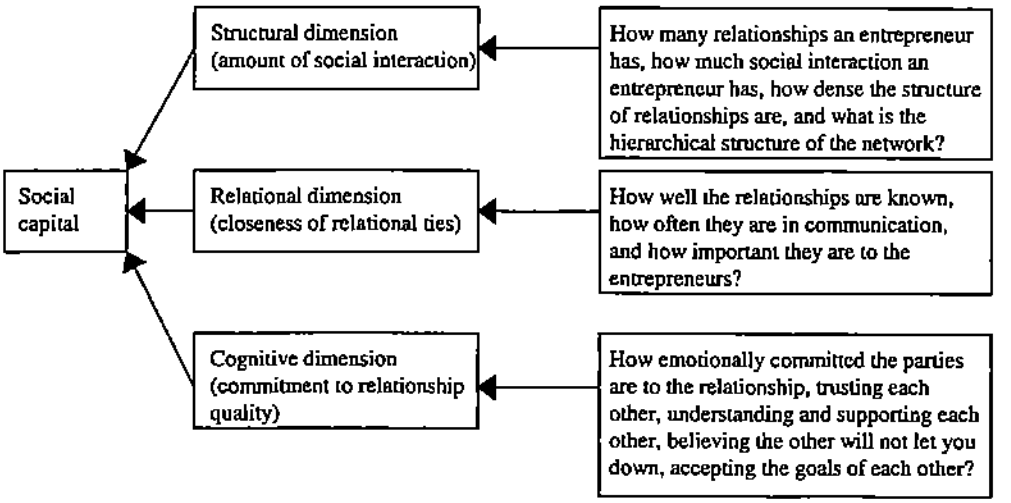


Figure 4. Content of social capital.

3.1.3. Environmental dynamism

Very often studies of opportunity recognition emphasize the environment where opportunity recognition takes place and how searching is affected by the environmental dynamism. The purpose of this section is to review the results of environmental issues in opportunity recognition literature and discuss and criticize the results of the studies. By environmental dynamism is here meant the turbulence of the environment caused by competition, changes in customer needs, technological developments, etc. Thus, environmental dynamism works as some kind of informational capital that entrepreneurs can perceive and interpret. As they perceive environmental dynamism, the dynamism tells to them that there are gaps in the market, what kind of changes are taking place, whether the number of ventures increasing or decreasing, and so on. Environmental dynamism reflects well, according to many researchers (e.g. Dean et al. 1993; Zahra 1993; Dess, Lumpkin, and Covin 1997; Zahra et al. 1997), the influence of the environment.

Manimala (1996) has interestingly showed how differently entrepreneurs "read" their envi-

ronment. He concluded that some entrepreneurs perceived the social changes around them, some were more alert to market gaps, some were "riding with the wings of change", and some again didn't see anything happening around them. This suggests that environmental dynamism affects opportunity recognition. But it also shows that entrepreneurs perceive dynamism very differently. Because of our personal knowledge structures and ways of processing information, we recognize different things by environmental dynamism (Shane and Venkataraman 2000).

Cooper (1981) probably as the first identified the importance of environment in opportunity recognition. He suggested that factors such as economic conditions, availability of venture capital, examples of entrepreneurial action, opportunities for interfirm consulting, and availability of services could have an effect on searching for opportunities. According to him, these issues create the business climate an entrepreneur perceives, which then makes the situation more or less favorable to opportunity recognition. It could be proposed further that the environment affects how an entrepreneur searches for an opportunity. Herron and Sapienza (1992) also stress the situational forces as important in opportunity recognition, but still see the effects of the environment a little bit differently. They argue that environmental circumstances and personal values and traits are interconnected and together affect motivation, which then affects the search behavior. Thus, the authors suggest that environment doesn't have a direct effect on recognition behavior but only through an entrepreneur's motivation.

Regardless of how the environment affects things, it has interesting influences. This is shown for example by Ray (1992), as was mentioned earlier in this chapter. Ray (1992) indicated that in international context of opportunity recognition networks are not so important. As he himself recognizes, this could be so because of the nature of the international context, in which relationships are hard to establish and in which domestic connections might in knowledge way behind. This reveals how important the environment might be to opportunity recognition as the international context might make an entrepreneur look at opportunities differently than in the domestic markets. The power of the environment was shown also by Krackhardt (1995). He pointed out very clearly that, if the environment is socially dense and knowledge widely shared, quite strict norms and rules are used to make the entrepreneur accept the main-stream knowledge of the network, and thus it is difficult to search for new opportunities. There isn't then new information and "shaking the boat" by new ideas is forbidden because it is normal that a social community keeps itself alive by accepting facts which are in line with its past and present customs. Thus, in an environ-

ment, where the situation is stagnated opportunity recognition behavior is difficult. But in an environment where people don't have long traditions of a certain type of behavior and where people are not socially densely connected many changes occur and the search for opportunities is easy and even wanted. Furthermore, Muzyka et al. (1996) indicated in their study of European venture capitalists' evaluation strategies that in Europe the strategies are to some extent different than in the USA. As venture capitalists are the professionals who understand opportunity recognizers well and as their strategies are different in Europe and USA, it is possible to argue that the environment in which entrepreneurs are observed affects their opportunity recognition. As a conclusion it could be proposed that environmental issues affect opportunity recognition.

Rea et al. (1999) see the environment of entrepreneurs to be rather a free choice of an individual than existing space that determines the acts of entrepreneurs. Thus, they see that an entrepreneur creates his own environment. Further, they see the environment to consist of the reference environment, including all relational options considered, the active environment, including all options tested, and the environmental system, including all options selected. This view of environment is close to the social relationship view above. The authors see that it is important that there are a lot of contacts, i.e., the reference environment should be large in order to get ideas and test ideas. Second, it is important how active the environment is in which the real dialogue takes place. Last, it is important to have intense and close relationships, i.e., an active environmental system. Shane and Venkataraman's (2000) point of view is that knowledge is distributed in societies, and because of this the environment in which an entrepreneur lives affects his/her opportunity recognition. For example, some people know the latest developments in technology while others might know the changes in customers' needs People are specialized in different things and it is thus impossible to know everything. Further, the authors argue that entrepreneurs differ in their abilities to search for and interpret this fragmented information. It is proposed here in this study that, because knowledge is distributed widely in our societies and we have varying skills to process this knowledge, there are many issues in the environment that affect straightforwardly entrepreneurs' opportunity recognition without their acknowledging it. When an entrepreneur perceives information from the point of view of his/her existing knowledge structures, (s)he must neglect most of the existing information in the environment because human beings' mental capability to perceive and process information is restricted (cf. Shane and Venkataraman 2000). All in all, the environmental issues are not distilled through entrepreneurs, as Herron and Sapienza (1992) propose, but are affected also by opportunity recognition as they are in the environment.

What issues and dynamism in those issues should be studied more closely? Cadotte and Woodruff (1994) set fort that opportunity recognition and decisions concerning it should be based on careful analyses of the external environment. Of the external environment, they mention that the most important parts are macroenvironment and major forces in economic, social, technological, legal, and natural matters. They especially stress the dynamics of the market. Christensen et al. (1994) argue that opportunity availability is often dependent on environmental changes. By this they mean that what is required is often changes in the environment, which then create knowledge gaps and opportunities to be recognized. The most important changes in the environment are, according to the authors, connected with technological developments and market structure changes. This implies the environmental dynamism should be studied from point of view of technology and market changes (also Christensen and Peterson 1990). Bhave (1994)) suggests as well that the market has an important effect in the conceptual phase of venture creation, i.e., in opportunity recognition. Hills and Lumpkin (1997) showed how market changes and customer needs affected the search for opportunities. Hills et al. (1997) and Hills and Shrader (1998) proposed, as well, that market changes significantly affect opportunity recognition. Finally, Thakur (1999) emphasized the larger social transformational issues as important. For example, when trying to understand opportunity recognition in former socialist countries in Europe it is natural to take the circumstances into consideration but in Finland where the changes have not been so dramatic though important, the larger transformations in society are often forgotten. What could be said based on these studies? First, the market dynamism is very important. Second, technological changes should be investigated as well. Third, the wider transformations might also be important to include in the models. Anyhow, this last factor is problematic since the wider transformations happen in a longer time perspective, and thus the effects of them are often difficult to study. Still, their importance is acknowledged.

Critique. Many times there is a lack of agreement as to what is an environment. Is it something that exists there as such or is it created? Some of the studies above see that entrepreneurs create their environments and thus environment doesn't influence straightforwardly. Others again see that the environment has direct effects on opportunity recognition because an entrepreneur can't interpret all the information. This is, at least here, an irrelevant discussion because it depends on the unit and level of analysis. Because here the unit and level of analysis are the individual entrepreneur, it is logical to seek the direct effects of the environment on opportunity recognition. Still, it is acknowledged that socially individuals construct new meanings and thus new environments. The above discussion causes also many times the closer examination of the effects of the environment on opportunity recognition

to be forgotten. The approach to the study of the phenomenon is mostly so loose that environment is just noticed to have some effect. The question how it influences remains open.

Summary concerning environmental dynamism in business opportunity recognition

Environmental dynamism in opportunity recognition is here seen to be turbulence in the business environment causing knowledge gaps. These are perceptions of entrepreneurs based on changes in the macro-environment. Environmental dynamism is about changes in customer needs, changes in the behavior of competitors, fast technological changes, changes in legislation, and hostile competition. Figure 5 illustrates the content of intellectual capital.

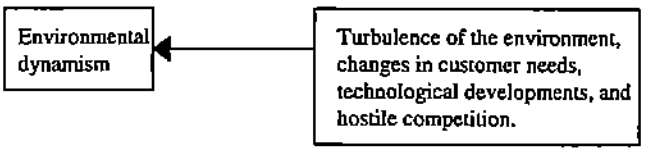


Figure 5. Content of environmental dynamism.

3.1.4. Opportunity recognition behavior

Miller (1987) has proposed that entrepreneurial behavior includes behavior such as knowledge acquisition, proactive searching, aggressive competition, innovative behavior, and collective action. Strong empirical support for this has been indicated (see, e.g. Wiklund 1999). The areas of behavior if compared to the study by Teach et al. (1989), for example, it can be seen that in opportunity recognition the areas of behavior are very similar. Others in the field of opportunity recognition have also found lines of behavior which are close to the above (e.g. Christensen and Peterson 1990; Christensen et al. 1994; Hills and Lumpkin 1997; Hills et al. 1997). Thus, in this study it is thought that knowledge acquisition, proactive searching, aggressive competition, innovative behavior, and active dialogue with other people are the most distinctive areas of behavior in opportunity recognition. Entrepreneurial behavior is here seen to be a strategic way to manage a company while opportunity recognition behavior is behavior to create the strategic concept based on which the company is then strategically managed, although actual lines of behavior are pretty much the same in entrepreneurial behavior and opportunity recognition.

Knowledge acquisition. Long and McMullan (1984) found four phases in recognition be-

havior. First, in the pre-vision phase entrepreneurs scan the environment and their existing knowledge in order to get an understanding of the situation. Second, as regards the point of vision an entrepreneur gets an "a-ha" -experience, in which all pieces click into the right positions and the entrepreneur recognizes a rough outline of the opportunity. Third, in the opportunity-elaboration phase the recognized opportunity is developed further in order to fill the gaps and solve the problems. Fourth, the entrepreneur decides whether it is reasonable to proceed. The above phases, and the first especially, illustrate the importance of knowledge acquisition. Thus, Peterson (1985) showed on the basis of wide database that opportunity recognition includes knowledge acquisition. Furthermore, Kaish and Gilad (1991) found interestingly enough that entrepreneurs spent a lot of time in searching for information. Entrepreneurs generally used non-verbal search and untraditional sources and were alert to risk cues. By non-verbal search the authors mean that entrepreneurs spent time reading newspapers and magazines and thinking about their business. According to Kaish and Gilad (1991), entrepreneurs weren't eager to gather information through social discussions. Instead they used the social context to test their ideas. Entrepreneurs also searched for information eagerly from untraditional sources such as patent filings and strangers. Entrepreneurs also used immediate sources such as subordinates, professional acquaintances, customers, clients, and consultants in order to develop the needed knowledge base for the situation. In conclusion, it could be said that entrepreneurs are in opportunity recognition active information searchers, i.e., knowledge acquirers (cf. also Gaglio and Taub 1992). Busenitz (1996) replicated the study by Kaish and Gilad (1991) and found some support for the findings of Kaish and Gilad.

What kind is the knowledge acquisition in its character? Herron and Sapienza (1992) claim that entrepreneurs deliberately search for opportunities. This search aims at finding a fit between context and strategy, i.e., there should be a gap in the environment that could be filled up with a certain kind of business strategy. In this phase the opportunity is not yet fully developed but merely exists in the form of a rough idea of the context and the strategy. The authors present the above process as involving subconscious evaluation. Thus, they see that knowledge acquisition of an opportunity consists of search and discovery of an opportunity, in which searching is active behavior to find information and mental interpretation of this information. On the basis of this the knowledge of the strategy, in which context and strategy are connected, is created. Even though the knowledge acquisition is deliberate it is not fully rational. Woo et al. (1992) realized that opportunity recognition boundedly rational. They indicated that information search is very important in opportunity recognition and also that it is dependent on knowledge and experience. This suggests that

knowledge acquisition is deliberate and active in opportunity recognition but also that it is affected by earlier experiences and knowledge. In it is also involved strongly intuitive perceiving and interpreting of knowledge (see, e.g. Cooper 1981; Floyd and Woolridge 1999).

Rea et al. (1999) argue that opportunity recognition is a progressive learning path, and suggestive thus not rational. At the beginning of this path an entrepreneur has maybe a general vision of the future venture but not the needed information about it. The next phase is to gather information in order to define the borders and content of the venture. Third, this opportunity is evaluated this opportunity and finally implemented. Every phase has also loops back to the former phase and new information could cause re-thinking in all of the phases. Last, Shane and Venkataraman (2000) argue that opportunity recognition is cognitive information perceiving, structuring, and interpreting. This again stresses the importance of knowledge acquisition, which involves information-gathering and understanding. The authors say that first an entrepreneur must have knowledge structures that are from the same area as the opportunity will be. From this knowledge-structure point of view an entrepreneur then perceives information of the business situation. Third, (s)he connects this new information with the existing information and thus structures a new view of the situation. Last, (s)he thinks about this mental map and tried to find links, which could be business opportunities. On the basis of the knowledge of human cognition and cognitive processes (see Mayer 1992), it is proposed here in this study that a business opportunity can't be rational even though it is recognized deliberately.

What kinds of things are searched for in knowledge acquisition? Cadotte and Woodruff (1994) see opportunity recognition to be like a market-opportunity analysis. The process includes (1) analysis of the macroenvironment, (2) defining the product markets, (3) building customer, channel, and competition profiles, (4) forecasting sales from product markets, and (5) evaluating market opportunity. Based on this, it is possible that entrepreneurs gather information on wider developments in an economy/economies, on existing products and services in a market, different kind of ways to distribute products and services, various competitors, and trends of sales in a market. Stasch's (1994) view is that opportunity recognition is the process of new product development. Thus, the process involves (1) identifying a new product strategy, (2) generating new product ideas, (3) screening and evaluating new product ideas, (4) business analysis of new product ideas, (5) developing the new product, (6) testing the new product, and (7) commercializing the new product. This turns the focus of knowledge acquisition to the internal affairs of the venture. An entrepreneur should also know how (s)he is going to serve the environment by a strategy, and thus the

knowledge of the new products and services and the manufacturing of these are needed. All in all, entrepreneurs can study in their knowledge-acquisition process external market and competition issues and internal developing and manufacturing issues, at least.

Competitive scanning. Miller (1983) especially and many others have suggested an entrepreneurial orientation in strategy making to be aggressiveness in competition, i.e., entrepreneurs are ready to create business strategies that put drive competitors out of the market rather than accept that there should be room for all of the companies. However, de Koning and Muzyka (1996) found that entrepreneurs didn't want to compete openly. Instead of going in for tough competition entrepreneurs searched for gaps, which didn't include so much competition. Still, the gap had to be big enough for serious business and profit. Thus, it might be that entrepreneurs don't straightforwardly come and start to compete against each other, and trying to take as a big slice as possible by acting aggressively but rather analyze the business environment, find gaps and niches, and in this way create enough room for their ventures. This could be seen to be competitive aggressiveness, but it is not open, but merely aggressiveness that happens behind the scenes. It is aggressive competition that happens more on the level of creating cleverer business strategies than on the level of visible business tactics (e.g. cheaper prices or better quality).

Bhave (1994) suggested that opportunity recognition involves opportunity filtration, opportunity selection, and opportunity refinement. He also suggests that every company is located in a certain point of the competitive structure and the venture has, thus, a certain window of opportunity, advantages, and risks. Therefore, some aggressiveness in the behavior is required in order to find and conquer a spot in the marketplace. After this, it might be that opportunity searchers e aggressively try to find quit room in the competitive arena, but still they are not hostile. However, based on the study by Christensen et al. (1994) it could be claimed that one important behavior in opportunity recognition is competitive scanning of the business situation rather than competitive aggressiveness. This means that the competitive arena is actively scanned, and the scanning might even be aggressive by its nature. The terminology is confusing and, thus, here by competitive scanning and competitive aggressiveness is meant the same thing, i.e., behavior that scans the competitive arena actively and develops a strategy that would create room in the competitive arena.

Competitive and market scanning is in many studies is seen to be important behavior. Long and McMullan (1984) see that in the pre-vision phase entrepreneurs scan the environment

and look for their existing knowledge in order to get an understanding of the situation. This means clearly that an entrepreneur creates his/her orientation to the competition. Peterson (1985) also stresses strategy making, in which dealing with competition plays an important role. Teach et al. (1989) indicated how one important area of behavior in business opportunity recognition is the analyzing of the market. Kaish and Gilad (1991), again, pointed out that entrepreneurs were alert to risk cues in the business environment. Thus, entrepreneurs were very cautious and alert to competitive issues. Herron and Sapienza (1992) stressed the need to related strategy to the context. Cadotte and Woodruff (1994) see analyzing of the product market to be very important. Hills and Lumpkin (1997) stated that entrepreneurs see that knowing the competitive arena is important. All these studies emphasize clearly how important the competitive issues are in business opportunity recognition. Entrepreneurs behave actively in order to understand the competition and posit their ventures actively, which implies aggressiveness, in the competitive arena.

Proactive searching. Cooper (1981) claimed that entrepreneurs feel what is happening around them in a market and sense opportunities these changes create. Thus, entrepreneurs scan for future changes and are ready to grab them before the opportunities are so visible that everybody can see them. Thus, entrepreneurs try to be proactive and act before the changes have happened in reality. Also Hills (1995) recognized that entrepreneurs were not searching for opportunities based on what had happened but merely on the basis of what was going to happen. Christensen et al. (1994) argue that behavior is strategic thinking. Thus, opportunity recognition is intuitive interpretation of the dynamics of market structure, competition, customer needs, timing, synergy, etc. It is also acting based on incomplete information. The authors also say that it is leaving doors open, leaving options as open as possible. It means that it is the kind of behavior that waits for the right information and then the right moment. Also, opportunity recognition is about hands-on experimentation with ideas. Peterson (1985) suggests as well that the proactive position of the venture in the competitive arena is distinctive behavior of entrepreneurs in opportunity recognition.

Rea et al. (1999) suggest that opportunity recognition is a learning path, in which entrepreneurs first have a vision of the future. In order to realize this vision, the entrepreneurs start to proactively gather information, justify the idea to other people, etc. On the basis of the above, it is proposed that opportunity recognition involves proactive behavior without exact information, in which the future is envisioned and actions grounded on this vision of the future and not on what has happened before. This is in line with Baron's (1998) study, in which he showed how entrepreneurs don't regret what has happened and have set their

sights on the future suggesting that proactive behavior is typical of entrepreneurs in opportunity recognition (see also Baron 1997). Thus, opportunity recognition is not about accidental luck but proactive deliberate search for an opportunity (see Zietsma 1999).

But proactiveness is not rational behavior either. In it is involved serendipitous events (Martello 1994). This means that entrepreneurs don't analyze and calculate the features of opportunities very closely but are mentally alert to events that could tell them something about future developments. They are, as Kaish and Gilad (1991) pointed out, alert to information cues. Thus, proactive behavior is about "listening to the voices of the future" and readiness to grab if there are "strong enough voices". This behavior is probably very dependent on the existing experiences, skills, and knowledge.

Innovative behavior. On the basis of the study by Gilad (1984), it can be said that is the following areas of behavior are connected with opportunity recognition: unusualness, appropriateness, transformation, and condensation. First, by unusualness Gilad means innovative behavior in which solutions that are not familiar to the members of the profession are searched for. Second, by appropriateness is meant that solutions are sought that answer to the needs of a market. Third, by transformation is meant behavior in which the search is for a gap in the market structure to create new value, i.e., a new form of business. Fourth, by condensation is meant strategic thinking, in which pieces of information are combined into a business opportunity. As a whole, it is behavior aiming at creating something new that would change significantly the existing knowledge of the business domain (cf. Czsickzentmihalyi 1997). This is in line with Peterson's (1985) indication that opportunity recognition requires fluent and flexible thinking, which is thought to be an important indicator of creativity/innovativeness (cf. Czsickzentmihalyi 1997). Also Bhave (1994) and de Koning and Muzyka (1996) recognized the importance of innovative behavior in opportunity recognition. In addition, it could be mentioned that Timmons (1994) devotes an important part to innovative/creative behavior in opportunity recognition in his widely used book on new venture creation.

Hills et al. (1999) argue that opportunity recognition is creative, i.e., innovative behavior. This means that it includes areas of behavior such as preparation, incubation, insight, evaluation, and elaboration. Thus, it is quite clear that to opportunity recognition behavior belongs innovative searching for new types of possibilities. Entrepreneurs in the above study, who said that they spent time to think creatively about business opportunities, also confirm this. Further, Hills and Lumpkin (1997) argue that in opportunity recognition proc-

ess knowledge is often transferred to another arena, and thus innovative behavior is needed. Hills et al. (1997) and Hills and Shrader 1998 also illustrated how innovative behavior is used in opportunity recognition.

Research on cognitions of entrepreneurs has revealed interesting results concerning how entrepreneurs discover business opportunities. Manimala (1996), for example, found when studying heuristically orientations of entrepreneurs that innovative entrepreneurs could be divided into clusters of inventors, adventurers, problem-solvers, social visionaries, gap fillers, opportunity grabbers, niche-holders, ancillary entrepreneurs, and service entrepreneurs. Of these, inventors pursue uniquely ideas. They have a desire to develop new products and ideas, and entrepreneurship is only secondary to them. Adventurers, in turn, "experience the world" in order to find adventurous opportunities. They don't develop innovations by themselves like inventors. Instead, they explore uncharted areas to introduce "exotic" new businesses. Problem-solvers are solving either personal- or social problems. They try to escape the problems through entrepreneurship and, thus, the business opportunities they identify are the obvious possibilities the environment offers. Social visionary entrepreneurship is the kind of entrepreneurship that solves social problems. Businesses are based on anticipated problems having larger social implications, especially with national- and cross-national perspectives. Gap fillers, then, sense quickly the gaps in the economy, which their business opportunities aim at filling. Opportunity grabbers are close to gap fillers, but the difference is that opportunity grabbers perceive opportunities that are not visible to all "players" in the economy. Niche-holders behave by serving a special need and the business opportunity is based on a product, market, service, or combination of these. Ancillary entrepreneurs are contract manufacturers and their business opportunities are based on other companies' businesses. Finally, service entrepreneurs lean on their own special skills. Based on the study by Manimala (1996), it is possible to see that entrepreneurs innovate quite differently. Some of the entrepreneurs do research and try to invent something while others explore the world, for example. In addition, it is possible to see that innovative behavior is one of the core areas of behavior in business opportunity recognition (Manimala 1992, 1996) because through it entrepreneurs create solutions, where there are possibilities of competing against recent solutions.

Collective action. Peterson (1985) already showed that opportunity recognition includes establishing relationships with the environment, seeing holographically the organization of the venture, and using resources episodically. Thus, dialogue with the context is to the fore in the behavior. Johannisson (1988) sees recognition behavior to be a learning process

which takes place in a social context. He argues that this process involves many mistakes and corrections, and thus also requires a lot of time. But because it is social and dialogical, the required time can be shortened by using the experiences of mentors and role models, for example. Thus, in opportunity recognition process is involved discussions about the future venture with the other people. Further, he suggests that the process is about socially constructing the image of the future by attention, action, and interpretation. Entrepreneurs try to enact an opportunity by small steps of social interaction and interpretation (see also Larson and Starr 1993). It also involves learning and unlearning in order to create possibilities for the environment. As a whole, it could be proposed that dialogue with the context is one of the crucial lines of behavior in opportunity recognition. Without it entrepreneurs would be blind to developments in the environment.

Krackhardt (1995), then, proposes that entrepreneurs are active networkers in opportunity recognition. Based his study, it is possible to say that entrepreneurs like to discuss with other people about their ideas and gather new information through social discussions. How possible this is, is dependent on the structure of the network of an entrepreneur. De Koning and Muzyka (1996) showed that entrepreneurs shared their ideas openly with other people because they were quite sure that the ideas are not so easily usable to others. Hills et al. (1997) found that recognition behavior involves networking in order to make the opportunity possible. They also found that to entrepreneurs, who had wide networks and were in active dialogue with their network, the opportunities were almost provided by the network (cf. also Hills and Shrader 1998). Singh et al. (1999) also showed that entrepreneurs use their networks in their opportunity recognition. Thus, active dialogue with the other people in the network is usual in opportunity recognition.

However, Kaish and Gilad (1991) found that entrepreneurs used non-verbal behavior in their knowledge acquisition. This might indicate that entrepreneurs are not so active socially as the above suggests. But the authors indicated also that entrepreneurs wanted to discuss their ideas with other people. This is interesting since it is often is thought that entrepreneurs also gather information by using social communications but the study by Kaish and Gilad (1991) shows that social communication is used to get opinions of their ideas. Still, it could be that there are two types of entrepreneurs, as Hills et al. (1997) have pointed out. They came to the conclusions that some entrepreneurs are loners while others are networkers in opportunity recognition. This is in line with the results obtained by Manimala (1996) also. The conclusion is that dialogue with the context should be studied in opportunity recognition.

Critique. The studies on opportunity recognition almost without exception attempt to investigate the process of recognition – what the process is like, whether there are phases in the process, etc. (see Sigrist 1999). The reason for this is presumably the eagerness of the field to discover the source of the fortune, the "heffalump" (see Kilby 1971), as in many other entrepreneurship studies. This is a very understandable and important point of view as development of the area is in its infancy and as opportunity recognition is seen to be one of the core areas of behavior of entrepreneurs (Kirzner 1997). In this study the importance of the process is acknowledged. However, the results of the process studies are not satisfying (cf. Sigrist 1999). Still it is not known how opportunity recognition proceeds – what entrepreneurs do when they try to recognize opportunities. As the studies have shown, the process is difficult to frame because of its interactive and complex nature (Sigrist 1999). It is very possible that there are no clear phases in the process. Thus, this study suggests that the process is best approached by studying the main areas of behavior that have been indicated to be a part of strategy making, which is the core of opportunity recognition (Birley and Muzyka 1997). On the basis of the above it is argued that there is a serious gap in opportunity recognition research and thus it should be studied more closely.

Summary of business opportunity recognition behavior

Opportunity recognition behavior here refers to behavior of entrepreneurs which aims at creating a strategic business concept of new economic value. Opportunity recognition behavior is here divided into knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. First, knowledge acquisition is about perceiving and interpreting business information. More specifically, it is about deliberately collecting information about customers, technologies, products, finance, research, etc. and interpreting this information to achieve business knowledge. Second, competitive scanning refers to behavior that tries to understand the competitive arena and find an empty spot. It is about scanning actively the competitive arena and creating a strategy that would mean a competitive advantage. Third, proactive searching is here seen as behavior that tries to understand future trends. In other words, it is behavior that tries to create a vision of the future and based on this vision to establish a business before others see the trend. Fourth, innovative behavior is about questioning the present ways of doing things. It is behavior that tries to find solutions that don't yet exist. Fifth, collective action refers to social behavior, which means that together with others is cleverer than alone. Thus, entrepreneurs try to use other people's knowledge to enact a more realistic future vision. Figure 6 below illustrates the content of intellectual capital.

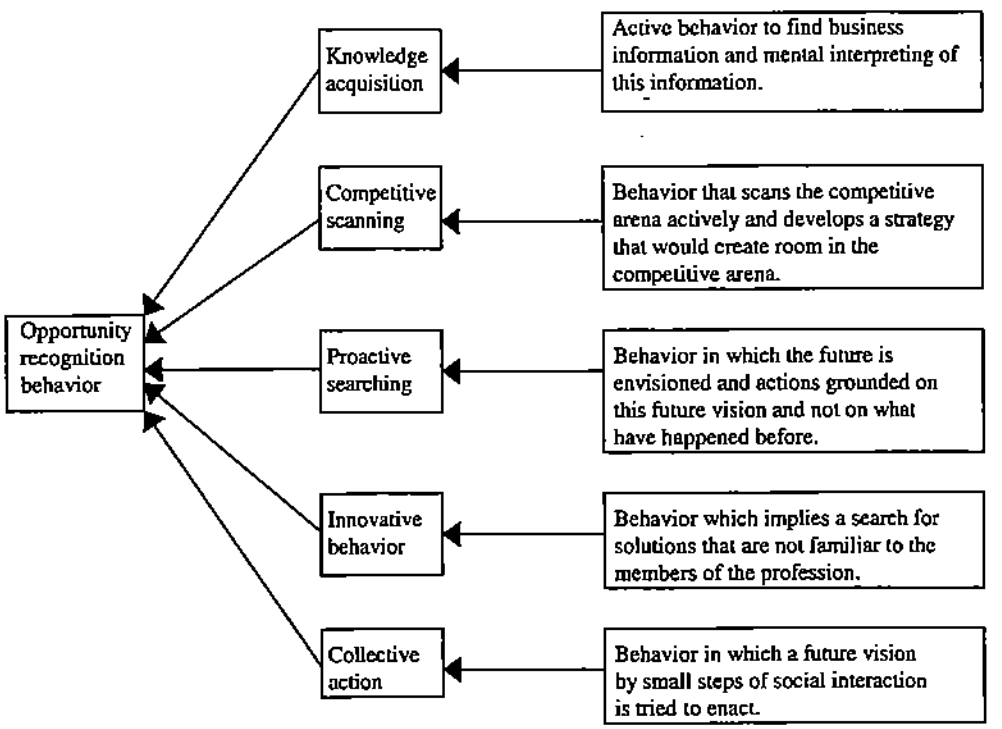


Figure 6. Content of opportunity recognition behavior.

3.1.5. Performance of new ventures

Performance of the ventures based on opportunity recognition hasn't been touched upon much in the research on business opportunity recognition. However, a considerable amount of entrepreneurship research in general has called for studies focusing on the performance creation of new ventures (e.g. Low and MacMillan 1988; VanderWerf 1989; Covin and Slevin 1991; Deeds, DeCarolis, and Coombs 1998). Thus, it is reasonable to claim that also the research on opportunity recognition should propose models including performance. Some of the studies on opportunity recognition have dealt with performance issues (Peterson 1985; Vesper 1991; Woo et al. 1992; Christensen et al. 1994; Timmons 1994). But the theoretical reasoning of these studies concerning performance is quite loose, so the next steps are, first, to use new venture creation literature to review what kind of different possibilities there are of measuring performance of young ventures, and second, to review how opportunity recognition literature has dealt with performance issues. This procedure is reasonable as this study investigates the performance of ventures when the ventures under study are still very young (established 1998).

Performance in new venture creation literature. Deeds et al. (1998) have done an excellent classification of performance measures of new ventures. They divide performance measures into (1) accounting measures, (2) growth measures, (3) subjective measures, (4) market based measures, (5) Tobin's Q -measure, and (6) market value added (MVA) -measure. Chrisman and McMullan (2000) have included also one more measure: newness value, or "better ways of doing things", as they called it. This study considers this measure as (7) the seventh possible measure of the performance of new ventures.

First, accounting measures have been used widely to measure performance of young ventures (Deeds et al. 1998). The most used accounting measures are profitability, return on investments, return on assets, time to pay back, and break-even (cf. Timmons 1994; Muzyka et al. 1996). Profitability is problematic in new ventures because in the beginning the investments are high, which cause profitability to often be low in the beginning, although a venture has sales enough (see Zahra 1993; Dess et al. 1997; Wiklund 1999, Yli-Renko 1999). Return on investments or -assets are more recommended (e.g. Zahra 1993, Wiklund 1999) as they measure relative income. It is quite different when the profit is, let's say, one million euros, whether the investment is either one million or 10 million euros. However, the problem is still the same as in the beginning incomes can fluctuate. Time to pay back shows how fast the investments are paid back to investors. This is also biased because the time to pay back is dependent on ventures' strategic decisions concerning financial investments. Some ventures might make the needed investments in the beginning while others make the investments later. This affects the payback time. Breakeven, then, shows how fast a venture earns more than it has to pay out. This is probably the best financial measure, when new ventures are studied, because it shows the survival capacity of a venture. But this is also the problem: it shows the survival capacity but it doesn't show how successful the venture has been. As a whole, this study is not using accounting measures because there are serious problems using these when new ventures are studied.

Second, growth measures are no doubt the most used performance measures of new ventures (see Miller 1987; Covin and Covin 1990; Zahra 1993, Lumpkin and Dess 1996; Dess et al. 1997; Wiklund 1999; Yli-Renko 1999; Chrisman and McMullan 2000). However, Deeds et al. (1998) argue that growth measures involve some problems. They claim that growth measures don't take into account profitability or risk issues. Thus, it could be proposed that it is possible to create high growth without worrying about profitability or risks that are involved in high growth. Still, many (Zahra 1993; Wiklund 1999; Yli-Renko 1999) argue that growth measures are perhaps the best measures of performance of new ventures

because growth shows that customers have accepted the venture and that the products/services add value to customers. The most used measures of growth are growth of sales and employees (Deeds et al. 1998). On the other hand, Wiklund (1999) suggests that growth of sales, employees, and market value of the company should be evaluated relative to competitors. Wiklund considers this type of approach to best reflect the added value to customers by the venture. This study acknowledges the problems of growth measures but still argues that growth measures are the most suitable performance measures of new ventures because they are easy to use and because entrepreneurs are cautious in showing accounting measures. When used as Wiklund (1999), they reflect well the value added by a venture.

Third, subjective measures use subjective perceptions of owners or managers. Normally it is asked how owners or managers see profitability and/or growth of their own venture. Many studies have shown that subjective measures reflect reliably objective performances (e.g. Miller 1987; Covin and Covin 1990; Zahra 1993, Lumpkin and Dess 1996; Dess et al. 1997; Wiklund 1999; Yli-Renko 1999). Subjective measures are mainly used because entrepreneurs are unwilling to show exact financial figures (Zahra 1993). However, there is, of course, always the possibility that perceptions are different from the truth (Deeds et al. 1998). For example, Sapienza, Smith, and Gannon (1988) found that subjective measures didn't measure performance, sales growth, or return on sales. However, many researchers (Covin and Covin 1990; Zahra 1993; Lumpkin and Dess 1996; Dess et al. 1997; Zahra et al. 1997; Zahra and Neubaum 1998; Wiklund 1999) have used almost the same subjective instrument and compared the subjective results with the objective results, and concluded that the subjective measure of performance of new ventures measures performance reliably. The above researchers have mainly measured growth of sales, growth of employees, profitability, and return on investments and -assets. This study leans on these last researchers and also claims that subjective measures are reasonable to use when combined with growth measures, which measure growth relative to competitors.

Fourth, market-based measures are also widely used in new venture creation literature (Deeds et al. 1998). Most often is measured the market value of the firm measured. The market value has at least three advantages as a measure of performance: (1) it shows the future earning potential of the firm, (2) it is an objective measure that captures all the relevant information, and (3) it is the mechanism stockholders use to assess actions of managers (Deeds et al. 1998). However, the market value of the firm as a performance measure fails to take into account the amount of capital invested in the venture. If one million euros and 10 million euros are invested in two ventures, the first venture is obviously performing bet-

ter if the market value of both is 10 million euros. Another problem of the market value as a performance measure of new ventures is that it requires that ventures are public. Otherwise it is very difficult to measure reliably the market value of the firm. Because the ventures in this study are not public, market value as a measure is not used.

Fifth, Tobin's Q is the ratio of the market value of the firm to the physical assets (Deeds et al. 1998). It is used, according to the authors, to measure the growth opportunities of ventures. The problem of this measure is that it is not taking into account intangible resources, such as intellectual and social capital, which have been seen in this study to be very important. Thus, this study is not using this measure.

Sixth, Deeds et al. (1998) argue that the best measure to assess new ventures' performance is the market value added (MVA) -method. It tries to assess the free cash flow that is available to lenders or stockholders. It claims that value has been created only when the market value of the venture exceeds the amount of the invested capital in the venture. However, this method also requires that the ventures are public. Thus, entrepreneurs are rarely ready to show how much capital has been invested in the venture. Thus, the needed information to measure MVA is only available when the ventures are public or the relations to entrepreneurs very close. The ventures of this study aren't public or very close to the researcher, so the MVA-method is not used in this study, although it would be very useful.

Seventh, Chrisman and McMullan (2000) have proposed that *"innovation, or better ways of doing things, is one of the most important contributions of businesses to the economy"*. By this they meant that the newness value of the venture creating new value for customers is one of the most important performances of a new venture. This study also sees that core of entrepreneurship is to create new value (cf. Deeds et al. 1998). Thus, it is suggested that it in the measurement of performance of new ventures also newness value created by the new ventures should be taken into account.

Performance in business opportunity recognition literature. As Covin and Slevin (1991) argue *"the ultimate dependent variable is firm performance"*. Still, the dimensions of performance are in opportunity recognition problematic. Often the traditional profit measures don't fit in the situations where the ventures are young because new ventures rarely earn profit (Yli-Renko 1999). Still, this doesn't mean that the ventures are poor investments. On the other hand, normal financial measures are not available because small entrepreneurs don't necessarily have to release them publicly. Thus, it is more realistic to

use measures of growth (e.g. Covin and Covin 1990; Tsai, MacMillan, and Low 1991; Dess et al. 1997) and newness value (e.g. Chrisman and McMullan 2000) as indicators of performance. Below the literature on performance in opportunity recognition is not reviewed from the viewpoints of these two performance dimensions, because opportunity recognition literature has dealt with performance mostly as a whole. Thus, performance in opportunity recognition is reviewed in the following section in general. However, performance is an important part to be studied as it reflects how well products, services, and ways of doing business (the business concept) are accepted by the customers. Thus, performance reflects what the business opportunity is like evaluated as the satisfaction of customers.

Peterson (1985) suggested the following good performance creators: *"(1) not accepting the environmental change but take actions to take advantage of the change, (2) internal motivation and deliberate intention to change things, (3) alertness and ability to see major, global changes, which are happening almost simultaneously, (4) a social network to make the change happen, (5) skill of strategic (re)thinking, (6) skill to (re)positioning in the industrial landscape, (7) opportunity driven, (8) strong leader, and (9) capability to use resources when needed, episodically"*. These are in line with the study by Teach et al. (1989). They indicated that entrepreneurs, who didn't care so much about formal planning and evaluation and who put more effort into intuitive alertness and hard, even unrealistic goals, achieved better results. Thus, it could be suggested that ignorance of formal planning and evaluation releases time for more important things -- what these are is another question. It could be also that entrepreneurs without formal planning and evaluation are doing their thinking processes informally and intuitively and thus it is more efficient than when they can do it more holistically and also use "gut" feelings and experiences. Vesper (1991) proposes that opportunities are to be found, if entrepreneurs can ask the right questions and find good enough answers. Performance is, thus, dependent upon the mental information processing sequences entrepreneurs have. This implies that entrepreneurs' cognitive skills to solve problems play a relevant role.

Woo et al. (1992) divide the high performance factors into two parts depending on opportunity recognizers' experience. If an entrepreneur is inexperienced, (s)he must search intensively for information and organize it rationally. On the other hand, if (s)he is experienced, and familiar with the domain especially, (s)he must be careful how to interpret information in proportion to her/his prior knowledge. This suggests that, depending on the background of the entrepreneur, performance is grounded on different aspects. This situational approach is also illustrated by Christensen et al. (1994) who stress that success is dependent

on the situation when there is a window of opportunity, when firms have technological knowledge, market knowledge, and experience, when entrepreneurs can accumulate resources and solve problems they are coming up against, and entrepreneurs understand the situation strategically. When these factors are present at the same time, then good performance is likely.

Timmons (1994) trusts "businesslike" performance factors. He sees that performance factors are related to markets, economics, harvesting, competitive advantage, management team, personal issues, and strategy. The market should be fast growing and big enough. Return on investment should be above 25% and break-even should happen in less than two years. The product must create high value for customers and margins should be at least moderate. Competitive advantage should be clear and barriers to the same market should exist. The management team must be one of the best in the field with a great track record. A personally owned venture should be what you want and it should be in line with your life-style. Strategy should be based on a clear differentiation (Timmons et al. 1987).

Krackhardt (1995) puts forward that performance is dependent on social relationships. It depends on the dyadic relationship between an entrepreneur and his network members. If the relationship is such that an entrepreneur and a member have a relationship but a member has no relationships with other members, then an entrepreneur might be successful in finding a profitable opportunity. Thus, Gunther McGrawth (1997: 38–42) stresses the social capital of entrepreneurs to be a critical performance factor. She suggests that through these networks entrepreneurs have the chance to *"acquire resources at minimum cost and subsequently validate their initial assumptions"*. Assets and options to act are the viable success makers but behind them are networks of entrepreneurs. Singh et al. (1999) also mention in their discussion part that entrepreneurs having different performances could have significant differences in their use of social relationships. They propose, further, that social relationships could reduce the liability of newness. But they have in their study quite a narrow view neglecting individual, environmental, and behavioral issues that could play a part as well. Thus, it is proposed that social relationships and also individual capabilities, competitive dynamism, and recognition behavior can have impacts on performance.

Stasch (1994) proposes that performance is dependent on a market's existence, an entrepreneur's experience, a new product's screening, and evaluation. If there is a market, the entrepreneur is experienced, the new product is not a new idea, then evaluation is probably not needed and success is likely. Second, if a market exists already, the entrepreneur is ex-

perienced, but the product is a quite new idea, then evaluation is probably needed, if success is to be achieved. Third, if the market exists, but the entrepreneur is inexperienced and the product is new, then evaluation is definitely needed, if success is wanted. Fourth, if the market is unclear, the entrepreneur is inexperienced, the product is totally new, then evaluation is definitely needed, though success is unsecured. Fifth, if there is no market, the entrepreneur is inexperienced, the product is a true innovation, evaluation is very difficult to do, success is the matter of luck. Birley also (1997: 33–37) argues that good assessment of an opportunity is the key to success. Entrepreneurs should find a market with potential, a market share to be taken, a route to reach a market, ways to protect their own opportunity, profitability, and that the whole thing is desirable to the entrepreneur. If these factors are present, then an opportunity might succeed. Without these, disaster is more than possible.

Muzyka et al. (1996) tried to find what criteria venture capitalists use to evaluate opportunities. They classified the criteria into financial, product-market, strategic-competitive, fund, management team, management competence, and deal. The results were that management team criteria came out on top. Product-market criteria appeared to be only moderately important, and fund and deal criteria were at the bottom of the rankings. The management team and the opportunity are the most important ones. Fund and deal issues can be even poor, if the management team is good and if there is clear opportunity.

Critique. First of all, in opportunity recognition research performance is widely recognized. In addition, many affecting variables have been introduced. However, rigorous empirical studies of how variables affect performance have not been done. On the other hand, performance is touched quite loosely on opportunity recognition. By performance is meant financial issues, market achievements, efficient organization building, etc. It is argued here that often the most important and simplest measures are forgotten. It is further argued that as indicators of performance should be used growth of the venture and newness value of the venture. These measures show how well the business opportunity is accepted by customers and how much the business opportunity adds new value for customers compared with present ventures. The prior discussion has mostly concentrated on finding out what factors affect performance. Prior research on opportunity recognition has thus neglected to study performance and to define what performance is.

Summary of performance creation through business opportunity recognition

The performance of a venture is possible to define in many ways. Here the point of depar-

ture is a young venture's performance, and thus, the survival of a venture might be a good enough measure. But it doesn't make it possible to compare already survived ventures, and thus, more specific measures are used. However, profit, for example, is not a relevant measure because young ventures rarely earn profits. Thus, here performance is divided into growth and newness value. First, the growth of a venture shows what has been the need for this type of business concept. The growth of a venture serves to illustrate how widely customers have accepted the venture and its business opportunity. Second, newness value shows how different the business concept is compared with competitors. This illustrates how well an entrepreneur has been able to find his/her own spot in the markets. Figure 7 illustrates the content of performance of a venture.

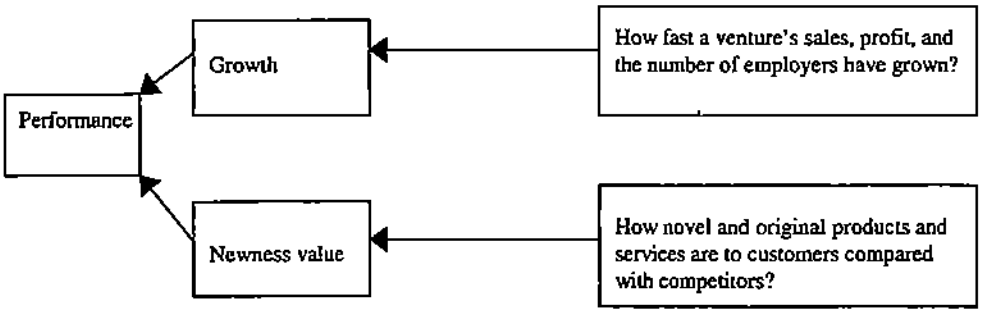


Figure 7. Content of performance of a venture.

3.2. Hypotheses of the study

Some hypotheses have been formulated through the following procedure: First, the literature on the subject was read to construct an overview of the phenomenon. Second, the literature was reviewed more carefully to find the main concepts concerning the domain. Third, the literature was reviewed to find the most common relationships between these concepts. Fourth, the literature was reviewed more closely to find issues that support and that conflicts with the relationships. Fifth, the hypotheses and their direction (positive vs. negative) were formulated on the basis of what seemed to be the dominating view. In the following altogether 55 hypotheses are formulated. The number is high but they are all necessary to be able to understand the phenomenon holistically and reach the objectives of the study as the purpose of the study was to make an examination of all the prior research, establish a theoretical framework based on that, and test this framework empirically. Without including this number of hypotheses such a test wouldn't have been possible, although a smaller number of hypotheses would have been easier to handle.

3.2.1. Conceptual framework of the intellectual capital of entrepreneurs in opportunity recognition

In the previous chapter it was shown that based on the literature intellectual capital is one of the main resources that include entrepreneurs to opportunity recognition behavior. The question that still remains open is how intellectual capital affects opportunity recognition behavior. This is to be answered in the next section. Here the hypotheses concerning the impact of intellectual capital on opportunity recognition behavior are presented.

The impacts of intellectual capital on opportunity recognition behavior

The overall hypothesis is that intellectual capital should increase opportunity recognition behavior. This is to be tested through more specific hypotheses. The variables of intellectual capital are domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity. The variables of opportunity recognition are knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. Thus, the purpose is to suggests based on the above literature review on opportunity recognition hypotheses on the relationships between the intellectual capital variables and opportunity recognition variables.

Hypotheses 1a–1e: effects of intellectual capital on knowledge acquisition

Domain knowledge → knowledge acquisition. Woo et al. (1992) indicated, when they studied the information search of experienced and non-experienced entrepreneurs, that lack of domain knowledge created cognitive barriers preventing the knowledge acquisition. This could be interpreted so that inexperienced entrepreneurs didn't understand the information they perceived because of the lack of domain knowledge that gave them knowledge structures through which the information could not be interpreted. On the other hand, the lack of relevant domain knowledge guides entrepreneurs to pay attention maybe to irrelevant information (Mayer 1992; Baron 1998). Shane and Venkataraman (2000) also underline the importance of relevant domain knowledge structures in order to be able to acquire knowledge of the area. De Koning and Muzyka (1996) studied the behavior of those entrepreneurs who have been successful in finding several profitable opportunities. What was illuminating based on their results was that entrepreneurs with domain knowledge knew how to acquire knowledge and what kind of knowledge they need. Also Hills and Lumpkin (1997) and Hills et al. (1997) indicated that entrepreneurs who have domain knowledge of

the industry actively seek new knowledge of the opportunities in that same industry. Based on their study, it is possible to argue that without knowledge of the domain it is hard to see the information gaps, and thus, opportunities in the area. Gaglio and Taub (1992), interestingly, showed in their experiment where entrepreneurs were asked to develop business opportunities based on the data the researchers gave them that entrepreneurs were not willing to do that because they didn't have real domain knowledge of the area. Thus, the entrepreneurs refused to seek knowledge because of the lack of domain knowledge. Hills and Lumpkin (1997) and Hills et al. (1999) have also pointed out the positive effect of domain knowledge. Zietsma's (1999) result was that what differentiated entrepreneurs and persons who had found an opportunity but not started a venture was the deliberateness in their search activities. Entrepreneurs searched deliberately but non-entrepreneurs found accidentally their opportunities. Based on this it is possible to suggest that entrepreneurs with knowledge of the domain acquire knowledge actively in order to find an opportunity. Therefore, the following hypothesis is presented: **Hypothesis 1a: The higher the domain knowledge of entrepreneurs, the more intense is their knowledge acquisition.**

Formal knowledge → knowledge acquisition. Cooper (1981) considered formal knowledge to interact with domain knowledge in knowledge acquisition. Gaglio and Taub (1992) indicated that entrepreneurs used formal skills to make sense of the situation. Thus, it is possible that the more they have formal skills the more they search for knowledge in order to understand the situation. This is supported by the study by Woo et al. (1992). Herron and Sapienza (1992) propose that formal skills and motivation interact affecting together positively the search for knowledge. Although the model is theoretical, it is an important suggestion of the effects of formal knowledge. Bhave (1994) also pointed out that formal knowledge motivates entrepreneurs to search the needed knowledge. Zietsma (1999) found that entrepreneurs were often more skilled technically than non-entrepreneurs. Thus, it is possible to propose that possibly formal knowledge causes a more deliberate search for information. Hills et al. (1999) propose that formal knowledge enhances knowledge acquisition of survival capacity of a venture. Last, Sigrist (1999) illustrated how entrepreneurs used their formal knowledge ("serious skill") to manage and control the knowledge acquisition of domain knowledge ("passionate skill"). This suggests that formal knowledge provides the frames and aim for knowledge acquisition. On the basis of the above discussion, the following hypothesis is presented: **Hypothesis 1b: The profounder the formal knowledge of entrepreneurs, the more intense is their knowledge acquisition.**

Management experience → knowledge acquisition. Hills (1995) studied opportunity

recognition of successful entrepreneurs and found that these entrepreneur were active knowledge searchers. This suggests that entrepreneurial/managerial experiences enhanced knowledge acquisition. De Koning and Muzyka (1996) pointed out the importance of management experience in knowledge acquisition. They indicated that entrepreneurs who had prior experience in entrepreneurship and/or management, acquired knowledge more frequently. Experienced entrepreneurs knew that they need new knowledge to find relevant gaps. Hills et al. (1997) and Hills and Shrader (1998) also illustrated that entrepreneurs with prior entrepreneurial/ managerial experience search actively new knowledge of opportunities. Woo et al. (1992) hypothesized management experience to have a positive influence on knowledge search. However, they came to a non-significant result. This doesn't mean that there isn't such a relationship but merely that it should be studied empirically again. This is clear particularly because Gimeno et al. (1997) used the same scale of management experience and found that management experience is associated with the behavior that supports the survival of new firms. On the basis of the above authors' research, management experience builds relevant cognitive knowledge structures which activate the perceiving and interpreting of information, and thus, knowledge acquisition. Further, management experience makes it possible to acquire relevant knowledge and reminds one how important the knowledge of the area is. The lack of prior experience of entrepreneurship and/or management might create cognitive barriers that lead to ignoring knowledge acquisition. This is supported by the study by Kaish and Gilad (1991), which points out that both entrepreneurs and managers are active knowledge searchers. On the basis of the above discussion, the following hypothesis is presented: **Hypothesis 1c: The wider the management experience of entrepreneurs, the more intense is their knowledge acquisition.**

Intrinsic motivation → knowledge acquisition. Kaish and Gilad (1991) suggested that entrepreneurs who achieved success lost their motivation for opportunities. This shows that knowledge acquisition of opportunities requires intrinsic motivation to do it. Sigrist (1999) also stresses that intrinsic motivation of their own personal line of doing things "kicks" entrepreneurs to search opportunities to realize this own wish for them. Herron and Sapienza (1992) see that intrinsic motivation has a very important role in the knowledge acquisition of opportunities. They propose that only after entrepreneurs are motivated to change their lives somehow and search for opportunities for their own business does knowledge acquisition start. Drucker (1998), who has studied the sources of business opportunities, has stated that entrepreneurs need full commitment to entrepreneurship before the gap finding is possible. This illustrates probably again how strongly intrinsic motivation affects knowledge acquisition of business opportunities. Manimala (1992, 1996) found also this type of results

when comparing high innovative- and low innovative entrepreneurs. High innovative entrepreneurs spent more time continuously searching for new opportunities, and what was important they were intrinsically motivated to do that. The study by Hills (1995) also revealed that knowledge acquisition was activated by the intrinsic need to find a business to which an entrepreneur was committed emotionally. On the basis of the above discussion, the following hypothesis is presented: **Hypothesis 1d: The higher the intrinsic motivation of entrepreneurs, the more intense is their knowledge acquisition.**

Creativity → knowledge acquisition. Gilad (1984) already considered opportunity recognition to be creative behavior. He suggests that creativity is needed to acquire relevant information and connect pieces of information to form a new opportunity. According to Gilad (1984), it is not easy to link information, and to make this possible for everyone. It requires creative capabilities. On the basis of this, it is argued that creativity enhances knowledge acquisition as it gives cognitive thinking tools to connect bits of information that superficially look as if they don't have anything to do with each other into knowledge of an opportunity. Hills and Lumpkin (1997) illustrated how entrepreneurs spend quite a lot of time creatively thinking about the information they have received. This is also supported by the results by Hills et al. (1997) and Hills and Shrader (1998). Hills et al. (1999) go further and propose that opportunity recognition is inherently business creativity of entrepreneurs. They see that in order for knowledge acquisition to happen creativity is needed. De Koning and Muzyka (1996) saw also that successful entrepreneurs used their creative capabilities to turn the complex information into the knowledge of the situation. On the basis of the above discussion, the following hypothesis is presented: **Hypothesis 1e: The higher the creativity of entrepreneurs, the more intense is their knowledge acquisition.** The above presented influences of intellectual capital variables on knowledge acquisition are illustrated in Figure 8.

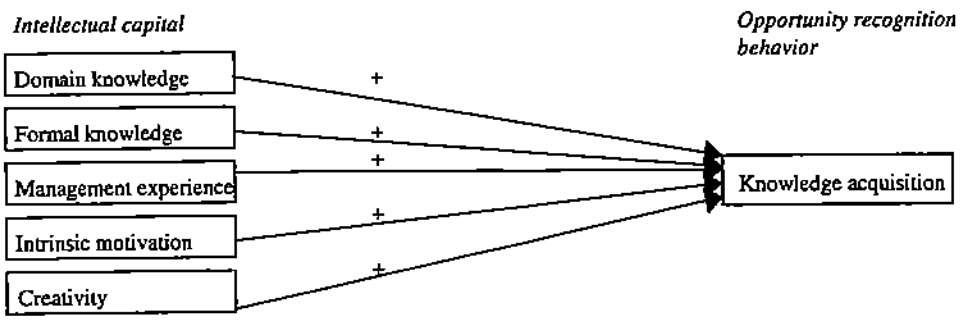


Figure 8. Influences of intellectual capital variables on knowledge acquisition.

Hypotheses 2a–2e: effects of intellectual capital on competitive scanning

Domain knowledge → competitive scanning. Cooper (1981) already sees the knowledge of the profession to be important in scanning competition. This is based on the idea by Kirzner (1979, 1981, 1997) that domain knowledge is needed in order to be alert to gaps in the market. Long and McMullan (1985) found that entrepreneurs use their domain knowledge to scan the competitive arena. De Koning and Muzyka (1996) proposed that the experience of entrepreneurs made them actively scan the competitive environment in order to find gaps that are big enough for profitable business but not big enough to make big companies interested. Thus, it is possible to see that one of the main issues that concern experienced entrepreneurs is to find "niches" in markets. Thus, competitive scanning is affected positively by domain knowledge. Kaish and Gilad (1991), again, pointed out that entrepreneurs were more aware of risk cues in markets than managers. This shows how domain knowledge, which especially entrepreneurs have, enhances competitive scanning of risks in markets. Hills and Lumpkin (1997) propose that entrepreneurs see competitive scanning to be very important in opportunity recognition, and this to be affected by the level of domain knowledge. Christensen and Peterson (1990) suggest as well that domain knowledge is very important to able to understand markets and competitors in it. The above studies all propose that domain knowledge should increase competitive scanning. Thus, the following hypothesis is presented: **Hypothesis 2a: The wider the domain knowledge of entrepreneurs, the more intense is their competitive scanning.**

Formal knowledge → competitive scanning. The study by Kaish and Gilad (1991) suggests that formal knowledge, something that managers probably have more of than entrepreneurs, makes them to neglect market risk cues that entrepreneurs see. However, managers try to scan competition more than entrepreneurs but are somehow trapped by their formal models. Thus, it is proposed that formal knowledge enhances competitive scanning but might also make it harder to understand it without domain knowledge. Aggressive competitive scanning of skilled entrepreneurs was also noticed by Woo et al. (1992). Zietsma (1999) found that formal knowledge causes entrepreneurs to neglect scanning competition because of overconfidence. This would mean that formal knowledge decreases competitive scanning because entrepreneurs rely too much on their formal knowledge. However, Hills (1995) and Hills and Lumpkin (1997) have suggested that formal knowledge might affect competitive scanning positively. Thus, based on the study by de Koning and Muzyka (1996) it is possible to say that formal knowledge enhances competitive scanning. It is proposed that formal knowledge offers tools that could be used to analyze more effectively the

competitive arena and to be more ambitious and aggressive. Although the results are a bit controversial, the following hypothesis is presented: **Hypothesis 2b: The wider the formal knowledge of entrepreneurs, the more intense is their competitive scanning.**

Management experience → competitive scanning. Thakur (1999) has proposed that managerial capabilities are needed in order to be able to scan the competitive arena. Managerial capabilities could be seen as management experience. Hills et al. (1997) and Hills and Shrader (1998) also point out that prior experience of entrepreneurship and/or management is needed in competitive scanning. De Koning and Muzyka (1996), again, found that experienced entrepreneurs put a lot of effort into understanding markets. The scanning of markets and profitable gaps in them was the ground of entrepreneurs' whole opportunity recognition process. Management experience has created in them a sense that by knowing the market success is confirmed. The positive effect of management experience on competitive scanning is also supported by the study by Christensen et al. (1994). They argue that strategic thinking skills, which develop through constant practicing and trial and error, are the core resources based on which competition can be understood. Here it is suggested that strategic thinking skill is the core of management experience. After all, management is about strategically leading a business unit. The above results propose that management experience guides entrepreneurs especially to mind competitive arena. Thus, the following hypothesis is presented: **Hypothesis 2c: The wider the management experience of entrepreneurs, the more intense is their competitive scanning.**

Intrinsic motivation → competitive scanning. Herron and Sapienza (1992) have proposed that higher intrinsic motivation would lead to higher competitive scanning. Gaglio and Taub (1992) showed that entrepreneurs, who relied on their own opinions and decisions, i.e. intrinsic motivation, put more effort into trying to understand competition. Also Manimala (1992, 1996) came to the same conclusions. He pointed out that highly innovative entrepreneurs, who were intrinsically motivated, were scanning competition intensively. De Koning and Muzyka (1996) showed how entrepreneurs enjoyed the scanning of the competitive arena. This illustrates clearly how intrinsic motivation enhances competitive scanning, Christensen et al. (1994) emphasized that competitive scanning is one of the main areas of behavior in opportunity recognition and it to be incremental learning process, in which problems are turned into possibilities. Here it is suggested that constant learning and problem solving requires a lot of intrinsic motivation because it is cognitively very demanding to be alert all the time. Thus, Hills and Lumpkin (1997) showed how entrepreneurs were internally eager to scan competition suggesting that intrinsic motivation would

increase competitive scanning. Thus, the following hypothesis is presented: **Hypothesis 2d: The higher the intrinsic motivation of entrepreneurs, the more intense is their competitive scanning.**

Creativity → competitive scanning. Kirzner (1997) suggests that it needs creativity to be alert to market gaps. Thus, based on his research creativity should increase competitive scanning. Hills et al. (1999) studied opportunity recognition and noticed that competitive scanning requires skills to creatively question the market situation. This is also supported by Hills and Lumpkin (1997), Hills et al. (1997), and Hills and Shrader (1998), according to whom creativity plays an important role in searching for knowledge of a competitive arena and making competitive decisions. De Koning and Muzyka (1996) also pointed out that successful entrepreneurs use their creativity to find market niches. In addition, Sigrist (1999) and Shane and Venkataraman (2000) argue about the skills to link information into new solutions invisible to others, i.e. creativity to give possibilities of flexibly learning from customers, intuitively read market dynamics, and impulsively react to situations. Thus, the following hypothesis is presented: **Hypothesis 2e: The higher the creativity of entrepreneurs, the more intense is their competitive scanning.** The above influences of intellectual capital variables on competitive scanning are illustrated in Figure 9.

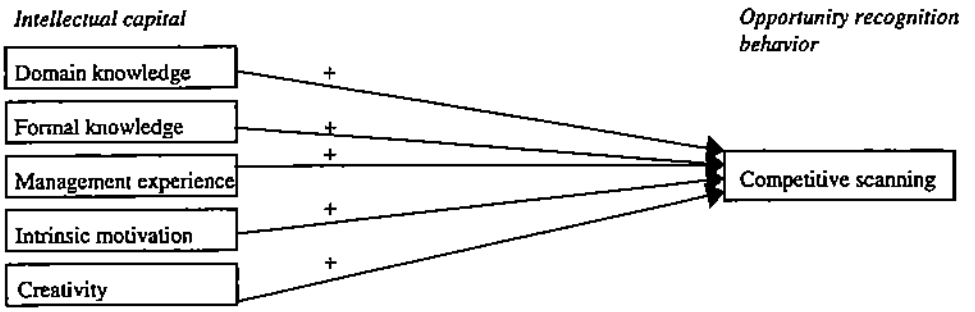


Figure 9. Influences of intellectual capital variables on competitive scanning.

Hypotheses 3a–3e: effects of intellectual capital on proactive searching

Domain knowledge → proactive searching. According to Cooper (1981), the knowledge of domain gives tools to search for future changes in a business environment. Peterson (1985), as well, underlines how experience is used to proactively position a venture in a business arena. Domain knowledge, thus, creates a kind of cognitive map, which could be used to search for the best routes to customers. Therefore, entrepreneurs use their domain

knowledge to build a vision of what will happen. It is probable that those who don't know the domain see the future just when it is already the reality. Hills (1995) also indicates this, suggesting that experience in the domain lead entrepreneurs rather to vision of what will happen than to what has happened. Rea et al. (1999) propose that entrepreneurs construct visions of the future without exact information but merely on the basis of their experience. This is line with the study by Baron (1998), who revealed that entrepreneurs easily fix their eye on the future because their prior knowledge structures, experiences, advise them to do that. Regrets for past behavior are not leading anywhere. Last, the importance of domain knowledge is clearly shown by Martello (1994). He argues that opportunity recognition is serendipitous future scanning, in which previous experiences in the domain have a central role. Opportunities are often found, according to Martello (1994), almost accidentally after serious working in the field, but not necessarily after deliberately searching for an opportunity, and unconscious scanning of information cues. This understanding of the cues of future possibilities requires a lot of experience in the field, i.e., domain knowledge. Thus, the following hypothesis is presented: **Hypothesis 3a: The higher the domain knowledge of entrepreneurs, the more intense is their proactive searching.**

Formal knowledge → proactive searching. Christensen and Peterson (1990) showed that what is needed besides domain knowledge is also general alertness, i.e. formal knowledge, to be capable to strategic thinking. This contains the idea that formal knowledge is needed to strategically see the future. Hills and Lumpkin (1997) found that entrepreneurs were able to transfer general opportunity recognition skills to different types of situations than the domain they were familiar with. This also implies that formal and more general skills to use knowledge are used to proactively search for future business opportunities. Entrepreneurs don't stay in the familiar area, but also search for unfamiliar arenas using their formal knowledge. Most importantly, Zietsma (1999) indicated that higher technical education significantly increased the likelihood of deliberate future scanning of opportunities. Rea et al. (1999) argued that formal education is important in developing needed managerial skills, which are used to vision the future. Herron and Sapienza (1992), as well, stress that formal skills affect positively proactive opportunity searching. **Hypothesis 3b: The higher the formal knowledge of entrepreneurs, the more intense is their proactive searching.**

Management experience → proactive searching. Hills et al. (1997) and Hills and Shrader (1998) indicated that behavior that characterized opportunity recognition was proactive searching for future possibilities. What they also found was that these entrepreneurs had experience in entrepreneurship and management of their own and others' ventures. On

the basis of this, it is possible to suggest that management experience should enhance proactive searching. This is supported by the study by de Koning and Muzyka (1996), in which they studied already experienced entrepreneurs' opportunity recognition, and came to the conclusion that they have a skill to vision the future. Also Kaish and Gilad (1991) showed how experienced entrepreneurs were able to interpret the information cues. Thus, the following hypothesis is presented: **Hypothesis 3c: The wider the management experience of entrepreneurs, the more intense is their proactive searching.**

Intrinsic motivation → proactive searching. Baron's (1998) study was very interesting in respect of the motivational background of entrepreneurs searching for opportunities. It showed that entrepreneurs were highly intrinsically motivated to search for future possibilities. They weren't so much concerned with the past or even the present – what has happened has happened and that's that. Thus, intrinsic motivation for entrepreneurship turn they attention to the future and proactive behavior. In line with this is the study by Martello (1994). He suggests that entrepreneurs are highly motivated to work in the field they are interested in. At the same time they all the time scan information cues in order to recognize future possibilities. Thus, their passion, i.e. intrinsic motivation, causes them to proactively search at the same time as they are working at other things in the field. Manimala (1992) indicated that innovative entrepreneurs were intrinsically motivated and proactive in their scanning. Also based on the study by Hills (1995) it is possible to see how passionate interest in the domain makes entrepreneurs search for proactive ideas. Thus, the following hypothesis is presented: **Hypothesis 3d: The higher the intrinsic motivation of entrepreneurs, the more intense is their proactive searching.**

Creativity → proactive searching. Gilad (1984) stated that creativity is needed to proactively transform information into appropriate and unusual solutions. According to Gilad (1984), creativity is the main cognitive vehicle of human beings in proactive behavior. Other studies have also quite generally seen creativity to be important in opportunity recognition. Hills (1995) and Hills et al. (1999) also propose that creativity enhances future scanning of possibilities. On the basis of a study by Christensen et al. (1994), it is possible to say that the capability to turn problems into possibilities is linked to the ability to strategically think of the future of the business. De Koning and Muzyka (1996) also suggest that creativity supports proactive behavior. Thus, the following hypothesis is presented: **Hypothesis 3e: The higher the creativity of entrepreneurs, the more intense is their proactive searching.** The above influences of intellectual capital variables on proactive searching are illustrated in Figure 10.

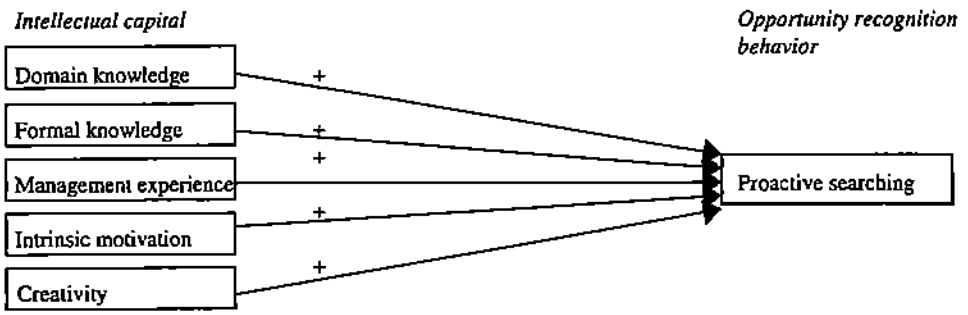


Figure 10. Influences of intellectual capital variables on proactive searching.

Hypotheses 4a–4e: effects of intellectual capital on innovative behavior

Domain knowledge → innovative behavior. Hills et al. (1999) argue that innovative behavior is at the core of opportunity recognition. On the other hand, they propose that domain knowledge affects opportunity recognition positively. Thus, domain knowledge should increase innovative behavior. Further, Hills (1995) showed that successful entrepreneurs, who were experienced in their field, innovated ideas actively. Manimala (1992, 1996) studied high- and low-innovative entrepreneurs. He found that a more innovative entrepreneur knew customers, dealers, supplier, and others dealing with the products and services in that industry better. Thus, domain knowledge enhanced innovative behavior. The following hypothesis is therefore presented: **Hypothesis 4a: The higher the domain knowledge of entrepreneurs, the more intense is their innovative behavior.**

Formal knowledge → innovative behavior. Christensen and Peterson (1990) came to the conclusion that formal knowledge of a market or a technology might be the source of innovative venture ideas. This suggests that formal knowledge should support innovative behavior so that new ideas are possible to construct. Gaglio and Taub (1992) pointed out, when studying entrepreneurs' and managers' opportunity recognition, that managers were more skilled innovators. This suggests that formal knowledge, which is very probably higher among managers, affects innovative behavior positively. Zietsma (1999) also found that both high-tech entrepreneurs (high formal knowledge) and managers (high formal knowledge) were good at innovating ideas. This doesn't imply that less educated persons are poor at innovating but it suggests, at least, that high formal knowledge might cause intense innovative behavior. The reason for this might be, as Shane and Venkataraman (2000) propose, that some are better at processing information than others. This skill to process information is probably created to a large extent by formal education. Formal edu-

cation provides general thinking skills, which could be used in many kinds of situations (Mayer 1992). Thus, the following hypothesis is presented: **Hypothesis 4b: The wider the formal knowledge of entrepreneurs, the more intense is their innovative behavior.**

Management experience → innovative behavior. Cooper already stresses that managerial experience might support innovative opportunity recognition. Thakur (1999) proposed based on nearly 50 case studies that without managerial capabilities it would be difficult to innovate solutions that are useful and appropriate. Hills (1995), Hills et al. (1997), and Hills and Shrader (1998) also argue also innovativeness is usual among experienced entrepreneurs. They studied entrepreneurs with prior entrepreneurial and/or managerial experience and found that they spend quite a lot of time playing with ideas. Thus, the following hypothesis is presented: **Hypothesis 4c: The wider the management experience of entrepreneurs, the more intense is their innovative behavior.**

Intrinsic motivation → innovative behavior. Gaglio and Taub (1992) found that entrepreneurs were intrinsically motivated in their actions. They showed also that innovative behavior was one of the central actions in opportunity recognition. Thus, innovative behavior should be positively influenced by intrinsic motivation. Further, Manimala (1992) came to the conclusion that innovative entrepreneurs were intrinsically motivated, i.e., intrinsic motivation increased high-innovative behavior. The results reached by Hills (1995) suggest that internal motivation should enhance innovative behavior. It is also interesting that internal motivation to work with other people enhances innovative behavior (Steyaert et al. 1996). Thus, the following hypothesis is presented: **Hypothesis 4d: The higher the intrinsic motivation of entrepreneurs, the more intense is their innovative behavior.**

Creativity → innovative behavior. Gaglio and Taub (1992) proposed that creativity should be used to innovate ideas. Hills (1995) studied opportunity recognition of successful entrepreneurs and found out that they frequently try to innovate ideas. On the other hand, the entrepreneurs said that they use creative thinking as a tool for this. In the studies of Hills and Lumpkin (1997), Hills et al. (1997), and Hills and Shrader (1998) entrepreneurs also told the authors that they frequently use creativity in order to play with new ideas, i.e., to innovate. De Koning and Muzyka also (1996) pointed out that entrepreneurs use their personal creativity to innovate new opportunities. Thus, the following hypothesis is presented: **Hypothesis 4e: The higher the creativity of entrepreneurs, the more intense is their innovative behavior.** The above influences of intellectual capital variables on innovative behavior are illustrated in Figure 11.

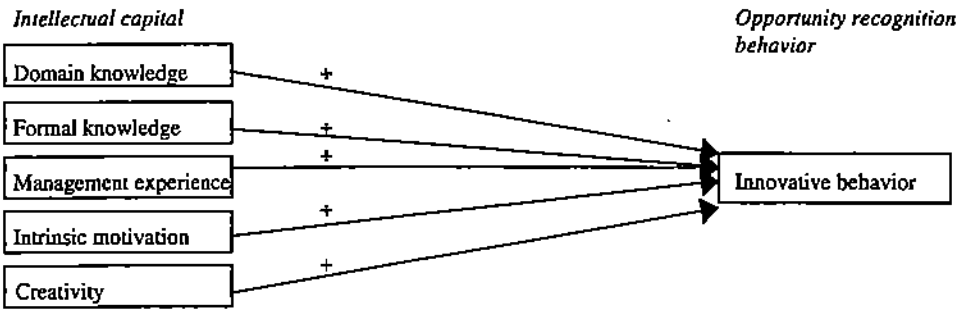


Figure 11. Influences of intellectual capital variables on innovative behavior.

Hypotheses 5a–5e: effects of intellectual capital on collective action

Domain knowledge → collective action. De Koning and Muzyka (1996) pointed out that experienced entrepreneurs discussed intensively with their social context. The authors found that opportunity recognition was affected especially by expertise in the field and skills to communicate socially to find opinions, advise, information, and partners. In addition, domain knowledge created such self-confidence among the entrepreneurs that they were open to their own weaknesses and relied on other people. The above results show quite clearly how domain knowledge increases collective action because it gives such self-esteem that you don't have to know everything and that you are "allowed" to discuss with other people without the fear that they steal your idea, or think "what a silly thought". This common trust in others might be created through social conversations (Steyaert et al. 1996), in which parties together create domain knowledge, which then enhances further collective action. Hills and Lumpkin (1997) studied entrepreneurs who had already recognized several opportunities, and found that they stressed the domain knowledge of a market and customers as very important. Thus, they found that collective, social action with other people was one of the most important ways to look for opportunities in markets. Hills et al. (1997) compared solo-entrepreneurs and network-entrepreneurs and found that network entrepreneurs were more experienced in finding opportunities. This suggests that domain knowledge might enhance collective action. Last, Singh et al. (1999) proposed that experienced entrepreneurs were active in social dialogue (see also Christensen et al. 1994). Thus, the following hypothesis is presented: **Hypothesis 5a: The higher the domain knowledge of entrepreneurs, the more intense is their collective action.**

Formal knowledge → collective action. Burt (1992, 1997) has indicated that formal knowledge increases collective action. According to him, formal knowledge makes it pos-

sible to have higher positions in companies and hierarchies and., thus, better positions in a network structure. This, then, increases the collective action with information sources and not just with anybody. Manimala (1992) pointed out that highly innovative entrepreneurs developed their formal technical capabilities before they started to collaborate. This might mean that formal knowledge is needed in order to be ready for collective action. Hills et al. (1997) came to the conclusions that network entrepreneurs were able to scan opportunities from a wider base than solo entrepreneurs. Further, solo entrepreneurs were more attached to their prior employment and industry. This suggests that network entrepreneurs might have more general skills to process information than only in the familiar context. This, again, suggests that formal knowledge might create more active collective action. Singh et al. (1999) studied ICT-consultant entrepreneurs. It is suggested based on the study by authors that in order to be able to act as an ICT-consultant, the formal knowledge of the domain must be high. The above authors found further that these entrepreneurs were active in collective action. Thus, the following hypothesis is presented: **Hypothesis 5b: The wider the formal knowledge of entrepreneurs, the more intense is their collective action.**

Management experience → collective action. Kaish and Gilad (1991) pointed out that although experienced entrepreneurs like to think themselves about their ventures they still gather opinions and actively discuss business issues with other people. Hills (1995) introduced that successful entrepreneurs, who had management experience, were active socially. De Koning and Muzyka (1996) also indicated that entrepreneurs with prior entrepreneurial/managerial experience discussed a lot with other people and even asked their opinions of questions in which they were not experts. Hills and Lumpkin (1997) proposed that based on their results entrepreneurial experience enhances network behavior. Last, Singh et al. (1999) also showed how management experience produces intense collective action. Thus, the following hypothesis is presented: **Hypothesis 5c: The wider the management experience of entrepreneurs, the more intense is their collective action.**

Intrinsic motivation → collective action. Hills et al. (1997) showed that solo entrepreneurs were more alert to opportunities than network entrepreneurs. Therefore, network entrepreneurs were more intrinsically motivated, i.e., motivated by the entrepreneurship itself. Thus, it is possible to maintain that intrinsic motivation increases collective action. Manimala (1992) also pointed out the same result. According to Manimala (1992), highly innovative entrepreneurs were more intrinsically oriented. On the other hand, they spend more time discussing with their social relationships. De Koning and Muzyka (1996) also noticed that internally passionate and self-confident entrepreneurs were willing to discuss their

venture ideas with other people. Last, Sigrist (1999) found that an entrepreneur's own personal line supports interaction with external resources, i.e., social relationships involving those resources. Thus, the following hypothesis is presented: **Hypothesis 5d: The higher the intrinsic motivation of entrepreneurs, the more intense is their collective action.**

Creativity → collective action. Gilad was the first (1984) to suggest that entrepreneurs need creative capabilities in order to be able to see links between many types of information, and that this information is mainly achieved by collective action. Gaglio and Taub (1992) followed Gilad's (1984) ideas and indicated that those individuals who were more creative were also ready and willing to go in for social interaction. Hills (1995) also expressed the notion that entrepreneurs spent time thinking creatively about business ideas and taking active part in social dialogue. This was the case in the study by de Koning and Muzyka (1996) as well. Hills et al. (1999) see creativity to be the core of opportunity recognition. Further, to be able to be creative entrepreneurs need information, and thus creativity probably enhances collective action aimed at information and opinion gathering. Rea et al. (1999) proposed based on wide consultation work and experiences of it that creativity and social networking of entrepreneurs go hand in hand in opportunity recognition. Last, according to Shane and Venkataraman (2000) it is possible to say that creative abilities to process information are connected with collective, social action. Thus, the following hypothesis is presented: **Hypothesis 5e: The higher the creativity of entrepreneurs, the more intense is their collective action.** The above influences are illustrated in Figure 12.

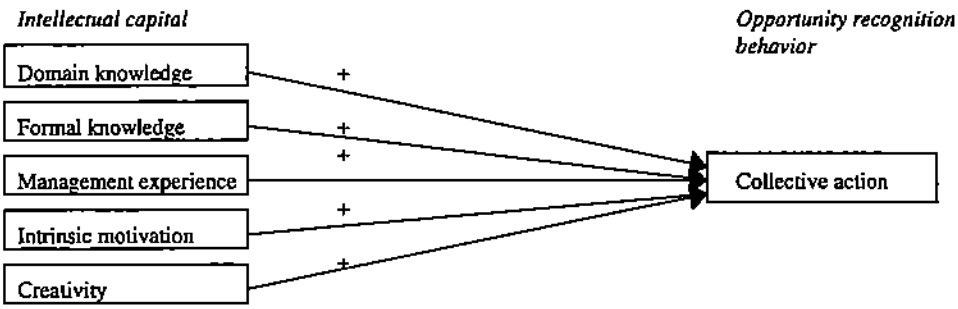


Figure 12. Influences of intellectual capital variables on collective action.

Summarizing the above presented hypotheses, the intellectual capital of entrepreneurs should significantly enhance opportunity recognition behavior. This is illustrated in Figure 13.

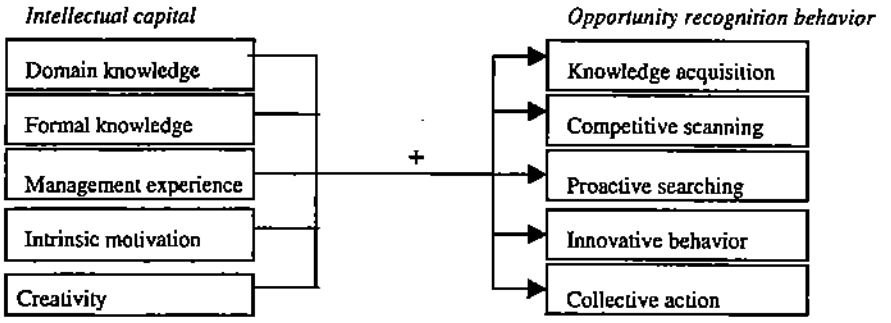


Figure 13. Hypothesized effects of the intellectual capital variables on opportunity recognition behavior variables.

3.2.2. Conceptual framework of the social capital of entrepreneurs in opportunity recognition

Earlier it has been shown that the social capital of entrepreneurs significantly affects opportunity recognition. But, how does it affect it? In the following section hypotheses concerning the impact of social capital on opportunity recognition behavior are presented.

The impact of social capital on opportunity recognition

The purpose of the following section is to suggest hypotheses about the relationships between the social capital variables and opportunity recognition variables. The overall hypothesis is that social capital should increase opportunity recognition behavior. This is to be tested through the more specific hypotheses. The variables of social capital are the structural dimension of social capital (amount of social interaction), the relational dimension of social capital (closeness of relationship ties), and the cognitive dimension (commitment to relationship quality). The variables of opportunity recognition are knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. It should be stressed that the following social capital hypotheses concentrate only on social relationships between entrepreneurs and persons who were able to help them in opportunity recognition. The rest of the possible social relationships are excluded as they are not relevant to opportunity recognition. These relationships are excluded because they haven't been used exactly in opportunity recognition but maybe on other occasions and, thus, the other relationships are a social resource that has not caused opportunity recognition behavior.

Hypotheses 6a–6c: effects of social capital on knowledge acquisition

The structural dimension of social capital (amount of social interaction) → knowledge acquisition. Peterson (1985) pointed out that social interaction is needed in order to obtain information. Burt (1992) also states that the number of relationships encourages knowledge acquisition. More specifically, Burt (1992, 1997) saw that the right place in the social network enhances relevant social interaction, and thus knowledge acquisition is active. By this he meant that, if an entrepreneur is in the place in the network where (s)he is the only connection between, lets say, three networks, (s)he is in the position where by social interaction with these three networks (s)he can, as the only one, acquire all the knowledge and maybe mold this knowledge into a business opportunity. The study by Krackhardt (1995) supports this notion. He found that social interaction supports knowledge acquisition when an entrepreneur has many relationships that are not closely connected with each other. In other words, an entrepreneur should have a number of contacts because they mean information. But, if these many contacts know each other well, it is possible that this social collective restricts searching for new information. Singh et al. (1999) studied especially the effects of structural dimension of the social relationships on opportunity recognition. They concluded that network size and the number of weak ties significantly affect the number of opportunities recognized by entrepreneurs. This means that the amount of social interaction increases the knowledge acquisition of opportunities. However, Singh et al. (1999) didn't find support for the structural-hole idea presented by Burt (1992). Nevertheless, as Hills et al. (1997) indicated, when comparing solo entrepreneurs and network entrepreneurs, social interaction increases knowledge acquisition. Thus, it is possible that the place in the network is not so important as social interaction in general. On the basis of the above, the following hypothesis is presented: **Hypothesis 6a: The higher the amount of social interaction between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the knowledge acquisition of entrepreneurs.**

The relational dimension of social capital (closeness of relational ties) → knowledge acquisition. Peterson (1985 claimed personal relations to be important in knowledge acquiring. Johannisson (1988) stresses that quite a long time is needed in order to develop that kind of relationships that imply that information sharing is open. They both claim that personal relations are required before entrepreneurs are able to see that information sharing benefits both parties. Christensen and Peterson (1990) showed how entrepreneurs used relations they knew well to get information and opinions concerning opportunities (cf. also Christensen et al. 1994). Burt's (1992) idea of a structural hole, which indicates the posi-

tion to an entrepreneur where the information flows meet, supports the claim that personal relationships are important in knowledge acquisition. Through personal contacts with different networks entrepreneurs have access to the whole "data-base" of different networks. De Koning and Muzyka (1996) pointed out how successful entrepreneurs used their personal contacts to get information and advise if they were not specialists themselves in the matter. Kaish and Gilad (1991) indicated that entrepreneurs actively used their personal relations in information gathering. However, they found interestingly enough also that entrepreneurs used a wide base of relations, relations they didn't know so well, in their knowledge acquisition. This type of view that strong ties, ties you know well, are not so important is suggested by Granovetter (1973). He suggested that weak ties are important because they produce many kinds of new information and strong ties only reinforce already shared information. This was supported by Singh et al. (1999) who showed that weak ties are important in knowledge acquisition. The notion of the importance of weak ties is probably true. However, in order to get access to these weak ties, strong personal ties are needed. Personal ties offer, besides the knowledge the strong ties command, also access to the information networks of strong ties. Thus, the following hypothesis is presented. **Hypothesis 6b: The closer the relational ties between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the knowledge acquisition of entrepreneurs.**

Cognitive dimension of social capital (commitment to relationship quality) → knowledge acquisition. Johannisson (1988) sees that trusting and reciprocity in relationships enhance enactment, i.e. knowledge acquisition, behavior. Steyaert et al. (1996) also showed that continuous conversation created commitment to the relationship among parties and thus knowledge acquisition of new common meanings. However, Burt (1992, 1997) claims the opposite. According to him, highly committed relationships restrict the free search for information and create social norms that order individuals' behavior. Krackhardt (1995) pointed this out in his study and claimed that networks of highly committed relationships don't leave room for trying new things and searching for information. Nevertheless, he recognizes also that committed relationships, like friendship networks, can enhance knowledge acquisition because trust and reciprocity make it easier to communicate. Manimala (1992) indicated how highly innovative entrepreneurs relied on their trusted relationships in their knowledge acquisition. As a conclusion, it could be seen that the results are confusing. It is suggested here that possibly high commitment to relationships is up to a certain level good for knowledge acquisition but bad when the commitment forces entrepreneurs to accept that "shaking the boat" might break the relationship (see Burt 1992). However, in

general commitment should enhance knowledge acquisition (Yli-Renko 1999). Thus, the following hypothesis is presented. **Hypothesis 6c: The higher the commitment to relationships between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the knowledge acquisition of entrepreneurs.** The above influences of social capital on knowledge acquisition are illustrated in Figure 14.

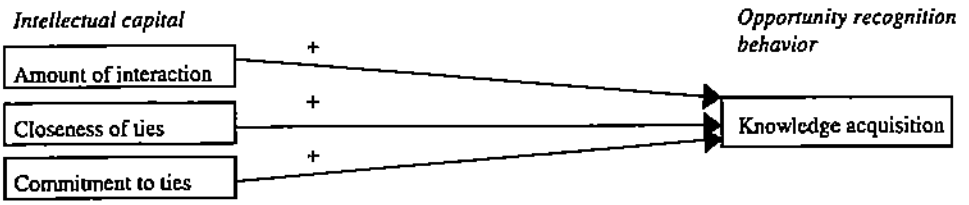


Figure 14. Influences of social capital variables on knowledge acquisition.

Hypotheses 7a–7c: effects of social capital on competitive scanning

Structural dimension of social capital (amount of social interaction) → competitive scanning. Christensen and Peterson (1990) indicated how entrepreneurs use social interaction in order to study the competitive arena. Also Christensen et al. (1994) suggested that markets and competition are best studied by using social relationships. De Koning and Muzyka (1996) saw that successful entrepreneurs tried to find niches in the market, and in this they used the information their social relationships offered. Hills et al. (1997) proposed that network entrepreneurs have a better view of the competitive arena than solo entrepreneurs. Sigrist (1999), in addition, came to the conclusion that those entrepreneurs with social relationships analyzed markets more closely. Thus, the following hypothesis is presented. **Hypothesis 7a: The higher the social interaction between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the competitive scanning of entrepreneurs.**

The relational dimension of social capital (closeness of relational ties) → competitive scanning. Christensen and Peterson (1990) and Christensen et al. (1994) propose that personal relations especially are valuable in competition analysis. Hills and Shrader (1998) saw also that personal contacts are used to understand the competitive arena. Sigrist (1999) indicated that some entrepreneurs can easily create personal relationships, and use these to analyze markets and competition very carefully. De Koning and Muzyka (1996) said the same. According to them, successful entrepreneurs are good in creating personal contacts and in using these relationships to find gaps in the competition which are big enough for

profitability but not so big that large companies would be interested to compete with them. Hills et al. (1997) propose that network entrepreneurs, compared with solo entrepreneurs, use their personal relationships to understand more deeply a potential market or industry. All the studies suggest that personal ties should enhance competitive scanning. **Hypothesis 7b: The closer the relational ties between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the competitive scanning of entrepreneurs.**

The cognitive dimension of social capital (commitment to relationship quality) → competitive scanning. Not much has been said about this effect. Still, some comments indicate that the above relationship is definitely positive: Manimala (1992) showed that high-innovative entrepreneurs were committed to their social relationships. He showed also that high-innovative entrepreneurs scanned competition widely. Krackhardt (1995) suggested that friendship relations enhance the scanning of a competitive arena. Steyaert et al. (1996) indicated also that trusting each other supports competitive scanning. On the basis of the above, it is possible to say that commitment to relationships enhances such information flow that competitive scanning is more comprehensive. Thus, the following hypothesis is presented: **Hypothesis 7c: The higher the commitment to relationship quality between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the competitive scanning of entrepreneurs.** The above influences of social capital variables on competitive scanning are illustrated in the following Figure 15.

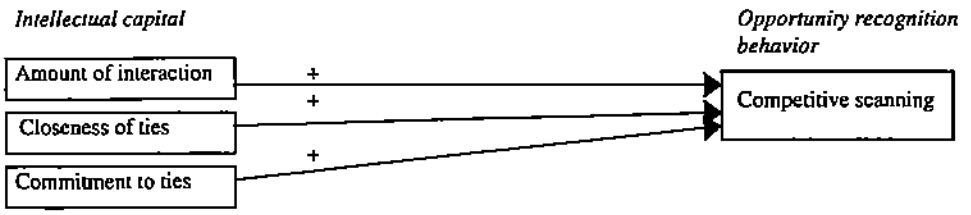


Figure 15. Influences of social capital variables on competitive scanning.

Hypotheses 8a–8c: effects of social capital on proactive searching

The structural dimension of social capital (amount of social interaction) → proactive searching. Burt (1992) claims that social interaction offers the state-of-the-art knowledge of a domain to an actor. Without social interaction individuals can't see the latest developments and thus proactively vision the future. Christensen and Peterson (1990) found that social interaction is used to "proact" more advanced ideas than others are doing. Kaish and

Gilad (1991) pointed out that entrepreneurs carried out an active dialogue with their relationships and thus were probably more alert to cues to the future. Krackhardt (1995) proposes that social interaction is used to "proact" future states. By this he means that entrepreneurs are in an active social dialogue, which brings to them many kinds of information and based on which entrepreneurs are able to vision the future states of businesses. De Koning and Muzyka (1996) saw also that entrepreneurs relied besides on their experience on social interaction in order to be able to proactively search for an opportunity. Hills and Lumpkin (1997) propose especially experienced entrepreneurs to stress the meaning of social interaction in proactive searching for opportunities. **Hypothesis 8a: The higher the social interaction between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the proactive searching of entrepreneurs.**

The relational dimension of social capital (closeness of relational ties) → proactive searching. On the basis of the study by Kaish and Gilad (1991), it is possible to suggest that entrepreneurs discuss mostly with their personal relations in order to be proactively alert to different types of information cues. Steyaert et al. (1996) showed how constant conversations among the parties, which create personal ties, made it possible to construct and enact together possible future ideas. Christensen and Peterson (1990), Christensen et al. (1994), and Hills (1995) also propose that personal networks are needed to turn proactively problems into opportunities, and that entrepreneurs especially have this capability. On the basis of the above argumentation, the following hypothesis is possible to propose: **Hypothesis 8b: The closer the relational ties between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the proactive searching of entrepreneurs.**

The cognitive dimension of social capital (commitment to relationship quality) → proactive searching. Johannisson (1988), for example, claims that trust-based contacts are the most important resource to enact future opportunities. He sees that enactment of the future happens in social dialogue and that this requires emotionally very close and committed relationships. Manimala (1992, 1996) came to the conclusions that high-innovative entrepreneurs were committed to their social context and to using these contacts in constant proactive searching for new opportunities. The study by Steyaert et al. (1996) refers to the claim that proactive enactment of future meanings needs emotionally very close relationships. Very close relationships give the freedom to openly discuss ideas, secure the flow of information, give social solidarity in coping with the future, and create stronger confidence in trying out more proactive ideas. **Hypothesis 8c: The higher the commitment to a rela-**

tionship quality between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the proactive searching of entrepreneurs. The above influences of social capital variables on proactive searching are illustrated in the following Figure 16.

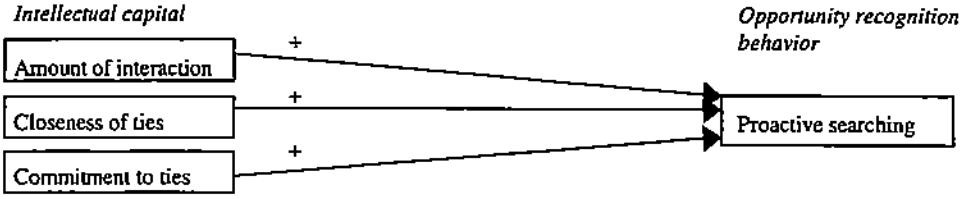


Figure 16. Influences of social capital variables on proactive searching.

Hypotheses 9a–9c: effects of social capital on innovative behavior

The structural dimension of social capital (amount of social interaction) → innovative behavior. De Koning and Muzyka (1996) recognized that social interaction enhanced innovative playing with ideas. Hills and Lumpkin (1997) argued also that in opportunity recognition social interaction is needed to innovate new kinds of products and/or services. Manimala (1992, 1996) indicated how high-innovative entrepreneurs were in active social dialogue with their relationships in order to innovate ideas. This same claim is to be found from many other studies as well (Christensen and Peterson 1990; Christensen et al. 1994; Gunther McGrath 1994; Hills and Lumpkin 1997; Rea et al. 1999; Sigrist 1999). Therefore, the following hypothesis is presented: **Hypothesis 9a: The closer the social interaction between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the innovative behavior of entrepreneurs.**

The relational dimension of social capital (closeness of relational ties) → innovative behavior. Kaish and Gilad (1991) indicated that entrepreneurs were mostly in contact with close relations in order to innovate ideas. Also Busenitz (1996) arrived at the same type of results. Ray (1992) studied international opportunity recognition and noticed that entrepreneurs traveled a great deal to be in contact with their relationships. Through these international contacts they innovated their ideas of new businesses. Steyaert et al. (1996) also stress the importance of personal ties in innovative behavior (see also Johannisson 1988). Christensen and Peterson (1990) illustrated how important personal relationships are in order to obtain information thanks to which innovative behavior is possible (see also Christensen et al. 1994). Hills and Shrader (1998) found that entrepreneurs were in active per-

sonal dialogue with their contacts, and that this is the main resource of innovative behavior and idea playing. Thus, the following hypothesis is presented: **Hypothesis 9b: The closer the relational ties between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the innovative behavior of entrepreneurs.**

The cognitive dimension of social capital (commitment to relationship quality) → innovative behavior. Steyaert et al. (1996) showed quite clearly how emotionally committed relations support innovative behavior. According to the authors, through constant conversational construction of new meanings of emotionally very close relations innovations are possible to create. The studies by Kaish and Gilad (1991) and de Koning and Muzyka (1996) support the above notion. They found also that personal relationships are good in innovative behavior because knowing each other gives social comfort and trusting the other party in playing with idea. If you trust the other party and know him/her very well, you don't have to be afraid that (s)he will criticizes your ideas cruelly (see, e.g. Amabile 1997). Social pressures and demands are the main enemies of innovative behavior, according to Amabile (1997), and thus emotional closeness should also support innovative behavior in opportunity recognition. **Hypothesis 9c: The higher the commitment to a relationship quality between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the innovative behavior of entrepreneurs.** The above influences of social capital variables are illustrated in Figure 17.

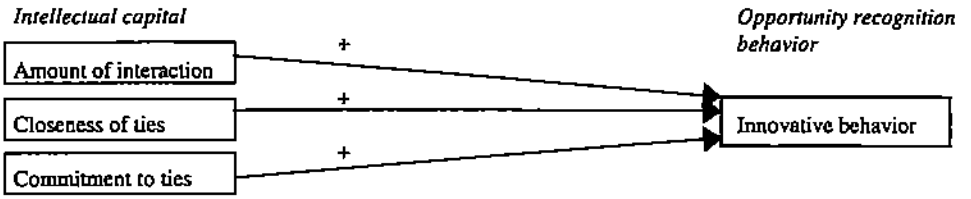


Figure 17. Influences of social capital variables on innovative behavior.

Hypotheses 10a–10c: effects of social capital on innovative behavior

The structural dimension of social capital (amount of social interaction) → collective action. Johannisson (1988) stressed that entrepreneurs together with their social context enact a possible reality. The enactment process to be possible requires, according to Johannisson (1988), a long period of trial and error and learning among the parties. This is seen here to involve lively social interaction in order to make collective action possible. This is supported by Manimala's (1992) study, in which he showed that high-innovative entrepre-

neurs had more active social dialogue and included more collective decision-making in the actions of their venture than low-innovative entrepreneurs. Krackhardt (1995) proposed that collective action is very likely when social interaction between network members is active and members know each other well. However, he also pointed out that collective action might restrict actions of individuals when the interaction is active between all the members because this creates norms that order the actions of the social collective. However, social interaction should enhance collective action. Steyaert et al. (1996) indicated also clearly how collective action evolved over time through active conversation of different parties. Last, Sigrist (1999) came to the conclusion that those entrepreneurs who were socially in interaction were also more collective in their decision-making. Thus, the following hypothesis is presented: **Hypothesis 10a: The livelier the social interaction between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the collective action of entrepreneurs.**

The relational dimension of social capital (closeness of relational ties) → collective action. Kaish and Gilad (1991) pointed out that entrepreneurs had social interaction with people they knew quite well and that they listened these to people's opinions and discussed with them about opportunities. They didn't use the relationships so much to gather information and to "exploit" them as information resources. Entrepreneurs were merely in collective action with individuals whom they knew personally, trying to build reciprocal relationships. Christensen and Peterson (1990) argued that personal relationships were needed in order to trust the others so much that they could be involved in collective discourse. Christensen et al. (1994) pointed out that information gathering is not the only function of relationships but also the collective solving of the problems of the venture. De Koning and Muzyka (1996) noticed that personal ties were used in collective problem-solving when entrepreneurs didn't themselves know enough about the issue. Hills and Lumpkin (1997) indicated that entrepreneurs' social interaction created that kind of personal relationships (informal. long-term, advisory. etc.) that support collective thinking of matters related to the venture. Thus, the following hypothesis is presented: **Hypothesis 10b: The closer the relational ties between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the collective action of entrepreneurs.**

The cognitive dimension of social capital (commitment to relationship quality) → collective action. Johannisson (1988) and Steyaert et al. (1996) showed that emotionally trusted relationships support collective action. They showed that common experiences create social cohesion that induces individuals to enact the shared meaning. In other words,

they collectively mold the view of reality. Without a common base experience that has created emotional commitment between the parties, the collective action would be difficult. It would be difficult since social interaction always involves beside knowledge sharing also frustrations, fear of losing control, anger, and other emotions that are not easy to express if the other party is not known very well. In case you don't know each other, the more general social norms advise you to avoid conflicts and thus to keep the decisions to yourself. Thus, genuine collective action that requires that socially not so nice things and emotions are handled is forgotten. In collective action entrepreneurs try to enact an opportunity through small steps of emotionally very close social interaction and interpretation (Larson and Starr 1993). As a whole, it could be proposed that emotional commitment is crucial to collective action. **Hypothesis 10c: The higher the commitment to relationship quality between entrepreneurs and people who are able to advise them in opportunity recognition, the more intense is the collective action of entrepreneurs.** The above influences are illustrated in Figure 18.

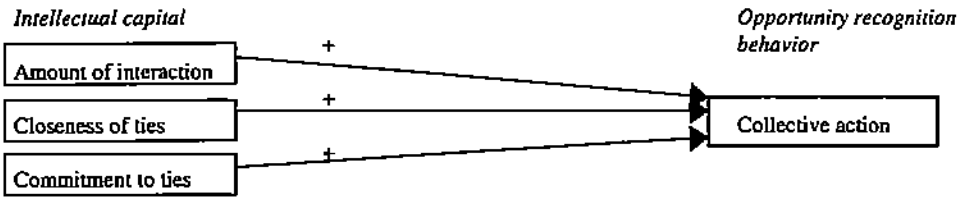


Figure 18. Influences of social capital variables on innovative behavior.

Summarizing what has been presented above, it is hypothesized that social capital should intensify opportunity recognition behavior. To illustrate this Figure 19 is presented.

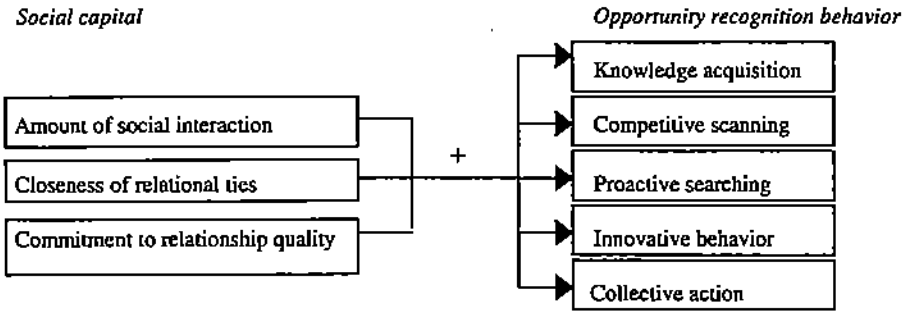


Figure 19. Hypothesized effects of the social capital variables on opportunity recognition behavior variables.

3.2.3. Conceptual framework of the environmental dynamism of entrepreneurs in opportunity recognition

Above it has been pointed out that the environmental dynamism of entrepreneurs affects opportunity recognition behavior. But it still remains open how the environmental dynamism affects it? Therefore, the following question should be asked: what are the effects more precisely? Next, some hypotheses of the impact of environmental dynamism on opportunity recognition behavior are presented.

The impact of environmental dynamism on opportunity recognition

The purpose of the following pages is to suggest, based on the above literature review of opportunity recognition, hypotheses about the relationships between the environmental dynamism and opportunity recognition variables. The overall hypothesis is that environmental dynamism should increase opportunity recognition behavior because environmental dynamism leaves knowledge gaps and, thus, possibilities to grasp them. This is to be tested through the more specific hypotheses which are presented next. The variable of environmental dynamism is not divided into sub-variables. The variables of opportunity recognition are knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action.

Hypotheses 11a–11e: effects of environmental dynamism on knowledge acquisition

Environmental dynamism → knowledge acquisition. Cooper (1981) already identified the importance of environment and suggested that economic conditions, such as availability of venture capital, examples of entrepreneurial action, opportunities for interfirm consulting, and availability of services, affect knowledge acquisition of opportunities. Christensen and Peterson (1990) and Christensen et al. (1994) argue that environmental changes strongly affect knowledge acquisition of entrepreneurs because changes make it possible to find profitable opportunities. Ray (1992) has clearly shown that environment affects knowledge acquisition. He studied opportunity recognition in international context and noticed that entrepreneurs were very active knowledge acquirers because of the dynamic nature of international business. Cadotte and Woodruff (1994) propose that entrepreneurs should analyze their environment carefully in order to be able to make decisions. Hills and Lumpkin (1997), Hills et al. (1997), and Hills and Shrader (1998) indicated that entrepreneurs were more active information searchers when the environment was lively. Shane and

Venkataraman (2000) have suggested that the environments of entrepreneurs are different in respect of knowledge distribution, and this affects knowledge acquisition. On the basis of the above, the following hypothesis is presented: **Hypothesis 11a: The higher the amount of environmental dynamism perceived by entrepreneurs in opportunity recognition, the more intense is the knowledge acquisition of entrepreneurs.**

Environmental dynamism → competitive scanning. Kirzner (1979, 1981) in his seminal studies has proposed that environmental dynamism and knowledge gaps cause entrepreneurs alertly to scan competitive opportunities. Long and McMullan (1984) proposed that possibilities in an environment lead entrepreneurs to scan first in opportunity recognition process the competitive arena. De Koning and Muzyka (1996) found that environmental dynamism affected entrepreneurs so that they carefully scanned the market and competitively tried to find big enough niches. Christensen and Peterson (1990) and Christensen et al. (1994) claimed that environmental dynamism guides entrepreneurs to analyze the market carefully and that in the pre-vision phase entrepreneurs scan the environment and look for their existing knowledge in order to get an understanding of the situation. This means that an entrepreneur creates his/her orientation to the competition. Kaish and Gilad (1991) showed how environmental dynamism made entrepreneurs very alert to risk cues in a market. Cadotte and Woodruff (1994) propose that scanning environmental dynamism leads to more detailed competition and market analyzing. All the above studies stress that environmental dynamism produces knowledge gaps and possibilities and thus it increases competitive scanning of opportunities. Thus, the following hypothesis is presented: **Hypothesis 11b: The higher the amount of environmental dynamism perceived by entrepreneurs in opportunity recognition, the more intense is the competitive scanning of entrepreneurs.**

Environmental dynamism → proactive searching. Cooper (1981) was the first who claimed that entrepreneurs "feel" what is happening around them in the business arena and sense future developments based on these feelings of changes. Hills (1995) also pointed out that entrepreneurs were using the information that changes in the environment produced merely in order to sense what was going to happen. Rea et al. (1999) suggest that environmental changes, which entrepreneurs perceive start the opportunity recognition process, in which the first phase is to proactively vision the possible future state. This is in line with Baron's (1998) study, in which he showed that environmental dynamism around them doesn't make entrepreneurs regret what could have been but vision what would be. Martello (1994) also indicated how entrepreneurs have skills to interpret changes around them

into visions of a future opportunity. Based on the above, the following hypothesis is presented: **Hypothesis 11c: The higher the amount of environmental dynamism perceived by entrepreneurs in opportunity recognition, the more intense is the knowledge acquisition of entrepreneurs.**

Environmental dynamism → innovative behavior. Gilad (1984) already proposed that entrepreneurs turn environmental dynamism into innovative behavior, in which new ways of doing businesses are created. This is in line with Czsickzentmihalyi's (1997) more general view of how innovations are created. He sees that creative individuals have a skill to read the symbolic system of that particular culture, e.g. a particular industry. Hills et al. (1999) saw that environmental knowledge gaps were fuel for entrepreneurs' innovative play. Hills and Lumpkin (1997) found then that sometimes entrepreneurs can even cause environmental dynamism by bringing ideas from other disciplines to another discipline and by that innovate new kinds and novel opportunities. Last, Manimala (1992) showed how high-innovative entrepreneurs scanned more widely environmental dynamism in order to be able to innovate novel ideas. On the basis of the above, the following hypothesis is presented: **Hypothesis 11d: The higher the amount of environmental dynamism perceived by entrepreneurs in opportunity recognition, the more intense is the innovative behavior of entrepreneurs.**

Environmental dynamism → collective action. Johannisson (1988) sees that environmental dynamism causes entrepreneurs to be unable to understand the situation only by themselves. Thus, they get involved in collective action through which the dynamism is sense-made (see also Weick 1979). Steyaert et al. (1996) noticed also that environmental dynamism is handled through collective action. Burt (1992, 1997) and Krackhardt (1995) suggest that environmental dynamism supports collective action because it is a vehicle to make the situation understandable. Christensen et al. (1994) see that environmental dynamism causes collective action because one person's information is too narrow. On the basis of the above, the following hypothesis is presented: **Hypothesis 11e: The higher the amount of environmental dynamism perceived by entrepreneurs in opportunity recognition, the more intense is the collective action of entrepreneurs.**

If the above presented discussion is summarized, it is hypothesized that environmental dynamism should intensify opportunity recognition behavior. To illustrate this Figure 20 is presented.

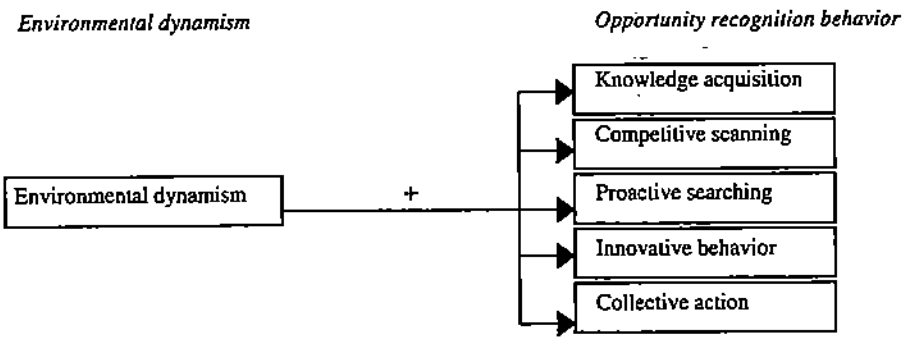


Figure 20. Hypothesized effects of the environmental dynamism on the opportunity recognition behavior variables.

3.2.4. Conceptual framework of opportunity recognition behavior in performance creation

Above was suggested that performance reflects the value that opportunity has created. Thus, it is argued that opportunity recognition creates value measured as performance. The aim is to suggest relationships between opportunity recognition behavior and performance.

The impact of opportunity recognition behavior on performance

The purpose of the following pages is to suggest about hypotheses how opportunity recognition behavior should affect performance. The overall hypothesis is that opportunity recognition behavior should enhance performance because the business concept of the venture is created mainly in the phase of opportunity recognition. This is to be tested through the more specific hypotheses, which are presented next. Opportunity recognition variables are knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. The performance variables are growth and newness value.

Hypotheses 12a–12e: effects of opportunity recognition behavior on growth

Knowledge acquisition → growth. Miller (1987) showed that knowledge acquisition enhances growth. He indicated that those individuals who achieved higher growth made more analyses and planned more. Timmons (1994) has presented ways how to acquire knowledge in opportunity recognition. He argues that knowledge acquisition is very important in order to be able to grow. Sapienza and Grimm (1997) suggested planning to be positively

related to performance. On the basis of the study by Zahra and Neubaum (1998), it is also possible to suggest that knowledge acquisition is connected with growth. Wiklund (1999) also pointed out results indicating that knowledge acquisition creates growth. Woo et al. (1992) came to an interesting conclusion. They showed that entrepreneurs with higher growth acquired more information from their bankers and accountants and low-growth entrepreneurs from books. This shows that high-growth entrepreneurs count on information that comes from the "field" and don't so much rely on "official truth". The above presented facts also suggest that high-growth entrepreneurs spend more time gathering information because they don't trust that already collected data-bases (books) are suitable in their own situation but that they must collect it by themselves through their relationships. **Hypothesis 12a: The higher the degree of knowledge acquisition by entrepreneurs in opportunity recognition behavior, the more intense is the growth of the venture.**

Competitive scanning → growth. Miller (1987) indicated in his interesting study that competitive scanning was characteristic of those individuals who had created growth compared with those who had not achieved growth. This was also pointed out by Wiklund (1999). Timmons (1994) in his book has stressed heavily how to scan competition in order to create future growth. He claims that by knowing the competitive arena a profitable gap could be found and growth created. Zahra and Neubaum (1998) studied the links between entrepreneurial orientation, environmental adversity, and performance. They indicated that entrepreneurial orientation is linked to high growth. As one part of entrepreneurial orientation is aggressive competitive scanning, it is thus possible to argue that competitive scanning enhances growth, then. Covin et al. (1999) showed that ventures that concentrated more on competitive and market problems grow faster. Knight (2000) again showed that marketing strategy affects growth. He found that aggressive marketing orientation is connected with growth. This suggests that competitive scanning should enhance growth. **Hypothesis 12b: The higher the amount of competitive scanning by entrepreneurs in opportunity recognition behavior, the more intense is the growth of the venture.**

Proactive searching → growth. Miller (1987) found support for the claim that proactive searching enhances growth. Hamel (1999) has also argued interestingly that proactive searching of future possibilities strongly affects growth. He studied the ways of doing business in Silicon Valley and concluded that novelty and creativity aimed at finding constantly the future state drives companies to growth. On the basis of the results reached by Wiklund (1999) it is also possible to say that proactiveness should support growth. Covin et al. (1999) indicated that pioneering proactive searchers created more growth than followers.

Hypothesis 12c: The higher the amount of proactive searching by entrepreneurs in opportunity recognition behavior, the more intense is the growth of the venture.

Innovative behavior → growth. Timmons (1994) has maintained that innovative behavior is crucial in order to find opportunities that have growth potential. He argues that opportunities should be evaluated by studying their growth potential. But he also stresses that innovative behavior is only the starting-point of growth creation. However, the above suggests that innovative behavior should enhance growth. Zahra and Neubaum (1998) also stress that innovative behavior should support growth. Hamel (1999) showed how innovative playing is needed to create growth. Too often, according to him, ventures and individuals are orienting towards used ideas instead of finding new ones (see Wiklund 1999). **Hypothesis 12d: The higher the amount of innovative behavior by entrepreneurs in opportunity recognition behavior, the more intense is the growth of the venture.**

Collective action → growth. Miller (1987) pointed out that collective action affects growth. He showed that social bargaining increased growth significantly. Woo et al. (1992) indicated that high growth entrepreneurs compared with low growth entrepreneurs gathered knowledge more socially. Sapienza and Grimm (1997) found that entrepreneurs who were open to the context achieved higher growth. Burt (1992) has proposed that collective action is behavior that creates return on investment. He claims that growth is achieved by collective discussion with the network and searching for opportunities. Thus, collective action should increase growth. Tsai and Ghoshal (1998) proposed that collective action should enhance value creation. The results they achieved support the above claim. **Hypothesis 12e: The higher the amount of collective action by entrepreneurs in opportunity recognition behavior, the more intense is the growth of the venture.** The above influences of opportunity recognition behavior variables on growth are illustrated in Figure 21.

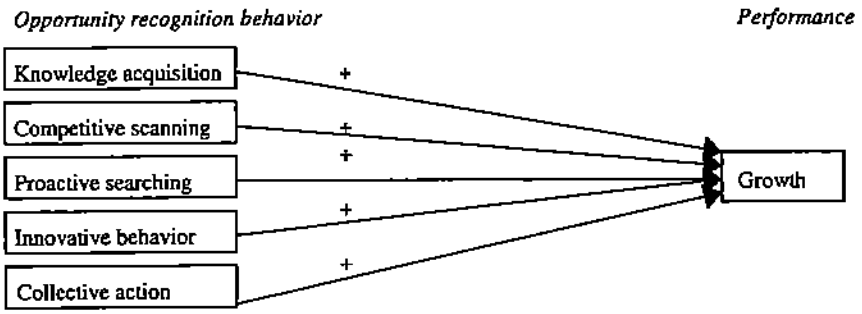


Figure 21. Influences of opportunity recognition behavior variables on growth.

Hypotheses 13a–13e: effects of opportunity recognition behavior on the newness value of a venture

Knowledge acquisition → newness value. Tsai and Ghoshal (1998) studied the relationship between social capital and value creation and how knowledge acquisition through networks was used to create product innovations. They found significant results showing that active knowledge acquisition through social networks affects positively product innovations that have newness value. **Hypothesis 13a: The higher the amount of knowledge acquisition by entrepreneurs in opportunity recognition behavior, the higher is the newness value of the venture.**

Competitive scanning → newness value. Sandberg and Hofer (1986) indicated that orientation to competition and how it is planned to compete strategically affect the newness value of firms. Zahra (1993) indicated that competitive scanning would increase newness value. According to him, knowledge of a market encourages entrepreneurs to new product development. Competitive scanning is used to be able to pioneer products and services that have newness value to customers. **Hypothesis 13b: The higher the amount of competitive scanning by entrepreneurs in opportunity recognition behavior, the higher is the newness value of the venture.**

Proactive searching → newness value. Burt (1992, 1996) stresses that proactive searching of gaps is needed to create future value, i.e. newness value. Zahra (1993) also suggests that proactive searching is important in creation of newness value of ventures. The study by Covin et al. (1999) pointed out that proactive pioneers created products that had more newness value. **Hypothesis 13c: The higher the amount of proactive searching by entrepreneurs in opportunity recognition behavior, the higher is the newness value of the venture.**

Innovative behavior → newness value. Berthon, Hulbert, and Pitt (1999) argue that it is often seen that customers prefer those products and services that have newness value to them, and that this newness value is created by innovative creation by individuals. This suggests that innovative behavior might enhance newness value. This is possible to suggest based on Hills (1995) study as well as he pointed out that those entrepreneurs who had created value to their customers spend a lot of time to innovate new ideas. **Hypothesis 13d: The higher the amount of innovative behavior by entrepreneurs in opportunity recognition behavior, the higher is the newness value of the venture.**

Collective action → newness value. On the basis of the research by Burt (1992, 1997) it is possible to say that collective action should support newness value. He proposes that collective action introduces the latest knowledge of the domain from many points of view, and makes it thus possible to create value that is new to receivers. Leana and Van Buren (1999) argue in addition that collective action creates value. Based on their research, collective action should enhance the newness value of a venture. **Hypothesis 13e: The higher the amount of collective action by entrepreneurs in opportunity recognition behavior, the higher is the newness value of the venture.** The above influences of opportunity recognition behavior variables on newness value are illustrated in Figure 22.

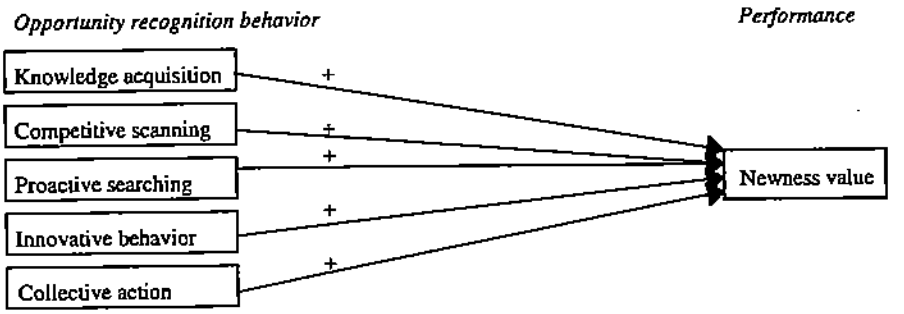


Figure 22. Influences of opportunity recognition behavior variables on newness value.

Summarizing the above argumentation, it is hypothesized that opportunity recognition behavior should increase performance. To illustrate these hypotheses Figure 23 is presented below.

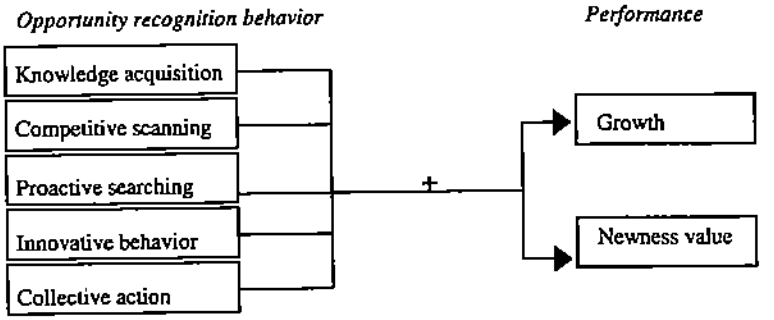


Figure 23. Hypothesized effects of opportunity recognition behavior variables on performance variables.

3.2.5. Summary of the hypotheses

All the above hypotheses are summarized in Figure 24 below. Summary of the hypotheses shows that all the relationships of the variables are hypothesized to be positive. This is so because until now previous research has tried to find issues that support opportunity recognition. Thus, in this study too there are relationships that are thought to be positive, because the main purpose of the study is to find out which of the relationships stay significant when put together in the same model. However, it is suggested here that in the near future also those things should be studied that decrease the likelihood of opportunity recognition. Summary of the hypotheses is also presented in Appendix 1.

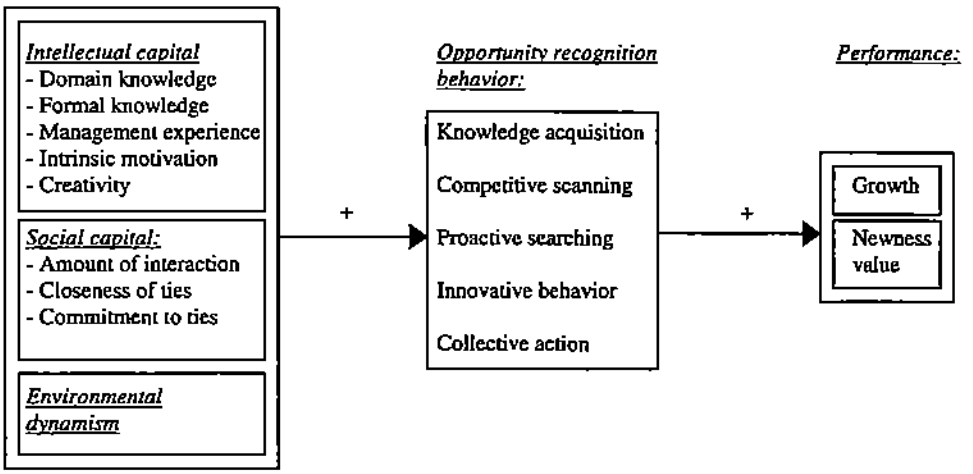


Figure 24. Hypothesized model of the study.

4. METHODOLOGY

In the previous part of the study the aim was to give an introduction, set forth research problem, define the main concepts and the scope of the study, review previous research, and set forth hypotheses. The objective of this chapter is to describe the methodological choices to collect data to test the hypotheses empirically. The chapter consists of the research approach, descriptions of the population, the questionnaire and the pilot test, the mailing process and response pattern, non-response analyses, statistical methods, construct operationalizations, and reliability and validity analyses.

4.1. The research approach

In this study the choice has been to use the nomothetic research approach. The other possible choices might have been, e.g. a case-study approach, triangulation, a narrative approach, an ethnographic approach, a more traditional qualitative study based on interviews, action-based research, or even experiments. The above choice was made because the purpose of the study is to clear the many-faceted picture of the phenomenon. In the field of opportunity recognition research has been done for quite long and it is time to collect the knowledge and test it as a whole. The situation could be described by saying that a lot of research has been done without a strong theoretical basis and the result is that now there exist in the field many types of frameworks and fragmented knowledge. The best approach to deal with this and to organize the knowledge is to use a nomothetic approach.

This doesn't mean that the other approaches aren't usable or important. For example, it is very important that the results of this study are investigated more deeply in the future by using more qualitative methods. Also it is clear that in the future it is important to study more closely intellectual, social, environmental, and behavioral processes and how these processes interact in opportunity recognition by using, for instance, a case-study approach. Overall it is not suggested here that the research approaches are either better or worse but that the choice of research approach depends on what is the purpose of the study. It is proposed here that the purpose of this particular study justifies the use of a nomothetic approach, in which previous research is reviewed very closely, based on the suggested hypotheses to be tested, using quantitative methods to test hypotheses, and trying to generalize the results. This type of approach makes it possible to screen out the non-significant factors and to find the most important factors for more qualitative studies in the future.

The above choice means that this study belongs in the objectivistic realm (cf. Burrell and Morgan 1979). This means that the below presented assumptions are accepted although in this study the point of departure is somewhere in between of objectivism and subjectivism. However, the accepted ontological assumption is realism. Thus, social reality is understood to be the reality outside the experiences of human beings. Further, the epistemological view of this research is positivism. Knowledge in positivistic research is interpreted as firm, researchable, and transmittable. Human nature, in turn, is in objectivist approach deterministic. This type of view of human beings indicates that individuals don't have free will to build up their own lives. Instead, people are a part of existing nature, which determines what people do and how they act. On the basis of the above assumptions of reality, knowledge, and human nature, objectivism strives to use the nomothetic approach as research methodology. Nomothetic research tries to discover general laws in phenomena. In this study this is done by deductive hypothesis testing. Previous suppositions are, nevertheless, not accepted as unquestionable truth. It is recognized that reality has nominalistic, knowledge anti-postivistic, human nature voluntaristic, and methodology ideografic features. The focus of the study is still more on objectivism than on subjectivism.

Although the objectivistic standpoint is reasonable in this study, it is only one side of the coin. Phenomena have to be examined from the subjectivistic point of view too in order to really understand what we are trying to explain. This contradiction is noticed and, thus, this study is not giving full answers to the questions asked. This type of thinking might not be orthodox from the objectivistic school point of view, but it follows the opinions of many researchers. Turbulence and changes in the world and its complex phenomena have probably been the strongest influencing factors causing objectivism to lose its position as the "right way" to do research. This doesn't mean that phenomena can't be studied any more using a nomothetic approach. It means rather that recognition of the complexity of phenomena has brought into focuss the problem of generalizing, as individuals, groups, collectives, countries, etc. compared with each other act very differently. Thus, general laws are difficult to find, though they might exist in a more complicated form than we have thought. Phenomena are probably not so simple as objectivists want to believe but this doesn't mean either that they are fully subjectivistic without more general laws below the surface.

The choices made due to an objectivistic research approach are as follows: 1) The researcher stays distant from individuals under investigation. By his doing this validity will improve as subjective interpretations and influences are restricted. 2) The sample is quite big and it is studied cross-sectionally. This makes it easier to generalize results. 3) Theory

comes before data. Leaning on theory enables the researchers to form testable hypotheses and further develop theory cumulatively. 4) Knowledge development happens through hypothesis testing. 5) The aim of the study is to verify the authenticity of examined theories. Verifying is done, not falsification, because opportunity recognition as a research field inside entrepreneurship is just developing. (Easterby-Smith, Thorpe, Lowe 1991)

4.2. Population

The population under study consists of new firms established in 1998 in Finland, and specifically in the regions of Jyväskylä, Oulu, and Vaasa in the industry sectors of metal industry and the information and communication technology (ICT) industry. The population was drawn from the Trade Register of Finland (Kaupparekisteri in Finnish). The Trade Register was used in order to locate the firms because it is the most comprehensive database on officially established firms in Finland. It contains information on roughly 470 000 Finnish businesses and organizations (see internet pages of the National Board of Patents and Registration in Finland: http://www.prh.fi). This database was very useful to this study because all the new firms must be registered in the Trade Register in Finland. Thus, all the officially established ventures are to be found in the Trade Register. It is also a very reliable database because it is managed by governmental authorities (National Board of Patents and Registration in Finland). The Trade Register offers such information as contact information, contact person, name of the firm, description of the business of the firm, year and month of registration, and location. Using this information the above population was possible to select from the database. Because new firms established in 1998 were chosen, most of the contact information was correct. What was unknown could be checked from phone books and via the Internet. Thus, it was possible to locate the contact information of all 223 firms. In addition, the Trade Register offers information on the firms that have ended their businesses. This information was very helpful in excluding those firms from the population. These firms were excluded from the population because it is probably very difficult, though interesting, to get information about those entrepreneurs who have been unsuccessful.

The population was defined by three criteria: First, it was decided that the firms must be established in 1998. This year was chosen because often it is thought that at least two years are required before it is possible to say that the business has survived (see, e.g. Timmons 1994). Therefore, younger firms were excluded because it is possible that the business opportunities of those have not been real but just ideas without real business potential. Older firms were also excluded because it is very probable that entrepreneurs don't remember any

more how they were been behaving in opportunity recognition period if the questions concern issues older than two years. It is still possible that a firm has been registered in the Trade Register but doesn't have any real business actions. Also it is possible that a firm has changed its type of activity (e.g. from limited partnership to limited company) or the owner of the company has changed, in which case the firm is registered as a new firm in the Trade Register. These situations mean that officially new firms have been established but in reality business opportunities have not been recognized and new businesses have not been created. These situations were checked by using information from the Internet and by asking in the survey about the issues. The firms representing the above situations were excluded from the study.

Second, firms in the regions of Jyväskylä, Oulu, and Vaasa were chosen. These regions were chosen because they are culturally, economically, and socially quite close to each other. Still, they are different regions, which might influence results. Thus, it was desirable that the firms would be culturally, economically, and socially as close to each other as possible but far enough so that geographical location might show some effects. Hence, other regions were excluded from the study. The ventures were chosen in respect of their location so that, if the officially registered home municipality of a firm was in own of the three regions, the venture was included in the study. The municipalities of the regions of Jyväskylä, Oulu, and Vaasa are presented in the Appendix 2.

Third, metal- and information- and communication technology firms were chosen. Metal- and ICT-industry sectors were defined and firms chosen based on the industry categories presented by Statistic Finland (see industry categories in http://www.stat.fi/tk/tt/luokitukset/tol95.html), which is the governmental authority of official statistics. Metal industry was defined as business activities concerned with refinement of metal (code 27) and production of metal products (code 28). The ICT-industry was defined as business activities of designing, producing, and consulting software products (code 72200), producing computers and other information processing equipments (code 3002), producing radio, television, and telecommunication equipment (code 32), and information processing services (code 72). These two industries were chosen because they play an in important role of Finnish economy (see, e.g. Rantala 2001). These two industries were chosen also because they are still quite different. So it would be possible to compare results in two quite different industries and in this way to more easily generalize the results of the study. Metal- and ICT-firms were chosen so that the descriptions of the firms presented in the Trade Register were first studied and those that, based on the descriptions, were in metal- or ICT-sectors were se-

lected. Also those companies which were close to these industries were chosen in this phase. Second, the Internet, brochures, phone books, classifications of the home municipalities of the firms, and other sources were used in order to find out if the firms were really doing business in the metal- or ICT-sectors. Finally, the industry of the firms was checked in the survey instrument by asking the entrepreneurs to define what the industry of their firms was.

If concluded, the above criteria were used in order to construct a population that is possible to reach as a whole. In this way it was possible to collect data that is more reliable and reflects better the whole population and not only the firms that responded. Although non-response analyses are used in studies using the sampling logic, it is questionable if the data reflects the population when the response rate is 20% or even smaller. This smaller population was also chosen because in this way it was possible to restrict the other influences that can not be controlled by the study (e.g. culture or wider trends). The firms under study were located in regions close to each other, established in the same year, and represented from two particular industries. Thus, generalizing the results to the population under study is reliable. If a sample of ventures representing a larger population had been studied, then uncontrollable influences affecting the results could have been too important to be able to say anything about the phenomenon under study. By using the above referred-to "smaller population logic", the quality of the data is better and the results more reliable.

4.3. Questionnaire and pilot test

A 9-page questionnaire was designed based on the review of the literature. Altogether 83 questions were asked under the headings of (1) intellectual capital, (2) social capital, (3) environmental dynamism, (4) opportunity recognition behavior, (5) performance of young ventures, and (6) control- and background variables. The original Finnish version of the questionnaire is presented in the Appendix 3. The same questions are presented below in the section "Construct operationalization" in English.

As a pilot test, three entrepreneurs from firms representing the population filled out the questionnaire. In addition, three colleagues filled out the questionnaire and commented on it. The entrepreneurs were asked to give feedback on the content, wording, format, and concepts of the questionnaire. The pilot test led to some modifications being made concerning the use of words and structures. The main effect was that the wording was changed and made simpler and more exact. In some questions clarifications of what was meant by some concepts were included. As a whole, the pilot test showed that the

some concepts were included. As a whole, the pilot test showed that the questionnaire was interesting to fill out, short enough, and understandable. The three entrepreneurs in the pilot test were excluded from the population.

4.4. Data gathering process and response pattern

First, the questionnaire was sent in August 2000 to the persons who had established the companies under study. The names were drawn from the Trade Register of Finland. With the questionnaire was sent a covering letter presenting the background and purpose of the study. The main objective of the covering letter was to motivate entrepreneurs to answer.

Second, these entrepreneurs were contacted by phone, e-mail, or fax after one week reminding them of the questionnaire. This procedure resulted that 41 questionnaires being returned back to the researcher. Two weeks after the first mailing operation the questionnaire was re-sent to those who hadn't returned it or not promised to send it in a few days. The second process resulted in 25 questionnaires being returned by mail and 15 by fax. Thus, there were 81 answered questionnaires. Six of these were excluded because the firms were either too old or not operating in the industries under the study.

Third, the procedure was changed because it was clear that no more answers were possible to get by mail. The rest of the entrepreneurs were contacted by e-mail or by phone. Eleven of the entrepreneurs answered the questions using e-mail and eight on the phone. In addition, seven of the entrepreneurs wanted to fill out the questionnaire so that it required a personal visit. The researcher tried to be as objective as possible in paying personal visits and in phone contacts to secure that he didn't influence the answers. In the phone contacts the researcher just read the questions and didn't comment on them any further. Doing personal visits the entrepreneurs filled out the questionnaires themselves and the researcher was there just to bring the material and clarify the questions. Afterwards on personal visits the researcher discussed more openly and freely the issue, if the entrepreneurs wanted to.

Fifth, all the questionnaires were checked in order to find missing values. Only seven items in five questionnaires were missing. This shows that the questionnaire was easy, clear, and interesting and that the motivation was successful. The entrepreneurs who hadn't answered all the questions were contacted by email, because all the seven were ICT-entrepreneurs and used to using email, in order to get the missing values. The missing values concerned four types of issues. The first of them asked what was the target when the entrepreneur

started his/her own company. The next two concerned whether the ways of marketing in the industry had changed fast. The fourth missing value was related to the home municipality of the company. The last three missing values were about prior companies the entrepreneurs had owned before the recent one. It is possible to see that these don't bias the data because the missing values are so few and they are so different. The email-procedure made it possible to et all the seven missing values. Therefore, it is possible to see that there are no missing values in the data.

A total of 107 firms out of 213 firms thus returned the questionnaire. This means that the response rate was 50.2 %, which is high compared to usual response rates. Then, if excluding the above mentioned six firms that were too old or not belonging to the industries under study, the response rate is 47.4 % and the number of responding firms 101. This is a good result and makes it possible to draw reliable conclusions. Table 3 presents more specifically the response pattern of the study.

Table 3. The response pattern of the study.

	Number of firms	Percent
Total number of firms in the population	226	
- the firms excluded because they were in the pilot-test	3	
The firms to which the questionnaire was sent	223	
The firms excluded on the basis of the follow-up calls and emails		
- the firms were too old	4	
- the firms could not be contacted despite checking their contact information	5	
- the firms were not independent	1	
	10	
Maximum sample size after follow-up	213	100.0 %
The firms that explicitly refused to respond	22	10.3 %
The firms that did not respond but did not explicitly refuse to do so	84	39.5 %
The firms that returned a filled questionnaire	**107**	**50.2 %**
The firms excluded from the sample after receiving their responses because		
- the firms were too old	4	
- the firms were not operating in the selected industries	2	
	6	
Number of usable responses	**101**	**47.4 %**
Usable responses received by		
- mail	62	61.4 %
- fax	13	12.9 %
- email	11	10.9 %
- phone	8	7.9 %
- personal visit in the firm	7	6.9 %

4.5. Non-response analyses

The main problem with mail surveys is that low response rate causes bias in results. In other words, the response group is significantly different compared with the rest of the population. In order to test possible non-response bias, respondents and non-respondents were compared in respect of location and industry. This information was available in the Trade Register database. The comparison was done by using chi-square analyses. The following Table 4 and Table 5 show that in terms of location there is no statistical difference between respondents and non-respondents. Thus, the respondents reflect reliably the population in respect of location.

Table 4. Distribution of respondents and non-respondents in terms of location (number of firms and percentage within each region).

Location	Respondents	Non-respondents
Region of Jyväskylä	33 (38 %)	54 (62 %)
Region of Oulu	22 (50 %)	22 (50 %)
Region of Vaasa	46 (50 %)	46 (50 %)
Total	101 (45 %)	122 (55 %)

N 223 Missing 0

Table 5. Comparison of respondents and non-respondents in terms of location (chi-square test).

	Value	df	Significance (two-tailed)
Pearson chi-square	3.20	2	.21

N 223 Missing 0

In terms of industry there is no statistical difference either. Thus, respondents reflect reliably the population in respect of industry. Table 6 and Table 7 below indicate this.

Table 6. Distribution of respondents and non-respondents in terms of industry (number of firms and percentage within industry sector).

Industry	Respondents	Non-respondents
ICT	48 (47 %)	54 (53 %)
Metal	53 (44 %)	68 (56 %)
Total	101 (45 %)	122 (55 %)

N 223 Missing 0

Table 7. Comparison of respondents and non-respondents in terms of industry (chi-square test).

	Value	df	Significance (two-tailed)
Pearson chi-square	.237	1	.63

N 223 Missing 0

Further, non-response bias was tested by comparing early respondents with late respondents. First, early- and late respondents were studied in terms of gender of founders, location of firms, and industry of firms. Chi-square analysis didn't show any significant differences. Table 8 below indicates these results.

Table 8. Comparison of early (first 51) respondents and late (last 50) non-respondents in terms of sex of founders, location of firms, and industry of firms (chi-square tests).

	Chi-square value	df	Significance (two-tailed)
Gender of founders	.40	1	.53
Location of firms	.20	2	.90
Industry of firms	.32	2	.74

N 101 Missing 0

Early and late respondents were, in addition, compared in terms of age of founders, initial capital, number of employees in the beginning, and radius of business. The results of one-way ANOVA analyses didn't show any significant differences. Table 9 below indicates these results.

Table 9. Comparison of early (first 51) respondents and late (last 50) non-respondents in terms of age of founders, initial capital of firms, number of employees in the beginning, and radius of business in the beginning (one-way ANOVA).

	F value	Significance
Age of founders	.53	.47
Initial capital of firms	.63	.43
Number of employees	.65	.42
Radius of business	.18	.68

N 101 Missing 0

On the basis of the above results of non-response analyses, it is possible to say that the data which it was possible to collect, representatively illustrates the whole population.

4.6. Statistical methods

The statistical methods that were used in this study were factor analysis, multiple regression analysis, and structural equation modeling. Factor analysis was used to test unidimensionality of studied constructs and multiple regression analysis and structural equation modeling to test the hypotheses of the study. In the following section the main principles of these methods are briefly presented.

4.6.1. Factor analysis

Factor analysis in general is a method of studying what kind of dimensions describe the phenomenon and how these dimensions could be interpreted (Alkula, Pöntinen, and Ylöstalo 1995). For example, it could be first studied what kind of different issues pull and push entrepreneurs to establish ventures, second these issues could be categorized into more general motivational dimensions (factors), and third the dimensions could be interpreted as certain kinds of motivations. Thus, it is possible to get a rough picture of the motivational factors pulling and pushing entrepreneurs into establishing new ventures. Factor analysis is a linear model explaining the relationships between independent and dependent variables. However, it is somewhat different from regression models. In factor analysis the dependent variables are a set of empirically measured variables (in the above pulling and pushing factors) while independent variables are thought to be dimensions (factors) that are not known beforehand (in the motivations above). The main claim of factor analysis is that factors cause covariation among the observed variables. Thus, a set of variables correlates with each other and define a factor that could be interpreted to be a certain construct. Further, factor analysis assumes that the number of these factors is less than the number of observed variables. Thus, factor analysis draws a simpler picture of the phenomenon than it is possible to show by using all the measured variables.

Schumacker and Lomax (1996) state that factor analysis in general attempts to show which set of variables having common variance-covariance characteristics define a construct. To do this researchers use two alternative techniques: (1) confirming technique or (2) exploring technique. In confirming technique the attempt is to confirm that a certain set of variables defines a construct (a factor). In exploring technique, again, the attempt is to explore how variables are related to factors. In other words, confirming technique aims at establishing that a set of variables defines a certain factor while exploring technique searches all the possible variables that define factors without a previous picture of the factors. This study

uses exploring technique to find out if those factors are to be found that it were suggested in the theory. In other words, it is studied whether the variables in the questionnaire define factors that could be interpreted as those that are presented in the theory. Factor analysis is used in this study to define latent theoretical constructs. In other words, it was studied whether the theoretical constructs were independent, or unobservable (cf. Schumacker and Lomax 1996; Yli-Renko 1999). In this type of use, factor analysis tests the reliability of a construct, and thus could be used together with Cronbach's alpha coefficient. This study uses both to assess reliability of constructs and to make sure that a certain set of variables defines a certain factor (a certain construct).

Thus, on what basis should the factors and the variables be chosen in the model? This study uses eigenvalues to measure the variation of the data a factor is explaining. Eigenvalue of a factor is measured so that the factor loadings of the variables of the factor are squared, summed, and divided by the number of variables. The eigenvalue of the factor shows how important an explanatory factor the factor is in the model. The common rule is that factors having eigenvalues under 1.00 should not be used in a model. The reason for this is that a smaller eigenvalue of a factor explains variation more weakly than a single variable. Another often used rule is that only those variables that have factor loadings of 0.60 or higher on a primary dimension and 0.40 or lower on any other dimension are accepted. If this rule is followed, the factors (constructs) are unobservable, i.e., don't correlate too much with each other. The above rules are used in this study to test constructs, to make sure that constructs are really reliable and unobservable, and as a basis for extracting the factors. The most used method to extract factors is principal component analysis (Aczel 1996). This study uses this method. Often the factor solutions obtained by principal component analysis are rotated in order to find as good loadings as possible. Here in this study VARIMAX rotation is used, which tries to produce factor loadings that load as high as possible on one factor and as low as possible on other factors.

In the following analyses, then, the factors were used as Likert-scale sum-variables. Multicollinearity is the issue that might cause problems in using of sum-variables in further analyses. Factor scores don't include this problem but the problems that concern factor scores are that different rotations of the factor solution could lead to different factor scores and that the measurement model indicates that the variables are functions of both the common factors and the measurement error terms, which causes factor scores to be affected by measurement errors. The use of sum-variables was chosen instead of factor scores because the above problems of factor scores are quite severe and because sum-variables are easier

to construct and use. In addition, the AMOS-program was used in the structural equation modelling to test multicollinearity. As further analyses show, multicollinearity between the constructs was so low that it doesn't affect the results significantly.

4.6.2. Multiple regression analysis

Multiple regression analysis is a linear method to explain the effects of several independent variables on one dependent variable. The general form of a multiple regression equation could be presented as follows: $Y_i = a + b_1X_{1i} + b_2X_{2i} + \ldots b_kX_{ki} + e_i$, where Y_i indicates the dependent variable for observation i, $b_1X_{1i} - b_kX_{ki}$ stand for the independent variables, a is the constant variable, and e_i is the observed error, that is, the variance not explained by the independent variables. Multiple regression analysis is based on the following assumptions: (1) variables are quantitative, (2) relationships between variables are linear, (3) effects are additive, (4) there are more observations than variables (5) sample observations are independent, and (6) error term is normally distributed (Alkula et al. 1995). The most used method for estimating the regression equation is the least square method (Alkula et al. 1995; Yli-Renko 1999). The least square method minimizes the sum of the squared residual vertical distances between the observed data points and the regression line (Yli-Renko 1999). This could be seen to imply that parameter estimates are chosen so that residuals are as small as possible (Alkula et al. 1995). This study uses the least square method.

In regression analysis the statistical significance of coefficient b_k is tested by using the t-test. The t-test tests how many standard errors the coefficient is from zero. If the result of t-test is that the p-value of the coefficient is below 0.05, the coefficient is significant. Alkula et al. (1995) recommend the use of standardized regression coefficients (beta) as indicators of explanatory power when the variables don't have natural scales (e.g. years or kilograms) and when it is desirable to compare the explanatory power of different coefficients. Standardized beta values are relative values making the comparison of effects possible. It is calculated for each independent variable so that the regression coefficient is multiplied by the ratio of the standard deviation of the independent variable to the standard deviation of the dependent variable (Yli-Renko 1999). The beta values vary between zero and one, and the closer the value is to one, the more explanatory power the independent variable has.

Multicollinearity of independent variables is often a problem in regression analysis. Multicollinearity means that independent variables correlate with each other. Multicollinearity causes independent variables not to remain independent and the variables to mask each

other's effects. Thus, the beta in the regression equation might be higher or lower than it is in reality because some other variables might strongly affect the independent variable. Kennedy (1992), for example, has recommended that the correlations between independent variables shouldn't be higher than 0.80. Multicollinearity could also be analyzed by using tolerance- and VIF-values. The tolerance value shows the degree to which the variable is a linear combination of other variables. The VIF-value (variance inflation factor) is, then, the reciprocal of the tolerance value. Tolerance values below 0.10 and VIF-values above 10.0 indicate high multicollinearity.

R^2 measures how much of the variation of a dependent variable is explained by the combination of independent variables. The adjusted R^2 shows the explanatory power of the model corrected for degrees of freedom. This means that the number of independent variables and sample size are taken into account. Thus, it could be concluded that R^2 measures the explanatory power in the sample while adjusted R^2 shows explanatory power that could be generalized to the whole population. Adjusted R^2 is the most used measure of explanatory power of the model. It is also recommended to use R^2 when it is used Likert-scales, i.e. not natural scales (e.g. years or kilograms). Thus, this study uses adjusted R^2 to measure the explanatory power of the model. The statistical significance of the model is measured in regression analysis by using the F-test of the analysis of variance. The model under study could be seen to be significant when a F-test shows the significance level below 0.05.

4.6.3. Structural equation modeling

Structural equation modeling is a multivariate method of studying many dependence relationships at the same time in one model (Schumacker and Lomax 1996). If compared with regression analysis, this means that it is possible to have several dependent variables. Thus, it is possible to have dependences between the independent variables and mediating and moderating variables in the studied model. Thus, it is possible to study more holistically how the suggested model fits the empirical data.

Schumacker and Lomax (1996) recommend that structural equation modeling should be strictly guided by theory. This is proposed because in the structural equation modeling it is very easy to "play" with possible dependences and search for the best fit to the empirical data. Especially the modern statistical packages make it possible to try all kinds of different possibilities and to find a model that fits to the empirical data without regarding whether is it theoretically reasonable. Although the fit might be good, the model can be totally irrele-

vant because it is a result of imagination. It is like a surrealistic painting which at the first glance looks like a naturalistic image of nature but when looked at again proves to distort the world significantly (think, for example, of the paintings by Salvador Dali). In the present study the hypotheses are derived from theory and the structural equation modeling is used to test whether these hypotheses in the model hold when put simultaneously into the same model. This logic is confirmatory. Exploratory logic could also be used as far as the exploring is based on theoretical reasoning. This study doesn't use exploratory logic.

In the structural equation modeling the same assumptions as in regression analysis should be followed. The most important requirements are that observations should be independent and relationships linear. In the structural equation modeling independent variables are called exogenous and dependent variables and variables acting as independent and dependent endogenous. Multicollinearity is a problem when correlation between exogenous variables is higher than 0.80 (Schumacker and Lomax 1996).

In the structural equation path diagrams below observed (measured) and unobserved (unmeasured) variables are presented (see, e.g. Figure 25). In these path diagrams squares represent observed variables and circles unobserved variables. Unobserved variables are in structural equation modeling also called as latent variables. In the path diagrams below the correlations are represented as bi-directional arrows. This means that the constructs have a relationship, but the relationship doesn't have explicitly defined direction. For example, in Figure 25 it is thought that formal knowledge and creativity have a relationship but neither of them has a causal effect on the other. This choice between causal and non-causal relationship in the models is based on theoretical work before empirical model testing. Some relationships between the exogenous variables have not been presented because they didn't increase model fit. Close to this bi-directional arrow is presented a figure representing the correlation between the constructs. Single-headed arrows, again, in the path diagrams indicate the causal relationship between the constructs. The standardized beta coefficient illustrates the causal relationship in the path diagrams. Some unobserved (latent) constructs have been labeled "e1", "e2" and so on. This means that these constructs are residuals or error variables. The arrows from error variables are labeled with the number "1". By this is meant that the coefficients of those variables have fixed values set at 1.00. The AMOS-program includes these values by necessity. By this procedure the program set the scale of measurement of error variables. In addition, close to the endogenous variables is positioned the R^2 value (squared multiple correlation) indicating the proportion of variance, which the exogenous (independent) variables are explaining of the endogenous (dependent) variables.

The most used method to estimate a structural equation model is the maximum likelihood method and the most used input data is the covariance matrix. This study uses the maximum likelihood method and covariance data as input data. In practice, raw data is used, and the program (AMOS) converts the data into covariances for its own use. In the estimation the covariance matrix of the sample is compared with the covariance matrix predicted by the model. The similarity of the models indicates a good fit. This shows that the hypothesized model fits the empirical reality well.

As was claimed in the above, the proposed model should be based on theory. Further, the model should be as simple as possible but also include all the relevant relationships (Schumacker and Lomax 1996). The characteristics of the model decide whether the model is possible to identify. The model identification could be tested by analyzing degrees of freedom of the model. Degrees of freedom are the number of covariances in the input matrix minus the number of estimated coefficients (Yli-Renko 1999). The model is possible to identify only when the degree of freedom is zero or higher. If the model is under identified, then it is not possible to trust the estimates of the parameters. An underidentified model is possible to become identified if additional constraints are imposed (Schumacker and Lomax 1996). First, when the degree of freedom is less than zero, then there is not enough information in the empirical data matrix to determine uniquely all the parameters in the theoretical model. Second, when the degree of freedom is zero, then there is just enough information in the empirical data matrix to determine uniquely all the parameters in the theoretical model. Last, when the degree of freedom is higher than zero, then there is more than one way of estimating a parameter(s) because there is more than enough information in the empirical data matrix (Schumacker and Lomax 1996).

The fit between the theoretical model and the empirical data is often measured by using several measures illustrating the fit. A combination of these goodness-of-fit figures should be used, as the evaluation of the fit is task specific and subjective (Yli-Renko 1999). This study uses a combination of four criteria: (1) chi-square, (2) goodness-of-fit index (GFI), (3) adjusted goodness-of-fit index (AGFI), and (4) normed fit index (NFI) (Schumacker and Lomax 1996). First, chi-square tests the statistical significance of the entire model. Chi-square indicates how the covariance matrices of the observed empirical model and the estimated hypothesized model differ. When the difference is significant ($p \leq 0.05$), then the observed and the estimated covariance matrices differ significantly, and the model should be rejected. Thus, contrary to the normal use of the chi-square test the attempt is to find as significant a similarity as possible, and the goodness of fit is acceptable when the statistical

significance is low ($p \geq 0.05$). Second, the variance and covariance in the observed data predicted by the hypothesized model are measured by using the goodness-of-fit index (GFI) (Yli-Renko 1999). The GFI-value should be above 0.90 in the hypothesized model to predict well enough the empirical data (Schumacker and Lomax 1996). Third, the adjusted goodness-of-fit index is GFI adjusted to degrees of freedom. AGFI values should also be above 0.90. Fourth, the normed fit index (NFI) is a measure that rescales chi-square into a 0 (no fit) to 1.0 (perfect fit) (Schumacker and Lomax 1996). NFI values should be above 0.80 to indicate a good fit.

Sample size affects the significance of structural model estimates (Schumacker and Lomax 1996; Yli-Renko 1999). It is proposed that sample size in structural equation modeling should be 100–200. In this study there are 101 observations, so the sample size is just enough. Another rule of thumb is that there should be at least five observations per parameter (Yli-Renko 1999). In the intellectual capital model there are 19 parameters, in the social capital model 17 parameters, in the environmental dynamism model 15 parameters, in the performance creation model 16 parameters, and in the combined model 13 parameters. Thus, the sample size is large enough. (Schumacker and Lomax 1996)

4.7. Construct operationalization

The research constructs are next operationalized. Factor analysis and the Cronbach alpha reliability coefficient were used to confirm the unidimensionality and inter-item reliability of constructs. Whenever it was possible, already reliable measures of other studies were used. The constructs were chosen based on the literature review. The items were measured on a seven-point Likert-scale, where the choices ranged from 1 = strongly disagree to 7 = strongly agree. The operationalized constructs are intellectual capital, social capital, environmental dynamism, opportunity recognition behavior, and performance. The control variables of the study are age of founders, initial amount of capital, number of employees in the beginning, radius of business in the beginning, industry sector (the metal- or information and communication technology as a dummy variable), and regional location (the province of Jyväskylä, Oulu, or Vaasa as a dummy variable).

4.7.1. Intellectual capital

The independent variables of intellectual capital are domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity. Table 10 presents descriptive

statistics for the variables.

Table 10. Descriptive statistics of the intellectual capital variables.

	Mean	Median	Standard deviation	Min	Max	N
Domain knowledge	3.20	3.00	1.74	1	6	101
Formal knowledge	3.91	4.00	1.22	1	7	101
Management experience	2.86	2.00	2.12	1	7	101
Intrinsic motivation	4.95	5.00	1.33	1	7	101
Creativity	5.13	5.20	1.04	3	7	101

Domain knowledge

Domain knowledge was measured by using three items. The first of them asks how similar entrepreneurs' recent customers are to the customers of the former employers of the entrepreneurs. The second item asks how similar the products of the entrepreneurs are to the former employers' products. Last similarity of suppliers is asked about. These questions are applied from the study by Gimeno et al. (1997). They indicated that these questions well reflect how an entrepreneur knows his/her field of action, i.e., domain knowledge. Table 11 presents the questions, the source, and factor loadings. The factor loadings suggest unidimensionality of the construct. The Cronbach alpha coefficient for this construct is 0.78.

Table 11. Domain knowledge measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
How close are your prior employers' customers to your own firm's customers?	Gimeno et al. 1997	.90
How close are your prior employers' products to your own firm's products?	Gimeno et al. 1997	.82
How close are your prior employers' suppliers to your own firm's suppliers?	Gimeno et al. 1997	.71

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Formal knowledge

Two items measure formal knowledge. These are, first, education of entrepreneurs and, second, technical skills of entrepreneurs. Phan and Lee (1995) and Gimeno et al. (1997) indicated these items to well reflect the knowledge of the theories, rules, knowledge etc. of the domain, i.e., formal knowledge of entrepreneurs. Table 12 below suggests unidimensionality of the construct. The Cronbach alpha coefficient for this construct is 0.68.

Table 12. Formal knowledge measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
What is your highest official degree of education?	Phan and Lee 1995; Gimeno et al. 1997	.88
What is your amount of technical skills in your firm's industry?	Phan and Lee 1995	.83

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Management experience

Management experience was measured by using two items inquiring experience of managerial actions and entrepreneurial actions. The questions were adopted from Gimeno et al. (1997). It was suggested that these items would reflect the knowledge on organizing ideas, thoughts, and resources to establish a venture. Table 13 indicates quite high factor loadings. The Cronbach alpha coefficient for this construct is 0.80. On the basis of the factor loadings and Cronbach alpha the construct is reliable and unidimensional.

Table 13. Management experience measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
How much entrepreneurship experience have you from your prior jobs?	Gimeno et al. 1997	.88
How much management experience have you from your prior jobs?	Gimeno et al. 1997	.88

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Intrinsic motivation

Five items were used to measure the intrinsic motivation of entrepreneurs. The first item measures how strongly entrepreneurs wanted to show that they are able do it. The second item asked if entrepreneurs felt the situation as a challenge. The third question inquired how important it was that they were able to do work they enjoy. Fourth by it was asked how much entrepreneurs wanted to be respected by others. The fifth item measured the need to develop as a human being. These questions were adopted from the studies by Gimeno et al. (1997) and Kuratko, Hornsby, and Naffziger (1997). They illustrate the internal need of opportunity recognition and new venture creation. The factor loadings of the items are quite high. This is indicated in Table 14. The Cronbach alpha coefficient for this construct is 0.88. Therefore, the reliability and the unidimensionality of the construct are clear.

Table 14. Intrinsic motivation measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I wanted to show that I can do it.	Kuratko et al. 1997	.89
I felt it like a personal challenge.	Kuratko et al. 1997	.87
I wanted to do work that I enjoy.	Gimeno et al. 1997; Kuratko et al. 1997	.78
I wanted to be respected by others.	Kuratko et al. 1997	.77
I wanted to develop as a human being.	Kuratko et al. 1997	.77

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Creativity

Five items measure creativity of entrepreneurs. First is asked how good an entrepreneur is when it comes to questioning normal ways of doings things. Second is asked how sensitive an entrepreneur is to seeing the kind of problems that others can't see. The third item asks how often new solutions come into an entrepreneur's mind though not necessarily wanted. The fourth item concerns originality of ideas. The last item asks if an entrepreneur has plenty of ideas. These items measure fluency, flexibility, originality, and adaptability of thinking, i.e., creativity. The questions are adopted from the studies by Kivikko (1977) and Vesalainen and Pihkala (1998), who used the generally used factors namely fluency, flexibility, originality, and adaptability (cf. Clapham 1998). Table 15 presents the items, sources, and factor loadings. Based on the factor loadings, and the Cronbach alpha coefficient for this construct, which was 0.86, the unidimensionality of the construct is clear.

Table 15. Creativity measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I'm good at questioning normally used ways of doing things.	Vesalainen & Pihkala 1998	.89
I'm sensitive to seeing problems that others don't see.	Kivikko 1977	.82
New solutions come into my mind also when they are not especially needed.	Kivikko 1977	.82
My ideas are very original.	Vesalainen & Pihkala 1998	.76
I have plenty of ideas.	Vesalainen & Pihkala 1998	.71

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

4.7.2. Social capital

The independent variables of social capital are structural dimension of social capital (amount of social interaction), relational dimension of social capital (closeness of relation-

ships), and cognitive dimension (commitment to relationships). The mean and median of the dimensions are quite high suggesting that social capital plays an important role in business opportunity recognition. Table 16 illustrates more precisely descriptive statistics for the variables.

Table 16. Descriptive statistics of the social capital variables.

	Mean	Median	Standard deviation	Min	Max	N
Structural dimension	3.93	4.25	1.32	1	7	101
Relational dimension	4.72	2.67	1.50	1	7	101
Cognitive dimension	4.86	4.50	1.17	3	7	101

Structural dimension of social capital

The structural dimension, i.e. the amount of social interaction, was measured using four items. First, it was asked whether an entrepreneur obtained new contacts through relationships. Second, it was asked whether an entrepreneur had many relationships. Third it was asked whether an entrepreneur's relationships opened doors to new relationships. Last, it was asked with how many people an entrepreneur discussed the business. The items were adopted from the studies by Tsai and Ghoshal (1998) and Yli-Renko (1999). Table 17 proposes the factor loadings to be above 0.7. The Cronbach alpha coefficient for this construct is 0.74. Thus, it is suggested that this variable to be reliable and unidimensional construct.

Table 17. Measurement items, sources, and factor loadings of the structural dimension of social capital.

Items	Sources	Factor loadings
I got new contacts through my relationships.	Tsai & Ghoshal 1998; Yli-Renko 1999	.87
I have many relationships.	Tsai & Ghoshal 1998; Yli-Renko 1999	.84
My relationships opened doors to new relationships.	Tsai & Ghoshal 1998; Yli-Renko 1999	.74
I discussed with many my possible business.	Tsai & Ghoshal 1998; Yli-Renko 1999	.73

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Relational dimension of social capital

The relational dimension, i.e., the closeness of relationships was a measure using three items. First it was asked if the relationships supported the entrepreneur when it was diffi-

cult. Second it was inquired how close the relationships of an entrepreneur were. Third, interest was focused on how well an entrepreneur knows his/her relationships. The items were adopted from the studies by Tsai and Ghoshal (1998) and Yli-Renko (1999). Table 18 illustrates that all the factor loadings were above 0.80. The Cronbach alpha coefficient for this construct is 0.92. Thus, reliability and unidimensionality are obvious.

Table 18. Measurement items, sources, and factor loadings of the relational dimension of social capital.

Items	Sources	Factor loadings
My relationships supported me when it was difficult.	Tsai & Ghoshal 1998; Yli-Renko 1999	.94
I have close relationships with my contacts.	Tsai & Ghoshal 1998; Yli-Renko 1999	.92
I know my relationships well.	Tsai & Ghoshal 1998; Yli-Renko 1999	.85

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

Cognitive dimension of social capital

Two items measure the cognitive dimension, i.e., commitment to relationships. The first item asks whether the parties understand each other's goals well. The second item measures whether the parties would misuse each other. The goal of these questions is to find out how much the parties trust and are committed to each other. Tsai and Ghoshal (1998) and Yli-Renko (1999) have presented these items to illustrate the cognitive dimension of social capital. Table 19 shows the factor loadings to be 0.78 and 0.77. The Cronbach alpha coefficient for this construct is 0.71. These propose the reliability of the variable to be satisfying.

Table 19. Measurement items, sources, and factor loadings of the cognitive dimension of social capital.

Items	Sources	Factor loadings
We understand each other's goals.	Tsai & Ghoshal 1998; Yli-Renko 1999	.78
Neither of the parties would misuse each other.	Tsai & Ghoshal 1998; Yli-Renko 1999	.77

Principal component analysis using VARIMAX rotation. Item loadings not less than .60 on a primary dimension and not more than .40 on any other dimension were retained.

4.7.3. Environmental dynamism

Environmental dynamism didn't have independent sub-variables, as did the other con-

structs. Table 20 illustrates descriptive statistics for the construct.

Table 20. Descriptive statistics of the environmental dynamism variable.

	Mean	Median	Standard deviation	Min	Max	N
Environmental dynamism	3.98	4.29	1.33	1	7	101

Seven items in the questionnaire measured environmental dynamism. The items measured the perceptions of the entrepreneurs of environmental dynamism. First it was claimed that production technology has changed fast. Second it was claimed that production technology has changed slowly. Third it was argues that ways of marketing have changed slowly. A fourth statement proposed that the ways of marketing have often been changed. Fifth it was asked whether the actions of competitors have been difficult to forecast. Sixth it was suggested that the demands and preferences of customers often change. Last it was argued that products become old fast. These items were derived from studies by Miller and Tolouse (1998), Zahra and Neubaum (1998), and Zahra et al. (1998). Table 21 proposes the factor loadings. The range of the factor loadings is from 0.67 to 0.92. The Cronbach alpha coefficient for this construct is 0.87. Therefore, it is proposed that the construct is unidimensional.

Table 21. Environmental dynamism measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
Production technology has changed fast.	Zahra et al.1998	.92
Production technology has changed slowly (reverse)	Zahra et al.1998	.83
Ways of marketing have changed slowly (reverse).	Zahra & Neubaum 1998	.82
The ways of marketing have often changed.	Zahra & Neubaum 1998	.70
Actions of competitors have been difficult to forecast.	Miller & Tolouse 1998	.68
Demand and preferences of customers have changed often.	Zahra & Neubaum 1998; Zahra et al.1998	.67
Products have become old fast.	Zahra & Neubaum 1998	.67

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

4.7.4. Business opportunity recognition behavior

The independent variables of business opportunity recognition behavior are the following: knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. Table 22 presented below demonstrates descriptive statistics for these

variables.

Table 22. Descriptive statistics of opportunity recognition behavior variables.

	Mean	Median	Standard deviation	Min	Max	N
Knowledge acquisition	3.45	3.25	1.55	1	7	101
Competitive scanning	3.36	3.33	1.56	1	7	101
Proactive searching	3.88	3.67	1.60	1	7	101
Innovative behavior	3.80	4.00	1.41	1	7	101
Collective action	4.28	4.00	1.44	1	7	101

Knowledge acquisition

Four items measured knowledge acquisition. The items asked whether an entrepreneur gathered a lot of information on sales, gathered a lot of information on markets, did organized work to find an opportunity, and made forecasts about technological developments. The items were adopted from a study by Miller (1987). Table 23 shows the measurement items, sources, and factor loadings. All the factor loadings are above 0.70. The Cronbach alpha coefficient for this construct is 0.93. The factor loadings and Cronbach alpha coefficient show the measurement of the construct to be reliable.

Table 23. Knowledge acquisition measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I gathered a lot of information on sales.	Miller 1987	.94
I gathered a lot of information on markets.	Miller 1987	.90
I did organized work in order to find an opportunity.	Miller 1987	.89
I made forecasts about technological developments.	Miller 1987	.70

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

Competitive scanning

Competitive scanning was measured in the questionnaire by using three items. First, it was asked if the entrepreneurs had a strong proclivity for high-return projects, even though they involved high risk. Second, it was inquired in the questionnaire whether the entrepreneurs went in for bold and wide-ranging actions in opportunity searching. Third, it was asked whether the entrepreneurs tried to find original ideas. The above items were derived from the study by Miller (1987). Table 24 below shows the factor loadings of the items to be all above 0.6. The Cronbach alpha coefficient for this construct is 0.85, which is quite high.

Therefore, it is possible to propose here that the measurement of this construct in the study is unidimensional and reliable.

Table 24. Competitive scanning measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I had a strong proclivity for high-return projects, despite high risk.	Miller 1987	.92
I went in for bold, wide-ranging actions in opportunity searching.	Miller 1987	.86
I tried to find original ideas.	Miller 1987	.62

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

Proactive searching

Proactive searching was measured using three items. The first of the measurement items asked whether the entrepreneurs planned far ahead. The second item asked whether the entrepreneurs tried to find an opportunity with high newness-value. The third question asked whether the entrepreneurs purposefully spent time on creativity. Table 25 below expresses the measurement items, the sources of the items, and factor loadings. The range of factor loadings was from 0.60 to 0.90. The Cronbach alpha coefficient for this construct is 0.75. Based on the factor loadings and the Cronbach alpha coefficient it is possible to say that the construct is reliable and unidimensional.

Table 25. Proactive searching measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I planned far ahead.	Miller 1987	.90
I tried to find an opportunity with high newness-value.	Miller 1987	.68
I purposefully spent time on creativity.	Hart 1992	.60

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

Innovative behavior

Innovative behavior was measured through two items. First, it was claimed that searching is about trial and error with ideas and, second, that entrepreneurs played and tried a lot of different things. Table 26 illustrates high factor loadings. The Cronbach alpha coefficient for this construct is 0.61. Therefore, the measurement of the construct is reliable and unidimensional.

Table 26. Innovative behavior measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
Searching was about trial and error with ideas.	Miller 1987	.91
I played with and tried a lot of different ideas.	Miller 1987	.71

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

Collective action

Two items also measured collective action. First it was asked whether the entrepreneurs preferred to work alone rather than together with others. Second it was asked whether the entrepreneurs negotiated and discussed a lot with other people. Table 27 shows that the factor loadings are acceptable. The Cronbach alpha coefficient for this construct is 0.60. Thus, the construct is reliable and unidimensional enough.

Table 27. Collective action measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
I preferred to work alone rather than together with others (reverse).	Miller 1987	.92
I negotiated and discussed a lot with other people.	Miller 1987	.64

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

4.7.5. Performance

The independent variables of performance of a venture are growth and newness value. Table 28 present descriptive statistics for the variables.

Table 28. Descriptive statistics of the performance variables.

	Mean	Median	Standard deviation	Min	Max	N
Growth	3.64	3.80	1.51	1	7	101
Newness value	3.64	4.00	1.56	1	7	101

Growth

Five items measure the growth of a venture. The first item claimed that sales have grown more than 20 % per year. The second item argued that the number of employees has grown

fast. The third proposed that owners of the company earn fast profit on their investments. The fourth put forward that the sales of the company have grown faster than the sales of the competitors. The fifth item claims that the market value of the company has grown faster than the market value of the competitors. The items were derived from a study by Wiklund (1998). Table 29 shows the range of factor loadings to be from 0.61 to 0.87. The Cronbach alpha coefficient for this construct is 0.86. These results suggest good reliability.

Table 29. Growth measurement items and factor loadings.

Items	Sources	Factor loadings
Sales have grown more than 20% per year.	Wiklund 1998	.87
Number of employers has grown fast.	Wiklund 1998	.78
Owners of the company earn fast profit for their investments.	Wiklund 1998	.70
Sales of the company have grown faster than sales of the competitors.	Wiklund 1998	.70
Market value of the company has grown faster than market value of the competitors.	Wiklund 1998	.61

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

Newness value

Newness value was measured by using three items. The first item claims that the products of the venture are better than the products of competitors. The second item argues that the venture has introduced more new products than the competitors. The third item sets forth that the venture has introduced a lot of innovative new products. Table 30 presents the range of the factor loadings to be from 0.79 to 0.89. The Cronbach alpha coefficient for this construct is 0.88. Reliability and unidimensionality are, thus, acceptable.

Table 30. Newness value measurement items, sources, and factor loadings.

Items	Sources	Factor loadings
Newness of our products is better than our competitors'.	Wiklund 1998	.89
We have introduced more new products than our competitors'.	Wiklund 1998	.84
We have introduced a lot of innovative new products.	Wiklund 1998	.79

Principal component analysis using VARIMAX rotation. Item loadings not less than 0.6 on a primary dimension and not more than 0.4 on any other dimension were retained.

4.8. Reliability and validity analysis

The study, in order to contribute to the field of research, should concern reliability, validity, and generalizability (e.g. Uusitalo 1991). Reliability refers to the replicability of the results

using the same methods by any other researcher. Validity, again, concerns how well the study measures the phenomenon that it wanted to measure. Generalizability, or external validity, refers to how broadly the results of the study can be generalized to be valid for contexts outside the setting of the study (e.g. Uusitalo 1991; Yli-Renko 1999). Next the reliability and validity of the study are assessed. Generalizability is not dealt with here but in the conclusions of the study when the limitations are presented, because it is possible to say something about it only after the results have been indicated.

4.8.1. Reliability

By reliability is meant how well the results obtained using the method are possible to replicate using the same method. In other words, if the procedure is replicated by the same or another researcher, the same results should be obtained. However, in survey research replications are seldom carried out because data is difficult to get in the first place. Instead reliability is often evaluated qualitatively and quantitatively (see, e.g., Yli-Renko 1999).

Reliability of the empirical data

The empirical data was collected from one person only. This person was the original recognizer of the opportunity. This approach was used because it was required that the informant should know the whole process of the business recognition. However, this causes possibilities of bias in the data, as it is based on one person's views only. Some steps were used to ensure that the data should nevertheless be reliable. First, the questionnaire was carefully designed with several rounds of revisions and a pilot test. In this way it was ensured that informants would understand the questions. Second, as concrete questions and statements as possible were used, although the concepts are difficult to measure (Yli-Renko 1999). Also only Likert-scale questions were used in order to make sure that the questionnaire would be easy and clear to fill out. Third, it was checked how many values were missing in the answers of the informants. This ensured that there weren't any missing values. This, then, illustrates that the questionnaire was clear and, thus, that the data are obviously reliable.

Inter item reliability of constructs

Inter item reliability illustrates the internal consistency of a set of items measuring a construct. It shows how well a set of items represents a common latent unobserved construct.

The most commonly used methods to assess inter item reliability are factor analysis and the Cronbach alpha coefficient (Yli-Renko 1999). The factor analyses of the constructs were illustrated above in the part on construct operationalizations. Cronbach alpha values above 0.70 are considered to be very good (Nunnally 1978). However, lower values could often be accepted (Alkula et al. 1994). Here in this study values above 0.60 are accepted because very intangible constructs are measured (cf. Yli-Renko 1999). Table 31 summarizes the Cronbach alpha values of the constructs. As Table 31 shows, all the alpha values were above the required 0.60.

Table 31. Summary of the Cronbach alpha values of the constructs.

Construct	Cronbach alpha
Domain knowledge	.78
Formal knowledge	.68
Management experience	.80
Intrinsic motivation	.88
Creativity	.86
Amount of social interaction	.74
Closeness of relationships	.92
Commitment to relationships	.71
Environmental dynamism	.87
Knowledge acquisition	.93
Competitive scanning	.85
Proactive searching	.75
Innovative behavior	.61
Collective action	.60
Growth of a venture	.86
Newness value of a venture	.88

4.8.2. Validity

Validity refers to the extent to which the measurement really measures what it is intended to measure. In the present study, previously validated measures were used whenever it was possible. In the next few paragraphs, the validity of constructs is assessed with respect to four dimensions: face validity, content validity, construct validity, and predictive validity (cf. Alkula et al. 1994; Yli-Renko 1999).

Face validity

Face validity refers to the degree to which the constructs are consistent with common agreements about the concepts (Yli-Renko 1999). In other words, how close the used constructs are to those that are generally used. If constructs and empirical measures are differ-

ent from those normally used, then the face validity of the study is low. Here in this study are used only such constructs as are used in other similar types of studies. The used constructs are based on the careful review of literature. Thus, it is proposed that the face validity of the study should be high.

Content validity

By content validity is meant how well a measure takes into the account all the angles the construct might have. Or in other words, how holistically the measure measures the construct. Yli-Renko (1999) suggests that, when content validity is taken care of, it should begin with a review of the literature, through which is analyzed how others have used the construct; second, the content should be stratified into the most important facets; and third, the method should be pre-tested. This study used these guidelines in designing the constructs and the survey-instrument. Also, it used multiple-item measures to increase content validity.

Construct validity

Construct validity is about how a method is related to other methods within a system of theoretical relationships (Yli-Renko 1999). It could be put forward that construct validity is high when the results are in line what was expected (Alkula et al. 1994). This means that constructs should be unidimensional, i.e., separate with reference to each other. Factor analysis could be used to evaluate construct validity (Yli-Renko 1999). As was indicated at the beginning, the constructs of the study were unidimensional. By this is meant that items measuring a construct loaded only on one factor and that items didn't load on any other factors. This suggests that construct validity of the study should be high.

Predictive validity

Predictive validity measures how well the methods can yield results that are in line with the suggested theoretical model (cf. Alkula et al. 1994; Yli-Renko 1999). If results are along the suggested model, then the predictive validity is high. The results in the next chapter show that the suggested model works reasonably well (intellectual capital, social capital, and environmental dynamism affect significantly opportunity recognition behavior, and opportunity recognition behavior affects significantly performance of a young venture). Thus, predictive validity of the study is at least reasonable.

5. RESULTS

Until now the focus has been on the objectives, the theoretical claims, and the methodology used in the study. This chapter presents the results based on the empirical investigation. First, in the chapter on results are presented descriptive statistics on the sample. The sample is described by giving the basic statistics of the entrepreneurs and ventures under study. Second, the hypotheses are tested. This testing is presented below in four parts: (1) the effects of intellectual capital on opportunity recognition behavior, (2) the effects of social capital on opportunity recognition behavior, (3) the effects of environmental dynamism on opportunity recognition behavior, and (4) the effects of opportunity recognition behavior on performance of the ventures. Each part is analyzed so that first correlations among the variables are presented and second the results concerning the hypotheses using multiple regression analysis. Last, a structural equation model is used to test the overall fit of the four models. The structural equation model is used in order to make sure that the results of the hypotheses hold also when analyzed together at the same time in one model, which is not possible in regression analysis because it allows only one dependent variable. In all analyses standardized values (z-values) were used in order to make sure that differences in scales don't cause bias in the results.

5.1. Describing the sample

In order to make it quite clear from what empirical context the results are derived the sample is statistically described. In the description of the sample the following distributions are illustrated: (1) age of the founder entrepreneurs, (2) sex of the founder entrepreneurs, (3) geographical location of the ventures, (4) size of the businesses, (5) industry sectors of the ventures, and (6) comparison of the distributions of age of the founders, sex of the founders, geographical location, and size of the business across the industry sectors. Last, a summary of the description of the sample is presented based on the above distributions.

Age distribution of the founders in the sample

The distribution of age of the founders in the sample is presented in the Table 32. The age of the founders varied from 17 to 54 years. Clear peaks in the sample are around the ages of 27, 38, and 43. The mean age of the founders was 37 years and standard deviation 9.7 years. It could be seen also that the age distribution is quite close to normal distribution as the skewness is only -0.47 and the kurtosis -0.868. Based on the above, it could be pro-

posed that the sample entrepreneurs were relatively young. This is probably so because of the ICT-sector, in which entrepreneurs are more often young.

Table 32. Age distribution of the founders.

Age of the founders	Frequency	Percent	Cumulative percent
17	3	3.0	3.0
22	2	2.0	5.0
23	4	4.0	8.9
25	2	2.0	10.9
27	8	7.9	18.8
28	6	5.9	24.8
29	3	3.0	27.7
32	6	5.9	33.7
33	5	5.0	38.6
35	2	2.0	40.6
36	5	5.0	45.5
37	2	2.0	47.5
38	8	7.9	55.4
39	5	5.0	60.4
40	2	2.0	62.4
41	3	3.0	65.3
42	1	1.0	66.3
43	8	7.9	74.3
44	2	2.0	76.2
45	2	2.0	78.2
48	5	5.0	83.2
50	2	2.0	85.1
51	5	5.0	90.1
52	6	5.9	96.0
53	2	2.0	98.0
54	2	2.0	100.0

Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	N	Missing
37.4	38	9.71	17	54	–.47	–.868	101	0

Sex distribution of the founders in the sample

The sex distribution is extreme in the sample. Table 33 on the next page shows that 90% of the entrepreneurs are males and only 10% females. This is probably so because the industries (the ICT and the metal industry) are quite masculine and because males in general establish more new ventures than females. Anyhow, it is positive that in the sample female entrepreneurs are in the first place. But it is also clear that in this respect the sample is biased towards males. It is however claimed that an unbiased sample in this respect would have been impossible to obtain, or if obtained, the sample would have been biased in respect of other, more influential variables, such as size.

Table 33. Sex distribution of the founders.

Sex	Number of entrepreneurs	Percent of firms	Cumulative percent
Female	10	90.1	90.1
Male	91	9.9	100.0

N 101 Missing 0

Geographical location of the sample ventures

The firms in the sample were from the provinces of Jyväskylä, Oulu, and Vaasa (see municipalities in Appendix 2). Table 33 shows the distribution of the firms according to their location. The highest number of firms in the sample was in the province of Vaasa. Almost half of the ventures belong to this area. This is in line with the common knowledge that in the province of Vaasa a number of new firms are established. Roughly one quarter came from the province of Jyväskylä and one quarter from the province of Oulu. It is a little surprise that the province of Oulu produces only this quantity of firms although it is known nowadays as one of the liveliest entrepreneurial areas in Finland. But the reason for this might be that only city of Oulu and the immediate area around it produce new firms but the rest of the region does not. Only one year under study might be the reason as well. The province of Jyväskylä is also a fast developing area, especially in the ICT-sector. The number of new ventures indicates, as it does in the case of the province of Oulu, that only the very close area around the city of Jyväskylä is producing new firms. Even though the province of Vaasa is not, at least yet, known as a high growth area, the high number of new firms shows that there new venture creation is widely spread over the province.

Table 34. Geographical location of the sample ventures.

Geographical location	Number of firms	Percent of firms	Cumulative percent
Province of Jyväskylä	28	27.7	27.7
Province of Oulu	27	26.7	54.4
Province of Vaasa	46	45.5	100.0

N 101 Missing 0

Size of business of the sample ventures

The size of the business was measured by using as measures amount of initial capital, radius of business sales in the beginning, and number of employees in the beginning. Table 35 presents the distribution of initial capital among the firms. The mean initial capital was a bit over FIM 260 000. This is biased by the fact that a few firms had a big of initial capi-

tal. Thus, the median figure FIM 50 000 is a more reasonable sum illustrating better the usual initial capital. Interesting is that quite many of the ventures started without initial capital. It can also be seen that most often the sum is either FIM 0, 50 000, or 100 000. The measure of the normality shows that the sample firms are skewed toward smaller amounts of initial capital.

Table 35. Initial capital distribution of the ventures.

Initial capital	Frequency	Percent	Cumulative percent
0	12	11.9	11.9
250	1	1.0	12.9
2200	2	2.0	14.9
7000	3	3.0	17.8
15000	5	5.0	22.8
20000	4	4.0	26.7
25000	3	3.0	29.7
30000	8	7.9	37.6
37000	2	2.0	39.6
40000	5	5.0	44.6
50000	17	16.8	61.4
60000	1	1.0	62.4
100000	12	11.9	74.3
110000	2	2.0	76.2
120000	2	2.0	78.2
150000	4	4.0	82.2
200000	2	2.0	84.2
330000	2	2.0	86.1
500000	2	2.0	88.1
550000	2	2.0	90.1
900000	3	3.0	93.1
1000000	2	2.0	95.0
2000000	2	2.0	97.0
2400000	2	2.0	99.0
6000000	1	1.0	100.0

Mean	Median	Std. Dev.	Min	Max	Skewn.	Kurtosis	N	Missing
263 363	50 000	739 454	0	6 000000	5.538	37.554	101	0

The size of the business was also measured using the radius of business sales. This was measured so that the entrepreneurs were asked to assess the radius from which 80% of the customers come. The mean radius was 157.5 kilometers. The results in Table 36 also show that often the ventures are small having only a 10-kilometer business radius. This suggests that new businesses are local in the beginning. Nevertheless, many of the ventures had also quite large radius of business (300 km) indicating perhaps that nowadays the customers are spread out more often and that new firms born are national or even international.

Table 36. Distribution of the ventures on the basis of the radius of business.

Radius of business	Frequency	Percent	Cumulative Percent
1	1	1.0	1.0
3	2	2.0	3.0
10	17	16.8	19.8
12	2	2.0	21.8
20	2	2.0	23.8
25	6	5.9	29.7
30	8	7.9	37.6
40	7	6.9	44.6
50	11	10.9	55.4
60	4	4.0	59.4
70	2	2.0	61.4
80	1	1.0	62.4
100	4	4.0	66.3
120	2	2.0	68.3
150	1	1.0	69.3
200	3	3.0	72.3
300	12	11.9	84.2
400	5	5.0	89.1
500	3	3.0	92.1
600	2	2.0	94.1
650	2	2.0	96.0
700	2	2.0	98.0
800	2	2.0	100.0

Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	N	Missing
157.5	50.0	206.0	1	800	1.575	1.571	101	0

In Table 37 is indicated how big the ventures were in the beginning measured in terms of the number of employees. It could be seen that most often the ventures were "one man companies". As a whole, ventures were small having fewer than six employees in 99% of the cases. Only one of the ventures was quite big. It employed 22 persons even in the beginning of the business.

Table 37. Distribution of the ventures on the basis of number of employees of the ventures.

Number of employees	Frequency	Percent	Cumulative percent
1	80	79.2	79.2
2	10	9.9	89.1
3	4	4.0	93.1
4	4	4.0	97.0
6	2	2.0	99.0
22	1	1.0	100.0

Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	N	Missing
1.6	1	2.3	1	22	7.572	66.241	101	0

The size of the sample firms was illustrated by using three measures: initial capital, number of employees, and radius of business. The above tables showed that the ventures investigated were rather small. This is indicated, for example, by the fact that over 60% of the firms had FIM 50 000 or less as initial capital. On the other hand, almost 80% of the firms employed only the entrepreneur in the beginning. Last, the radius of the business for half of the companies was 50 km or less, i.e., 80% of the customers of the companies lived very close. All this points to the fact that entrepreneurs try to minimize risks by starting small.

Industry sector of the sample ventures

The ventures represented two industry sectors: information- and communication technology industry and the metal industry. Table 38 below presents the distribution of ventures in these two industries. It can be seen that the sample firms according to the industry sector are quite evenly distributed. Of the firms, 53 ventures belonged to the metal business and 48 to the information- and communication-technology business sector. This is line with the whole population, in which metal companies were in the majority.

Table 38. Distribution of the sample firms according to industry sector.

Industry sector	Number of firms	Percent of firms	Cumulative percent
ICT-industry	48	47.5	47.5
Metal industry	53	52.5	100

N 101 Missing 0

Comparison of age, sex, location, and size across the industries

First, the age distribution was compared across the industries under study. Table 39 below shows that in information- and communication technology the mean age of founders was 33 years while it was 41 in the metal industry. This shows clearly how new entrepreneurs in the metal branch are more experienced and maybe also that knowledge in the ICT-sector develops very fast as the founders are quite young. The distribution shows further that founders in the information- and communication technology are often around 30 years of age but in the metal industry often even over 50, if looked at the standard deviations. Both subsamples are quite normally distributed. [1]

[1] The statistical significance of the differences in means was tested by using on-way ANOVA. The age of founders was significantly higher in the metal industry ($p \leq .05$).

Table 39. The age distribution of founders compared across industries.

ICT-industry		N 48	Missing 0
	Mean		33.27
	Median		33
	Std. Deviation		7.76
	Skewness		–.324
	Kurtosis		–.604
	Minimum		17
	Maximum		45
Metal industry		N 53	Missing 0
	Mean		41.11
	Median		41
	Std. Deviation		9.85
	Skewness		–.383
	Kurtosis		–1.118
	Minimum		22
	Maximum		54

Second, when comparing the sex distribution of the founders across the industries, no significant differences were found. In both industries the males are in majority. The only difference is that women are to be found more frequently in the metal industry. This, then, shows how extremely male-oriented ICT-technology is. Looked at the figures in Table 40, in the metal industry there were 11% female founders but in the ICT-business only 8%.[2]

Table 40. The sex distribution of founders compared across ICT- and metal industries.

Industry	Sex	Frequency	Percent	Cumulative Percent
ICT-industry	male	44	91.7	91.7
	female	4	8.3	100.0
Metal industry	male	47	88.7	88.7
	female	6	11.3	100.0

N 101 Missing 0

Third, the geographical locations of the ventures were compared across the industries. Table 41 shows that ICT-technology ventures were originated mostly in the provinces of Oulu and Vaasa. However, 27% of the ventures came represented the province of Jyväskylä. Half of the metal ventures were located in the province of Vaasa and almost one-third in the province of Jyväskylä. Roughly one quarter of the metal firms were in the province of Oulu. This distribution is in line with the distribution of the population. [3]

[2] The statistical significance of the differences in means was tested by using one-way ANOVA. In terms of the sex of founders none of the differences across the industries were significant ($p \leq .05$).

[3] In respect of the location across the industries ventures were significantly different ($p \leq .05$).

Table 41. The distribution of geographical location of the ventures compared across the industries.

Industry	Geographical location	Frequency	Percent	Cumulative Percent
ICT-industry	Province of Jyväskylä	13	27.1	27.1
	Province of Oulu	17	35.4	62.5
	Province of Vaasa	18	37.5	100.0
Metal industry	Province of Jyväskylä	15	28.3	28.3
	Province of Oulu	10	18.9	46.2
	Province of Vaasa	28	52.8	100.0

N 101 Missing 0

Fourth, the size distribution of the ventures was compared across the industries. Table 42 shows that the mean initial capital is bigger in the metal industry (FIM 405 207) than in the ICT-industry (FIM 106 742). This is maybe so because the metal industry is more machinery-based than knowledge based activity. In the ICT-technology the investments are lighter as the main resource is the human knowledge of an entrepreneur. Still, the medians of both industries are looked at it can be seen that it is FIM 50 000 in both industries. This might be a better estimation of the "normal" initial capital because few companies in the sample belonging to the metal branch had very big investments. Thus, the mean of the metal industry is biased. Further, the standard deviation is larger in the metal industry indicating that in the metal business many sizes of businesses are established. This could be seen also from the Kurtosis figures, which show that the distribution is wider in the metal industry.

Table 42. The initial capital distribution of ventures compared across the industries.

ICT-industry	N 48	Missing 0
	Mean	106742.7
	Median	50000
	Std. Deviation	212776.0
	Skewness	3.412
	Kurtosis	10.831
	Minimum	0
	Maximum	900000
Metal industry	N 53	Missing 0
	Mean	405207.6
	Median	50000
	Std. Deviation	983592.2
	Skewness	4.151
	Kurtosis	20.464
	Minimum	0
	Maximum	6000000

Size was compared also as radius of businesses. When the radius of businesses between the ICT- and the metal industry were compared it was possible to see that ventures in information- and communication technology do business on a wider geographical basis. Table 43 illustrates also that the metal firms are somewhat more local actors. The mean radius in information- and communication technology was 177 kilometers while it was 139 kilometers in the metal branch. Both industries had a median of 50 kilometers indicating locality of businesses. It could be said, in addition, that based on the medians ventures were small in the beginning. This is supported by the skewness figures of both industries. The maximum radius of business was 800 kilometers in the ICT-business and 700 kilometers in the metal industry. This suggests that some of the ventures were born as national or even international and, thus, their businesses were not based on locality, e.g. knowing a firm that needs subcontractors for something. This is especially true among the information- and communication technology companies. Anyhow, as a conclusion it can be said that ventures were quite small in the beginning in respect of their radius of business in both industries. [4]

Table 43. The radius of business distribution of ventures compared across the industries.

ICT-industry		N 40	Missing 0
	Mean		177.3
	Median		50.0
	Std. Deviation		228.3
	Skewness		1.476
	Kurtosis		1.137
	Minimum		3
	Maximum		800
Metal industry		N 53	Missing 0
	Mean		139.6
	Median		50.0
	Std. Deviation		183.8
	Skewness		1.632
	Kurtosis		1.875
	Minimum		1
	Maximum		700

Last, the size was compared across the industries using the number of employees in the beginning of the business activity. Table 44 shows that the metal companies had among the sample firms approximately 1.96 employees while information- and communication technology firms had 1.21 employees in the beginning. This supports the above notion that the

[4] The statistical significance of the differences in means was tested by using one-way ANOVA. In terms of radius of business none of the differences across the industries were significant ($p \leq .05$).

metal industry companies were a little bigger in the beginning in respect of the initial capital. The capital is needed, among other things, to hire another person to the firm. The median is, however, one employer, showing that usually the entrepreneur started the firm in the sample alone. Skewness is positive in both subsamples indicating bias to fewer employees in the beginning of the ventures. Kurtosis is quite much higher in the metal industry pointing out that the range in respect of employees is wider. [5]

Table 44. The distribution of the number of employees of the ventures compared across the industries

ICT-industry		N 48	Missing 0
	Mean		1.21
	Median		1.00
	Std. Deviation		.71
	Skewness		3.341
	Kurtosis		10.071
	Minimum		1
	Maximum		4
Metal industry		N 53	Missing 0
	Mean		1.96
	Median		1.00
	Std. Deviation		3.03
	Skewness		5.856
	Kurtosis		38.164
	Minimum		1
	Maximum		22

Summary of the sample description

This subchapter presented descriptive statistics of the sample under study. Based on the above distributions it could be seen that the founders were relatively young. This was the case probably because the entrepreneurs in especially information- and communication technology were young. The sex distribution was extreme. Over 90% of the founders were male. This indicates how male oriented the industries are and probably also how male-oriented new venture creation is in general. Nearly half of the companies were established in the province of Vaasa. This was the case also in the whole population. One quarter of the ventures were in the province of Jyväskylä and the other quarter in the province of Oulu. The median initial capital was FIM 50 000. Normally the initial capital was a plane figure

[5] The statistical significance of the differences in means was tested by using one-way ANOVA. In terms of number of employees none of the differences across the industries were significant ($p \leq .05$).

such as FIM 0, FIM 50 000, or FIM 100 000. The radius of business was often only 50 kilometers indicating that ventures in the beginning were local. Anyhow, it must be remembered that 28 % of the ventures had a business radius 300 kilometers or more. The ventures hired normally in the beginning only the entrepreneur. All these size estimations underline that the ventures under study were small in the beginning. Ventures under study were evenly distributed between the metal and information- and communication technology industries.

The industry comparisons showed then some interesting differences. Founders were significantly older in the metal industry. The sex distribution was not significantly different across the industries. In both industries males were dominant. In respect of location some significant differences were found. In the province of Jyväskylä arose the same amount of ICT- and metal businesses. The province of Oulu again produced more ICT-businesses. This was as expected as the province of Oulu is known as one of the most important ICT-areas in Finland. But, in the Oulu region there are also some very lively metal business subregions. In the sample there were in the province of Vaasa significantly more ventures in the metal industry, but this was as expected. The main difference between the industries is that, when in information- and communication technology the ventures are distributed quite evenly, in the metal industry almost half of the firms are in the province of Vaasa. This is the case also in the population. Of the size measures, the only statistically significant difference was in the initial capital. The metal industry ventures had in the beginning more initial capital than information- and communication technology firms. Even though there are only few significant differences in the subsamples, the differences point out that the industry should be taken into account in the analyzes.

5.2. Effects of intellectual capital on business opportunity recognition behavior

It was hypothesized that intellectual capital should have an influence on opportunity recognition behavior because individual capacity to create business value and achieve return on investments would pull individuals to search for opportunities. In order to study this, intellectual capital was divided into five dimensions, and further, opportunity recognition also into five dimensions. Thus, 25 separate hypotheses were presented. In the following these hypotheses are tested using correlations among the variables, multiple regression analysis, and structural equation modeling. The studied intellectual capital variables are the following: domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity. Opportunity recognition variables are knowledge acquisition, competitive

scanning, proactive searching, innovative behavior, and collective action.

Correlations among the variables of intellectual capital and opportunity recognition

Table 45 shows that all the intellectual capital dimensions are positively correlated with knowledge acquisition, yet only formal knowledge has a statistically significant effect ($r=.32$; $p\leq.01$). These positive effects were as expected. Still, it is interesting that only formal knowledge is significant. This shows that in order to be able to look for relevant information in opportunity recognition there should be present also formal skills and education offering tools from which point of view the complex information is best analyzed. Without formal knowledge of the area the information is not understandable, and it might even cause a situation where information is not searched for at all (cf. Woo et al. 1992; Baron 1998) because new information would just cause anxiety and insecurity. Second, competitive scanning is significantly affected by formal knowledge ($r=.23$; $p\leq.05$) and creativity ($r=.28$; $p\leq.01$). This suggests that in order to see gaps in the competitive arena an entrepreneur needs formal knowledge to be capable to analyze the competitive situation. But, interestingly this is not enough as creativity to see the situation differently and construct novel solutions is even more important. Interesting is also that domain knowledge is negatively correlated, yet not significantly, with competitive scanning suggesting that if an entrepreneur thinks that the industry is known, the "homeworks" is left aside.

Third, proactive scanning is strongly influenced by management experience ($r=.37$; $p\leq.01$), creativity ($r=.34$; $p\leq.01$), and intrinsic motivation ($r=.31$; $p\leq.01$). Proactive scanning is about seeing the future, and the above results suggest that entrepreneurs having management experience have been in the situations that have created in them a "gut feeling" of what has happened and what will happen. Results suggest also that "seeing the future" requires skills to creatively question the present and intrinsic motivation to do it for fun and not for money. Fourth, intrinsic motivation is correlated significantly with innovative behavior ($r=.35$; $p\leq.01$). This is as expected since intrinsic motivation has in other studies been found to be the basis of innovative playing with ideas. Creativity is also positively correlated, yet not significantly. The reason for this is probably that creativity is seen here as questioning the whole situation while innovative behavior is seen to be thinking again about the situation and playing with ideas but not questioning. Knowledge and experience are negatively, but not significantly, correlated with innovative behavior showing that knowledge might decrease "childish" playing with ideas. Last, collective action, doing things with other people, is not correlated significantly with any of the intellectual capital

dimensions. Thus, it could be proposed that in opportunity recognition personal capabilities don't correlate with social behavior, implying that although you are educated, for example, you don't necessarily have a dialogue with your social context. The correlations among the intellectual capital and opportunity recognition variables as a whole were as expected.

Opportunity recognition behavior dimensions are correlated with each other positively and significantly. The problem that might be caused by multicollinearity is that the dimensions don't measure the different aspects of the whole concept and mask each other's effects. However, because the correlation coefficients are less than 0.80, which has been suggested to be the line of multicollinearity problems for example by Kennedy (1992), the dimensions are probably not too strongly intercorrelated. The correlation coefficients among the below dimensions show that a multicollinearity problem shouldn't exist.

Table 45. Correlations among intellectual capital and opportunity recognition.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Knowledge acquisition									
2. Competitive scanning	.50**								
3. Proactive searching	.50**	.40**							
4. Innovative behavior	.17	.38**	.12						
5. Collective action	.28**	.36**	.23**	.15					
6. Domain knowledge	.16	−.09	.06	−.10	.06				
7. Formal knowledge	.32**	.23*	−.01	−.01	.10	.22*			
8. Management experience	.16	.10	.37**	−.13	−.12	.07	.01		
9. Intrinsic motivation	.06	.11	.31**	.35**	−.03	.07	−.05	.09	
10. Creativity	.17	.28**	.34**	.18	.02	−.22*	−.01	.30**	.14

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$; two tailed tests.

Regression analyses of influences of intellectual capital on opportunity recognition

In order to test hypotheses from 1a to 5e, regression analyses were carried out. The analyses tested the effects of intellectual capital variables on opportunity recognition behavior variables. The results of the analyses are presented in sections so that the effects of intellectual capital variables on each opportunity recognition variable are presented separately. The results are also indicated in Table 46. The first column of the table introduces the independent intellectual capital variables and control variables. The second column displays the dependent variable of knowledge acquisition and standardized beta coefficients for the linear predictors (domain knowledge, formal knowledge, management experience, intrinsic motivation, and creativity) and for the control variables (age of founders, initial capital, number of employees, radius of business, and location and industry sector indicators as

dummy variables). At the end of the column are also presented the values for R^2, adjusted R^2, F-value, and value of Durbin-Watson test. The values of the Durbin-Watson test, which tests the multicollinearity of the variables, were close to 2, indicating that problems with multicollinearity shouldn't exist. Tolerance- and VIF-values were also examined in order to study multicollinearity. All the tolerance values were above 0.10 and the VIF-values below 10. These results indicate that multicollinearity should not cause problems in the regression analyses of the effects of intellectual capital on opportunity recognition behavior.

Hypotheses 1a–1e: effects of intellectual capital variables on knowledge acquisition

Regression analyses of Hypotheses 1a to 1e revealed the following results: Regression analysis to test the hypothesis that domain knowledge increases knowledge acquisition don't support Hypothesis 1a (**domain knowledge → knowledge acquisition**). The effect is positive as expected but not statistically significant. The Hypothesis 1b (**formal knowledge → knowledge acquisition**) arguing that formal knowledge should have a positive effect on knowledge acquisition receives support (beta=.29; p≤.01). This suggests that formal knowledge gives cognitive knowledge frames, which could be used in order to understand the fragmented information in the environment. Third, it was hypothesized that management experience should stimulate entrepreneurs to search for and interpret information, i.e., to knowledge acquisition. The effect is positive but weak, and most importantly not significant. Thus, Hypothesis 1c (**management experience → knowledge acquisition**) doesn't receive support. Hypothesis 1d (**intrinsic motivation → knowledge acquisition**) proposes that intrinsic motivation to do things because of the task itself should encourage acquiring knowledge. Again, the hypothesis doesn't receive support, and the effect is also weak. Hypothesis 1e (**creativity → knowledge acquisition**) put to the fore that creative entrepreneurs would like to question the present business situation and create new business concepts, and thus, acquire knowledge. But regression analysis showed that the relationship is not significant and Hypothesis 1e should be rejected. Table 46 below summarizes the results.

Hypotheses 2a–2e: effects of intellectual capital variables on competitive scanning

Regression analyses of Hypotheses 2a to 2e revealed the following results: On the basis of Hypothesis 2a (**domain knowledge → competitive scanning**) domain knowledge should increase competitive scanning as it gives cognitive knowledge structures to understand a competitive arena. The results show the case to be the opposite. Still, the result is not sig-

nificant and thus Hypothesis 2a is rejected. Hypothesis 2b (**formal knowledge → competitive scanning**) claimed that formal knowledge increases competitive scanning as formal knowledge gives an understanding that the competitive arena is important to know and that formal knowledge is not enough but also empirical perceptions are needed. Regression analysis supports Hypothesis 2b (beta=.27; p≤.01). Management experience was also hypothesized to have a positive influence on competitive scanning as managers' one main concern is to know competition. This Hypothesis (2c) (**management experience → competitive scanning**) doesn't receive support, though the coefficient is positive as expected. Hypothesis 2d (**intrinsic motivation → competitive scanning**) proposes that intrinsic motivation has a positive effect on competitive scanning as it requires commitment and interest to analyze the situation. The relationships is negative but not significant, and thus, Hypothesis 2d is rejected. Last, Hypothesis 2e (**creativity → competitive scanning**) claims that creativity should enhance competitive scanning as creative entrepreneurs want to question the competition and create a new competitive situation by knowing as well as possible the competitive logic. Regression analysis supports Hypothesis 2e (beta=.19; p≤.05). The effects of control variables were also tested and the age of founders had a significant negative effect (beta = –.37; p≤.01) and ICT-industry also a significant negative effect (beta = –.30; p≤.001) on competitive scanning. Table 46 below summarizes the above presented results.

Hypotheses 3a–3e: effects of intellectual capital variables on proactive searching

Hypothesis 3a (**domain knowledge → proactive searching**) set forth that domain knowledge increases proactive scanning of possible futures as it offers cognitive tools to interpret the information cues. Regression analysis shows that the relationship is not significant, and thus, Hypothesis 3a is not supported. Yet, the influence is positive as expected. Formal knowledge was also hypothesized to have a positive effect (Hypothesis 3b: **formal knowledge → proactive searching**). This is based on the notion that when more people are educated more fluently they use experiences of one area in other areas. This is not the case based on the results. This suggests that formal education narrows thinking to one sphere of actions. Hypothesis 3b is rejected. Hypothesis 3c (**management experience → proactive searching**) suggests that management experience increases proactive behavior as managerial and entrepreneurial experiences have created cognitive skills to interpret the possible future. The results support Hypothesis 3c (beta=.25; p≤.05) showing that entrepreneurs having management experience don't have to concentrate so much on understanding the present situation but are able to set free their efforts to vision the future. Intrinsic motiva-

tion should as well enhance proactive searching (Hypothesis 3d: **intrinsic motivation → proactive searching**). This was hypothesized as intrinsic motivation is seen to set free "journeys to the future". Hypothesis 3d receives support (beta=.28; p≤.01). Hypothesis 3e claims that creativity to support proactive searching as creativity is the main individual skill to see situations differently, i.e., to see the future. Regression analysis offers support for Hypothesis 3e (**creativity → proactive searching**) (beta=.23; p≤.05). Table 46 below summarizes the results.

Hypotheses 4a–4e: effects of intellectual capital on innovative behavior

Regression analyses of Hypotheses 4a to 4e indicated the following results: Hypothesis 4a (**domain knowledge → innovative behavior**) proposed that domain knowledge should have a positive effect on innovative behavior because prior knowledge helps entrepreneurs to cognitively play with issues in the field. Without knowledge of the area it would be hard to innovate new things and ideas. Domain knowledge would help to see what is really new to the field and what is not. Regression analysis shows, however, that the relationship is negative and opposite to what was expected, but still not significant. The negative result might be caused by cognitive barriers that make entrepreneurs concentrate too much on present facts and overconfidence that they know the area already so well that innovative ideas are not needed. Still, Hypothesis 4a is rejected. Formal knowledge was also in the Hypothesis 4b (**formal knowledge → innovative behavior**) suggested to have a positive influence on innovative behavior as formal knowledge gives knowledge structures that enhance cognitive skills of seeing new, innovative solutions. If put it in another way, formal knowledge presents to the entrepreneurs what has been already innovated, what is not any more needed to innovate, and especially what kind of gaps in the knowledge require new innovations. The relationship was positive, as expected. However, the relationship is not significant and Hypothesis 4b is, thus, rejected. Table 46 below summarizes the above results.

Hypothesis 4c (**management experience → innovative behavior**) puts to the fore that management experience should increase innovative behavior because managerial experiences offer important tools to innovate new kinds of solutions. Hypothesis 4c receives support (beta = -.23; p≤.05). However, managerial experience instead of enhancing restricted the thinking processes of entrepreneurs. This negative effect might be a result of cognitive barriers and heuristics that lead to overconfidence (Tversky and Kahneman 1974; Baron 1998). In addition, prior management experience might restrict the perceiving of informa-

tion to concentrate on familiar issues and to ignore new possibilities (Busenitz and Barney 1997). This is the negative side of any kind of experience because it often guides information processing and thinking too much. Then, it was proposed that intrinsic motivation should increase innovative behavior because innovativeness is about playing with ideas just because of the task. Hypothesis 4d (**intrinsic motivation → innovative behavior**) was strongly supported by the result of regression analysis (beta=.39; p≤.001). Creativity was also hypothesized to enhance innovative behavior (Hypothesis 4e: **creativity → innovative behavior**). The relationship is positive, as expected, but not significant. Hypothesis 4e is rejected based on the above result. Of the control variables, the province of Vaasa influenced positively and significantly innovative behavior.

Hypotheses 5a–5e: effects of intellectual capital variables on collective action

Regression analyses of Hypotheses 5a to 5e indicated the following results: Domain knowledge was hypothesized to increase collective action as entrepreneurs with high domain knowledge know the people in the industry well (Hypothesis 5a: **domain knowledge → collective action**). This relationship was found, but not significantly. Thus, Hypothesis 5a is rejected. Formal knowledge should also enhance collective action as education and developing skills have put entrepreneurs into many social interaction situations (Hypothesis 5b: **formal knowledge → collective action**). The relationship was positive. However, it was not significant and, thus, Hypothesis 5b is rejected. Hypothesis 5c (**management experience → collective action**), again, sets forth that management experience should increase collective action because managers/entrepreneurs are used to social interaction. But the result was that the effect is negative, and also significant (beta = –.29; p≤.05). Hypothesis 5c was accepted. Hypothesis 5d (**intrinsic motivation → collective action**) suggests that intrinsic motivation should have a positive effect on collective action because internally motivated people are self-confident and not afraid of losing a profitable opportunity. The relationship was negative contrary to what was expected, although weakly. The relationship is anyhow not significant and Hypothesis 5d is rejected. Creativity should also have a positive influence on collective action as creativity is definitely a social mental process (Hypothesis 5e: **creativity → collective action**). The effect is positive, though not significant. Thus, Hypothesis 5e is rejected. Of the control variables, the province of Oulu increases the likelihood of collective action. This might show one of the reasons for the success of the ICT-sector in the Oulu province. Table 46 below summarizes the above presented results.

Table 46. Regression tests of hypotheses 1a–5e.

Dependent variables	Knowledge acquisition	Competitive scanning	Proactive searching	Innovative behavior	Collective action
Independent variables					
Domain knowledge	.15	–.12	.06	–.11	.16
Formal knowledge	.29**	.27**	–.03	.04	.07
Management experience	.09	.11	.25*	–.23*	–.29*
Intrinsic motivation	.01	–.05	.28**	.39***	–.00
Creativity	.16	.19*	.23*	.14	.11
Control variables					
Age of founders	–.08	–.37**	.13	–.01	.11
Initial capital	.11	.09	–.26	–.16	.29
Number of employees	.20	.22	.21	.08	–.05
Radius of business	–.06	.04	.15	.00	.14
ICT-technology	–.06	–.30***	.00	–.20	–.04
Metal industry	.00	.00	.00	.00	.00
Province of Jyväskylä	.00	.00	.00	.00	.00
Province of Oulu	–.13	.06	–.09	.06	.20*
Province of Vaasa	–.14	.23*	–.05	.26*	.14
R^2	.25	.40	.32	.29	.19
Adjusted R^2	.15	.31	.22	.18	.07
F	2.35*	4.52***	3.26***	2.77*	1.61*
Durbin-Watson	2.30	2.05	2.20	1.81	1.94

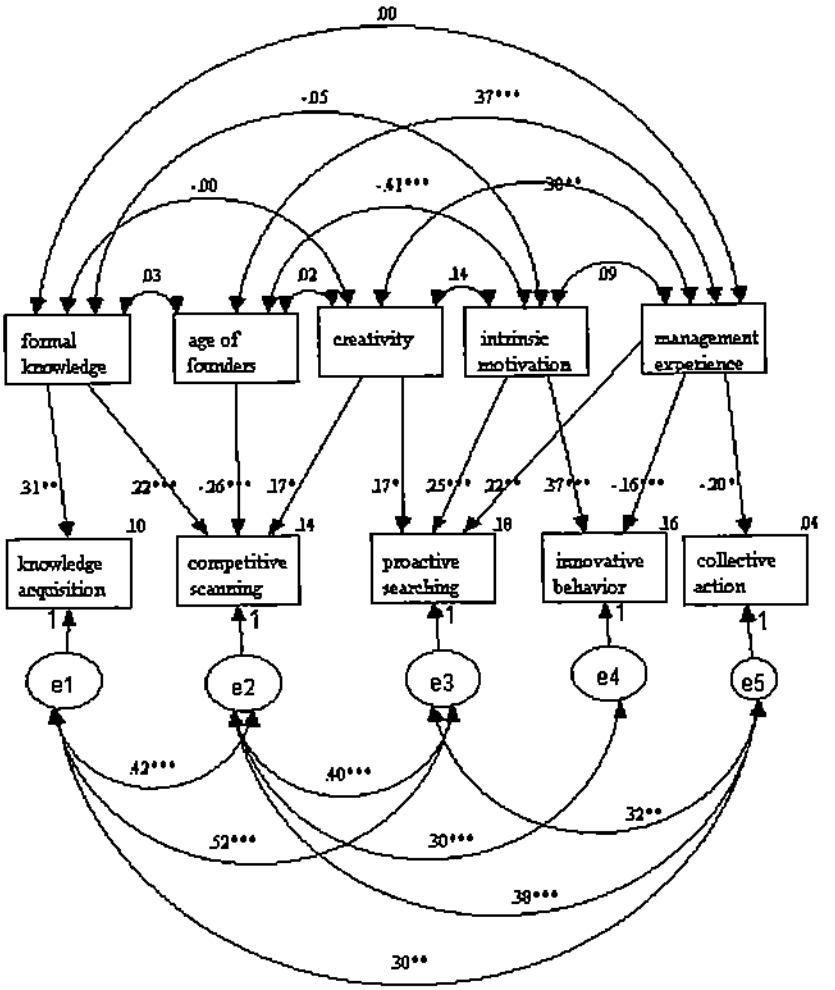
Coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$; one tailed tests.

Structural equation model of influences of intellectual capital on opportunity recognition behavior

Above the hypotheses were tested separately using regression analyses. Next the hypotheses are tested as a whole in order to find out if they hold if put together at the same time into the same model. To test this model structural equation modeling is used. The model includes the statistically significant relationships which were found in the above regression analyses. Domain knowledge was excluded because it hasn't any significant effects on opportunity recognition behavior variables. Also, location and industry dummy variables were excluded, because the use of binary variables in structural equation modeling is not recommended (Schumacker and Lomax 1996)An exogenous unobserved error variable (e1–e4 in the below figure) was attached to each of the endogenous variables to illustrate the variance not explained by the observed exogenous variables (independent variables).

The model was run with the AMOS structural equation modeling program. The model was identified. Thus, the hypotheses that received support in the above hold also when put together in the model. Second, error variances (e1–e4) were examined for negative or non-

significant error variances. None of these types of results were found. Third, it was checked that none of the model coefficients were close or over 1 and standard error coefficients unusually large. Problems in respect of these issues are not to be expected. Third, multicollinearity of the exogenous variables was studied, and it was found that none of the correlations were above 0.80. Thus, multicollinearity shouldn't cause trouble. Figure 25 illustrates the model with the standardized maximum likelihood parameter estimates for the paths.



Causal coefficients are standardized beta weights.
*** p ≤ .001. ** p ≤ .01. * p ≤ .05.

Figure 25. The structural equation model for the effects of intellectual capital on opportunity recognition behavior.

The goodness-of-fit statistics in Table 47 below indicate a good fit between the hypothesized model and the data. The chi-square value of 20.55 with 18 degrees of freedom is not significant (p=.30), indicating that the estimated and observed data matrices do not differ significantly. Further, the GFI value of 0.96 and the AGFI value of 0.88 indicate a good fit between the model and the data. The AGFI value doesn't reach the recommended value of 0.90 (Schumacker and Lomax 1996) but is very close to it. Good fit is also supported by the NFI value of 0.92, which is clearly above the recommended 0.80.

The model fit was further assessed using nested model tests. In the nested model test rival models are put against each other and tried to show that the best of them is the hypothesized model. If this is the case, validity of the hypothesized model increases. The rival models are compared with each other in respect of the fit of the model to the data. Three rival nested models were compared: (1) the hypothesized model (in Figure 25 above), (2) a null model, in which no relationships are posited, and (3) a saturated model, in which all the possible relationships are posited. As Table 47 shows, the null model doesn't fit the data because its chi square statistics indicate significant difference between the observed and estimated data matrices. Also GFI and AGFI values are clearly under 0.90 and NFI value under 0.80. The saturated model has a good fit between the observed and estimated data matrices (p=.22). Also the other fit measures are acceptable, even though the hypothesized model fits a little better. In addition, because the more parsimonious model (the hypothesized) fits better than the more complicated one (saturated), the more parsimonious model is chosen. The above results of the nested models increase the validity of the hypothesized model because the fits of both the simpler and the more complicated model were weaker than the fit of the hypothesized model. This shows that the best of the rival nested models is the hypothesized model.

Table 47. Structural equation model statistics for the intellectual model.

Model	Chi^2	p	df	GFI	AGFI	NFI
1. Hypothesized	**20.55**	**.30**	**18**	**.96**	**.88**	**.92**
2. Null	90.26	.00	28	.85	.71	.59
3. Saturated	4.45	.22	3	.98	.84	.90

To summarize, the hypothesized structural equation model had a good fit in the sample. This is supported by the goodness-of-fit statistics and by the nested model tests. The results of the individual hypotheses were in line with the results of the regression analyses. Hypotheses 1b, 2b, 2e, 3c, 3d, 3e, 4c, 4d, and 5c are confirmed by the structural equation

model. Therefore, it is possible to claim that (1) knowledge acquisition is positively affected by formal knowledge, (2) competitive scanning is positively affected by formal knowledge and creativity and negatively affected by age of founders, (3) proactive searching is positively affected by management experience, intrinsic motivation, and creativity, (4) innovative behavior is negatively affected by management experience and positively affected by intrinsic motivation, and finally (5) collective action is negatively affected by management experience.

5.3. Effects of social capital on business opportunity recognition behavior

It was hypothesized that social capital should facilitate opportunity recognition behavior because relationships offer the needed information, make it possible to discuss business ideas, and emotionally support entrepreneurs. To study this, social capital was divided into a structural dimension, a relational dimension, and a cognitive dimension. Opportunity recognition variables are, again, knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. Thus, 15 separate hypotheses were suggested. These hypotheses are in the following tested by using correlations, regression analyses, and structural equation modeling.

Correlations among the social capital dimensions and opportunity recognition behavior variables

Table 48 below shows first that all the social capital dimensions are positively correlated with knowledge acquisition. Statistically significant are the correlations between the knowledge acquisition and the structural dimension ($r=.27$; $p\leq.01$) and especially between knowledge acquisition and the relational dimension ($r=.38$; $p\leq.01$). This suggests that opportunity recognizers in order to activate knowledge acquisition need many kinds of social relationships that are useful in opportunity recognition and also that opportunity recognizers/entrepreneurs know these persons on a personal level. Thus, social context might activate entrepreneurs to search for needed information. Second, competitive scanning is affected positively by all the social capital dimensions. Now, the significant variables are the relational dimension ($r=.28$; $p\leq.01$) and cognitive dimension ($r=.22$; $p\leq.05$. This is possible to interpret so that close relationships with people who can help in the business development can make entrepreneurs understand the importance of the competitive arena and scan the competition and search for a gap for the venture. Third, all the social capital variables affect significantly proactive searching. Thus, social relationships offer valuable informa-

tion and advice that is possible to turn to future orientated behavior. The structural dimension affected very strongly proactive behavior ($r=.54$; $p\leq.01$). Thus, a lot of both strong and weak ties bring "fuel" to proactive behavior. Cognitive dimension correlates also strongly with proactive behavior ($r=.36$; $p\leq.01$), meaning that for information and advices to flow to entrepreneurs trusted and reciprocal relationships are needed. The above presented result is supported by the fact that also relational dimension is significantly correlated with proactive behavior ($r=.25$; $p\leq.05$).

Relational ($r=.20$; $p\leq.05$) and cognitive dimensions ($r=.20$; $p\leq.05$) are moderately but still significantly correlated with innovative behavior. This suggests that social comfort is required in order to be able to innovate opportunities. This is in line with many studies that have indicated that creative people need social support and social freedom to be able to try different even dummy things without fear of punishment (e.g. Amabile, Conti, Coon, Lazenby, and Herron 1996).

Collective action is significantly correlated with all the social capital dimensions. The structural dimension strongly affects collective action. This is not so obvious as it seems. You might have a lot of relationships which can help in opportunity recognition, but this doesn't mean that you want to discuss and share your ideas with them. It would be obvious that you use the relationships as information sources but the above result shows also that entrepreneurs want to have deep discussions with these people. This is illustrated by the correlations of two other social capital dimensions. The relational dimension is strongly ($r=.27$; $p\leq.01$) and the cognitive dimension very strongly ($r=.41$; $p\leq.01$) correlated with collective action. This points out that contacts should be known very well before entrepreneurs want to discuss with them deeply about opportunities and share their ideas and get some opinions. Therefore, decision-making about the issues in business development could be said to proceed the collective way when the relationships are based on trustworthiness and strong cognitive commitment.

Opportunity recognition behavior variables are correlated with each other. The discussion of them was presented above and, thus, is not repeated here again. Social capital variables are correlated positively and significantly with each other. This indicates that they quite probably measure the different aspects of the same concept. Still, the correlations between them are below 0.80. Therefore, multicollinearity problems shouldn't exist in the data analyses (see Kennedy 1992).

Table 48. Correlations among the variables of social capital and opportunity recognition behavior.

	1.	2.	3.	4.	5.	6.	7.
1. Knowledge acquisition							
2. Competitive scanning	.50**						
3. Proactive searching	.50**	.40**					
4. Innovative behavior	.17	.38**	.12				
5. Collective action	.28**	.36**	.23*	.15			
6. Structural dimension	.27**	.12	.54**	.06	.29**		
7. Relational dimension	.38**	.28**	.25*	.20*	.27**	.20*	
8. Cognitive dimension	.12	.22*	.36**	.20*	.41**	.20*	.42**

*** p ≤ .001, ** p ≤ .01, * p ≤ .05; two tailed tests.

Regression analyses of effects of social capital on opportunity recognition behavior

In order to test hypotheses 6a to 10c, regression analyses were carried out. The analyses tested the effects of the social capital variables on opportunity recognition behavior variables. The results of the analyses are presented in sections so that the effects of the social capital variables on each opportunity recognition variable are presented separately. The results are also indicated in Table 49. Durbin-Watson test values were all close to 2 suggesting that problems with multicollinearity shouldn't exist. Thus, tolerance values were above 0.10 and VIF-values below 10 (Kennedy 1992; Aczel 1996), so multicollinearity doesn't cause problems in the regression analyses.

Hypotheses 6a–6c: effects of social capital variables on knowledge acquisition

Regression analyses of hypotheses 6a to 6c indicated the following results: Regression analysis to test Hypothesis 6a (**amount of social interaction → knowledge acquisition**) proposing that structural dimension should increase knowledge acquisition as a lot of social ties offer a lot of new information receives support (beta=.20; p≤.05). This points out how wide a base of social relationships activate entrepreneurs to use these relationships to find and understand information. Hypothesis 6b (**closeness of relational ties → knowledge acquisition**) suggests that knowing people who can help one in opportunity recognition phase on the personal level would help entrepreneurs to search for and find relevant information, and especially to turn the information into interpreted knowledge. This claim was very strongly supported by the regression analysis (beta=.39; p≤.001). This illustrates that information sharing requires that the parties know each other personally because information sharing with stranger is not wanted. But, what is especially interesting is that if the rela-

tionships are cognitively committed, i.e., parties know each other very well, trust each other deeply, and support each other when ever it is needed, then knowledge acquisition decreases. This was hypothesized in Hypothesis 6c (**commitment to relationships quality → knowledge acquisition**) and the relationship was negative as expected but not significant. However, it is argued that if people are very closely and emotionally connected this causes information to be already shared. Hence it is thought that there is no need to acquire new knowledge, and also that norms and ways of behaving are ruled by the thick social community lessening the probability of searching for new information and maybe "shaking the boat". This finding is in line with the studies by Burt (1992). Because the result wasn't statistically significant, the above is only arguable. Table 49 below summarizes the results.

Hypotheses 7a–7c: effects of social capital variables on competitive scanning

Regression analyses of Hypotheses 7a to 7c indicated the following results: Hypothesis 7a (**amount of social interaction → competitive scanning**) proposes the structural dimension to enhance competitive scanning, as it was argued that many kinds of relationships offer routes to scan the competitive arena. Regression analysis revealed that the relationship is positive. but still not significant and, thus, Hypothesis 7a does not receive support. It was further claimed in Hypothesis 7b (**closeness of relational ties → competitive scanning**) that also the relational dimension should have a positive influence on competitive scanning. This was based on the idea that persons who were able to help entrepreneurs in opportunity recognition and who knew entrepreneurs personally would know the importance of understanding the competitive arena and, thus, support competitive scanning behavior. Hypothesis 7b was supported by the analysis (beta=.26; $p \leq .01$). Competitive scanning and finding one's own place in a competitive arena requires a lot of courage and persistence from the entrepreneurs. This courage and persistence is arguably supported by emotionally strong relationships. Thus, it was presented in Hypothesis 7c (**commitment to relationships quality → competitive scanning**) that the cognitive dimension of social capital should support positively competitive scanning. The relationship is positive as expected but not significant. Thus, Hypothesis 7c was rejected. Table 49 below summarizes the results.

Of the control variables, age of founders affected negatively competitive scanning, suggesting that aggressiveness decreases when life experience increases (beta = –.28; $p \leq .01$). The ICT-sector affected negatively on competitive scanning (beta = –.36; $p \leq .001$). This is interesting since it is often thought that the ICT-sector is a dynamic area in which competition is strong. Reasons for the above results might be that the ICT-sector is still in its infancy and

thus there is room for many companies. Most of the ICT-companies might still be small and thus don't have resources to fight over competitive positions, and ICT-entrepreneurs might be so technology-oriented that they are not concerned with competition.

Hypotheses 8a–8c: effects of social capital variables on proactive searching

Regression analyses of Hypotheses 8a to 8c indicated the following results: Hypothesis 8a **(amount of social interaction → proactive searching)** argues that the structural dimension should increase proactive searching because social relationships are the source from which the information is received and based on which the future business situation is possible to envision. Regression analysis supports this claim strongly (beta=.50; p≤.001). Obviously relationships are the fuel that puts entrepreneurs to envision what would be needs in the future. The relational dimension was hypothesized to have this same effect. Hypothesis 8b **(closeness of relational ties → proactive searching)** suggests that the relational dimension should improve proactiveness. The effect was positive, but only weakly, and most importantly not significantly. This might propose that strong personal ties are not so important as weak ties. Weak ties might introduce such new information as could be turned into new ideas of doing business. This idea receives support from the result concerning the structural dimension, which pointed to the importance of a wide base of relationships. But this is not so simple, as is shown by the result of the cognitive dimension (Hypothesis 8c: **commitment to relationships quality → proactive searching**). It indicates that emotional commitment between the parties increases proactive behavior (beta=.22; p≤.05). Thus, emotionally very close people support entrepreneurs to think of future oriented opportunities. It is possible to say that many kinds of weak ties give the information to be able to envision the future but also that close friends' emotional support is needed in order to provide the courage. Of the control variables initial capital decreases proactiveness, indicating that the bigger the business is in the beginning the less risks in respect of proactiveness are taken. Thus, the bigger the business is in the beginning, the more it tries to grab profitable market opportunities and make profit in the beginning of its life cycle. It might also indicate that bigger businesses are less flexible and fluent and more tied to the recent businesses because large investments often require fast return on investments. Table 49 summarizes the results.

Hypotheses 9a–9c: effects of social capital variables on innovative behavior

Regression analyses of Hypotheses 9a to 9c indicated the following results: Hypothesis 9a

(**amount of social interaction → innovative behavior**) suggests that the structural dimension should increase innovative behavior as relationships provide information which could be used in playing with ideas. But the analysis showed that the relationship is negative, though weakly so, and not significant. Further, it was proposed that both relational dimension (Hypothesis 9b: **closeness of relational ties → innovative behavior**) and the cognitive dimension (Hypothesis 9c: **commitment to relationships quality → innovative behavior**) should increase innovative behavior because both should support emotionally innovative playing with ideas. The relationships were positive as expected, but not significantly. So. Of the control variables age of founders affected innovative behavior negatively (beta = –29; p≤.01). Information- and communication technology also affects negatively innovative behavior (beta = –.20; p≤.05), which is a little surprising. The reason for this might be that the ICT-people are technically oriented and, thus, used to more rational ways of doing things. However, this should be studied more carefully. In addition, the province of Jyväskylä decreases innovative behavior (beta = –.24; p≤.05). The reason for this might be found in the entrepreneurial culture of this area (see Havusela 1999), but it should be studied in more detailed. Table 49 summarizes the results.

Hypotheses 10a–10c: effects of social capital variables on collective action

Regression analyses of Hypotheses 10a to 10c indicated the following results: Hypothesis 10a (**amount of social interaction → collective action**) proposes that the structural dimension should affect collective action positively because many kinds of relationships form the ground for active dialogue with the social context. Hypothesis 10a receives support (beta=19; p≤.05). However, the issue isn't' that simple that of course entrepreneurs are in dialogue if they have a lot of relationships. Collective action means that entrepreneurs should discuss in detail with other people their ideas and opportunities, listen to other people's opinions, and even make decisions with other people. It might be that entrepreneurs gather information through the relationships but do all the thinking and make all the decisions by themselves. Thus, Hypothesis 10b (**closeness of relational ties → collective action**) suggests that collective action is influenced positively by the relational dimension of social capital. The relationship is positive, but not significant and, thus, Hypothesis 10b is rejected. On the basis of the above argument, Hypothesis 10c (**commitment to relationships quality → collective action**) also proposes that the cognitive dimension should enhance collective action because emotional commitment makes it easier to have profound discussion and accept others in decision-making. Hypothesis 10c receives support (beta = .26; p≤.05). This shows that it requires very close ties that are emotionally connected in or-

der for entrepreneurs to be able to let others take part in their decision-making. Table 49 below summarizes the results.

Table 49. Regression tests of Hypotheses 6a–10c.

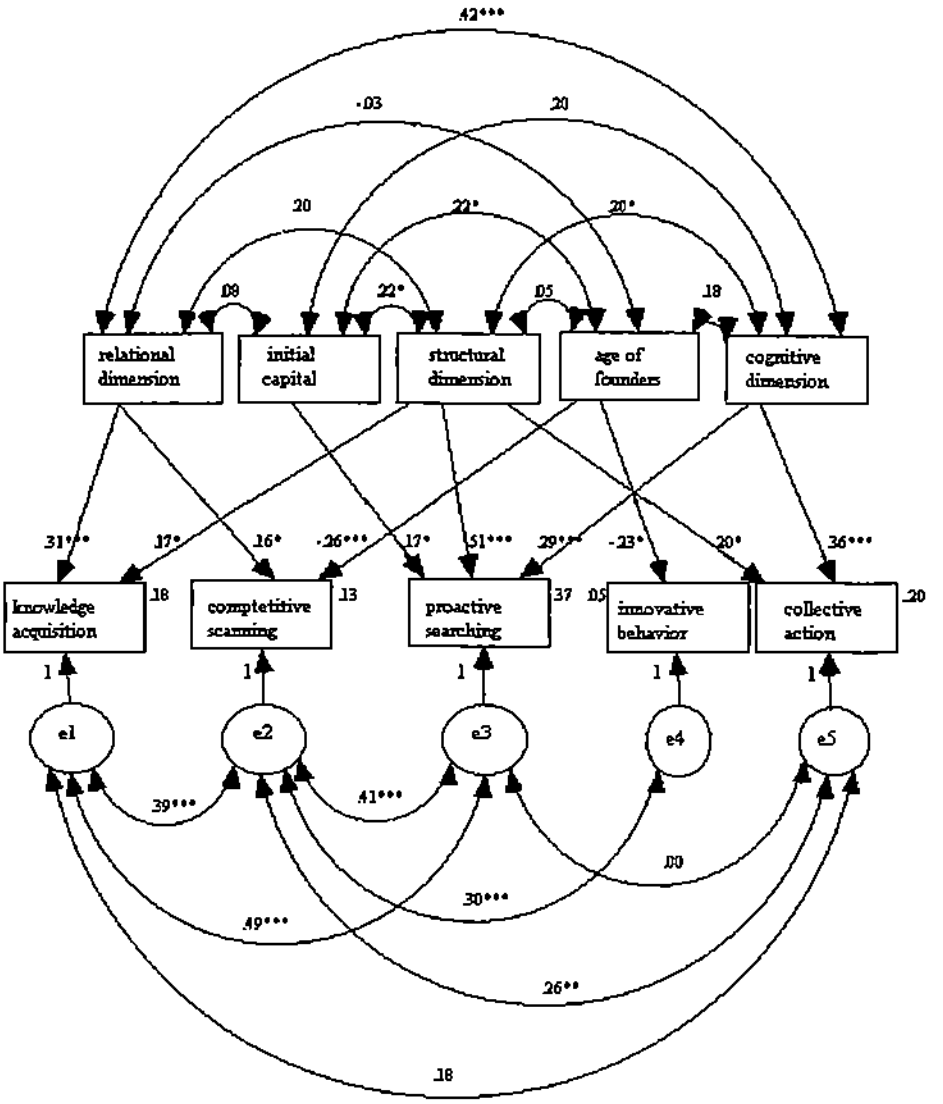
Dependent variables	Knowledge acquisition	Competitive scanning	Proactive searching	Innovative behavior	Collective action
Independent variables					
Structural dimension of social capital	.20*	.04	.50***	-.01	.19*
Relational dimension of social capital	.39***	.26**	.06	.13	.15
Cognitive dimension of social capital	–.09	.03	.22*	.18	.26*
Control variables					
Age of founders	.01	–.28**	.08	–.29**	.01
Initial capital	–.02	.02	–.35*	–.07	.15
Number of employees	.27	.29	.21	.01	–.05
Radius of business	–.12	.03	.10	.00	.01
ICT-technology	–.11	–.36***	.02	–.20*	–.05
Metal industry	.00	.00	.00	.00	.00
Province of Jyväskylä	.12	–.17	.02	–.24*	–.11
Province of Oulu	.00	–.07	–.10	.05	.13
Province of Vaasa	.00	.00	.00	.00	.00
R^2	.27	.34	.40	.20	.28
Adjusted R^2	.19	.27	.33	.10	.20
F	3.15**	4.45***	5.77***	2.07*	3.36***
Durbin-Watson	2.16	2.04	2.16	1.69	1.73

Coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$; one tailed tests.

Structural equation model of influences of social capital on opportunity recognition behavior

The social capital hypotheses on opportunity recognition behavior were separately tested above using regression analyses. Next the hypotheses found to be statistically significant are tested as a whole using structural equation modeling. The independent variables of the structural equation model are the structural dimension of social capital, the relational dimension of social capital, and the cognitive dimension of social capital. The control variables of age of founders and initial capital are included in the model. The dummy variables are not included, because the use of binary variables in structural equation modeling is not recommended (Schumacker and Lomax 1996). The model includes only the hypotheses that received support in the above regression analyses because the aim of this structural equation modeling is to test if these hypotheses hold also when tested together in one

model. Innovative behavior was excluded from the model because none of the social capital variables affected it significantly. Error variables (e1–e4) in Figure 26 below illustrate the variance not explained by the independent variables.



Causal coefficients are standardized beta weights.
*** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$.

Figure 26. The structural equation model for the effects of social capital on opportunity recognition behavior.

The model was run with AMOS structural equation modeling program. The model was identified. Error variances (e1–e4) were not negative or non-significant. In addition, none of the model coefficients were close or above 1 and standard error coefficients unusually large. Problems in respect of these issues are not to be expected. Multicollinearity should not exist as all the correlations were below 0.80. Figure 26 above illustrates the model with the standardized maximum likelihood parameter estimates for the paths.

The goodness-of-fit statistics in Table 60 below indicate a good fit between the hypothesized model and the data. The chi-square value of 20.31 with 21 degrees of freedom is not significant (p=.50) indicating that the estimated and the observed data matrices do not differ significantly. A GFI value of 0.97 and an AGFI value of 0.89 indicate a good fit between the model and the data as the recommended value of both is 0.90. This is also supported by the NFI value of 0.94, which is above the recommended 0.80 (Schumacker and Lomax 1996).

The model fit was further assessed using nested model tests. Three nested models were compared: (1) the hypothesized model (in Figure 26 above), (2) a null model, in which no relationships are posited, and (3) a saturated model, in which all the possible relationships are posited. As Table 50 shows, the null model doesn't fit the data because its chi square statistics (chi square = 130.71; p=.00) indicate significant differences between the observed and estimated data matrices. The GFI value is 0.84, the AGFI value 0.68, and NFI value 0.64 pointing to poor fit. The saturated model fits better but still the fit is not significant. This is indicated by the chi square statistics (chi square = 13.99; p=.03), which show that the difference between the saturated model and the model in sample data are significantly different. Even though the fit indexes (GFI =.98; AGFI=.74; NFI=.96) are pretty high, the saturated model must be rejected. The above tests of nested models show that of the above models the hypothesized model fits best, and thus the hypothesized model is accepted.

Table 50. Structural equation model statistics for the social model.

Model	Chi^2	p	df	GFI	AGFI	NFI
1. Hypothesized	**20.31**	**.50**	**121**	**.97**	**.89**	**.94**
2. Null	130.71	.00	33	.84	.68	.64
3. Saturated	13.99	.03	6	.98	.74	.96

To summarize, the hypothesized structural equation model of the effects of social capital on opportunity recognition behavior had a good fit in the sample. Goodness-of-fit statistics

and the nested model tests support this conclusion. The results of the hypotheses based on structural equation modeling were in line with the results of the regression analyses. Hypotheses 6a, 6b, 7b, 8a, 8c, 10a, and 10c are accepted. Thus, (1) knowledge acquisition is positively affected by the structural dimension and the relational dimension, (2) competitive scanning is positively affected by the relational dimension, (3) proactive searching is positively affected by the structural dimension and the cognitive dimension, (4) innovative behavior wasn't affected by social capital, and (5) collective action is positively affected by the structural dimension and the cognitive dimension.

5.4. Effects of environmental dynamism on business opportunity recognition behavior

It was hypothesized that environmental dynamism should enhance opportunity recognition behavior, because it provides knowledge gaps and, thus, possibilities for new business. In order to study this entrepreneurs' perceptions of their environment were asked about. Perceptions were on purpose inquired about because only entrepreneurs' interpretations of information make them behave somehow. The hard facts of the environment aren't thus here such meaningful activators of behavior. Environmental dynamism as perceptions could be seen also as information capital because it tells the entrepreneurs if there exist in general possibilities of new business opportunities. But the term environmental dynamism is used because it has been used normally about the phenomenon. However, it is stressed again that here in this study environmental dynamism is seen more as entrepreneurs' informational capital of the business environment than as hard facts about the environment. The business opportunity recognition variables are knowledge acquisition, competitive scanning, proactive searching, innovative behavior, and collective action. Hereafter, 5 separate hypotheses were proposed. These hypotheses are below tested by using correlations, regression analyses, and structural equation modeling.

Correlations among the environmental dynamism and opportunity recognition behavior variables

Table 51 below shows that environmental dynamism correlates positively and significantly with knowledge acquisition ($r=.21$; $p\leq.05$). Thus, it is suggested that, if the environment is turbulent and there are a lot of knowledge gaps, it activates entrepreneurs to search knowledge for the opportunities. Environmental dynamism correlates also positively and significantly with competitive scanning ($r=.59$; $p\leq.01$). Thus, if there are a lot of changes happening, it is worthwhile to scan competition carefully. Environmental dynamism correlates

also positively with proactive searching, innovative behavior, and collective action but not significantly. On the basis of the above it is proposed that environmental dynamism works as information capital to the entrepreneurs and pulls them to opportunity recognition behavior.

Table 51. Correlations among the variables of environmental dynamism and opportunity recognition behavior.

	1.	2.	3.	4.	5.
1. Knowledge acquisition					
2. Competitive scanning	.50**				
3. Proactive searching	.50**	.40*			
4. Innovative behavior	.17	.38**	.12		
5. Collective action	.28**	.36**	.23*	.15	
6. Environmental dynamism	.21*	.59**	.18	.07	.06

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$; two tailed tests.

Regression analyses of influences of environmental dynamism on opportunity recognition behavior

In order to test hypotheses 11a to 11e, regression analyses were carried out. The analyses tested the effects of environmental dynamism on opportunity recognition behavior variables. The results of the analyses are presented in Table 52. The Durbin-Watson test of multicollinearity showed values close to 2 suggesting that problems with multicollinearity shouldn't exist. The tolerance values were also above 0.10 and the VIF-values below 10, and thus, multicollinearity should not cause problems.

Hypotheses 11a–11e: effects of environmental dynamism on opportunity

Regression analyses of Hypotheses 11a to 11e indicated the following results (see also Table 64): Regression analysis to test Hypothesis 11a (**environmental dynamism → knowledge acquisition**) proposing that environmental dynamism increases knowledge acquisition because turbulence suggests that there is a lot of unknown information to be searched for. The result of the regression analysis gives support to Hypothesis 11a (beta=.24; $p \leq .05$). Hypothesis 11b (**environmental dynamism → competitive scanning**) suggests that a dynamic environment should enhance competitive scanning because there are a lot of things happening and, thus, competitive gaps are to be found. Hypothesis 11b received very strong support (beta=.49; $p \leq .001$). Proactive searching should also be affected positively by environmental dynamism because it makes it possible to try future-oriented ideas as the

environment is not stagnated to certain types of businesses. Hypothesis 11c (**environmental dynamism → proactive searching**) testing the above proposition received support (beta=.31; p≤.01). Hypothesis 11d (**environmental dynamism → innovative behavior**) and 11e (**environmental dynamism → collective action**) proposed that environmental dynamism should increase both innovative behavior and collective action. However, the relationships were negative and not significant. Thus, Hypothesis 11d and 11e were rejected.

Of the control variables, the information- and communication technology industry sector and the provinces of Jyväskylä and Oulu affected negatively and significantly competitive scanning. Thus, ICT-entrepreneurs aren't probably so concerned about competitive issues. The provinces of Jyväskylä and Oulu especially have many ICT companies in the sample and probably thus they affected competitive scanning negatively. Initial capital decreases and radius of business increases proactive searching. It seems that large investments make entrepreneurs cautious and make them avoid establishing proactive companies. Geographical radius of business, then, makes entrepreneurs search for proactive ideas possibly because they have to compete in larger geographical arenas. Age of founders decreases innovative behavior probably because their thinking styles become more rigid and because they are not any more willing to take risks. The ICT-sector and the provinces of Jyväskylä and Oulu affect innovative behavior negatively. This might be so because technically oriented people are probably quite often more rational in their thinking.

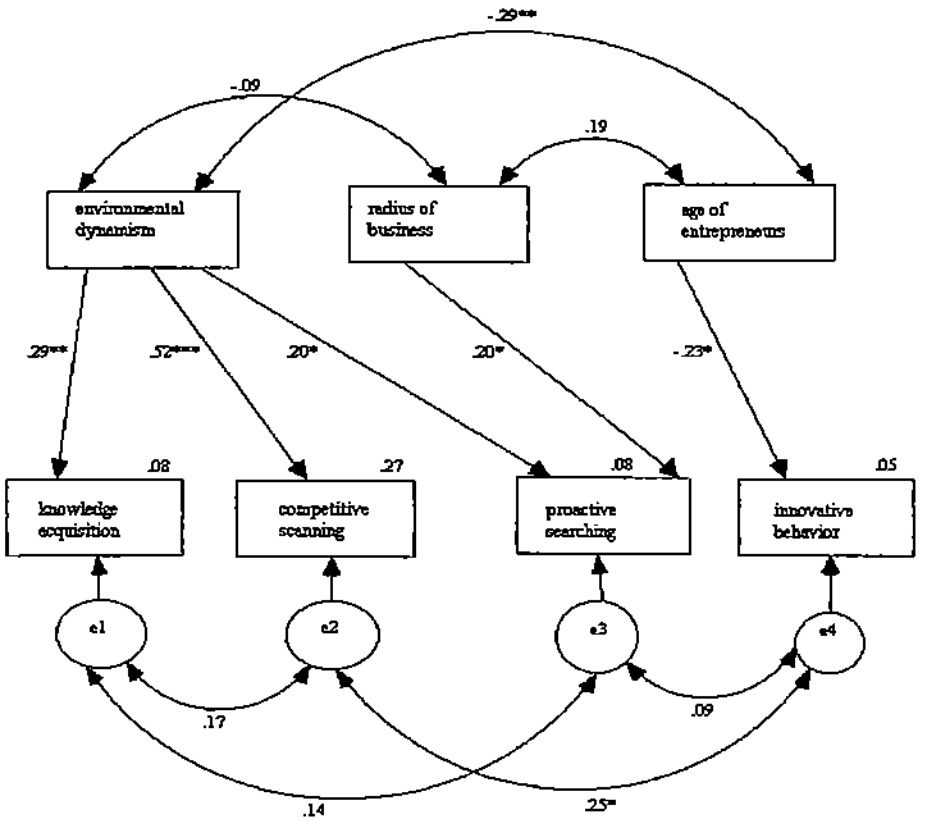
Table 52. Regression tests of Hypotheses 11a–11e.

Dependent variables	Knowledge acquisition	Competitive scanning	Proactive searching	Innovative behavior	Collective action
Independent variables					
Environmental dynamism	.24*	.49***	.31**	–.08	–.02
Control variables					
Age of founders	.03	–.14	.17	–.31**	.01
Initial capital	.01	.01	–.21*	–.04	.24
Number of employees	.24	.21	.15	.04	–.04
Radius of business	–.05	.11	.24*	.07	.12
ICT-technology	.00	–.19*	.12	–.23*	–.05
Metal industry	.00	.00	.00	.00	.00
Province of Jyväskylä	.08	–.18*	–.04	–.24*	–.13
Province of Oulu	–.09	–.22*	–.17	–.08	.09
Province of Vaasa	.00	.00	.00	.00	.00
R^2	.14	.45	.15	.14	.11
Adjusted R^2	.06	.40	.07	.06	.03
F	1.75*	8.99***	1.89*	1.81*	1.32
Durbin-Watson	2.21	2.31	2.19	1.70	1.86

Coefficients are standardized beta weights.
*** p ≤ .001, ** p ≤ .01, * p ≤ .05; one tailed tests.

A structural equation model of influences of environmental dynamism on opportunity recognition behavior

The following section presents tests of the significant hypotheses in the structural equation model. The significant control variables are included in the model. Innovative behavior and collective action were excluded from the model because environmental dynamism didn't have significant effect on them. The model was identified. Error variances (e1–e3) were studied and it was found that they were not negative or non-significant. None of the model coefficients were either close or above 1 or standard error coefficients unusually large. The correlations among the variables were below 0.80. Figure 27 illustrates the model.



Causal coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$.

Figure 27. The structural equation model for the effects of environmental dynamism on opportunity recognition behavior.

The goodness-of-fit statistics in Table 53 below indicate a good fit between the hypothesized model and the data. The chi-square value of 8.92 with 9 degrees of freedom is not significant (p=.45) indicating that the estimated and observed data matrices do not differ significantly. Further, the GFI value of 0.98 and the AGFI value of 0.93 indicate very good fit between the model and the data as the recommended values of both indexes are 0.90. This is also supported by the NFI value of 0.90, which is above the recommended 0.80 (Schumacker and Lomax 1996).

The model fit was also assessed using nested model tests. Three nested models were compared: (1) the hypothesized model (see Figure 27), (2) a null model, in which no relationships are posited, and (3) a saturated model, in which all the possible relationships are posited. As Table 53 shows, the null model doesn't fit the data because its chi-square statistics (chi square = 77.16; p=.00) indicate significant differences between the observed and estimated data matrices. The GFI value is 0.81, the AGFI value 0.71, and the NFI value 0.14 pointing to poor fit. The saturated model, then, fits better, but still the fit is not significant. This is indicated by chi square statistics (chi square = 18.38; p=.01), which show that the difference between the saturated and the model in the sample is significant. Although the fit indexes (GFI =.95; AGFI=.76; NFI=.79) are good, the saturated model must be rejected. The above tests of nested models show that the hypothesized model should be chosen.

Table 53. Structural equation model statistics for the environmental model.

Model	Chi^2	p	df	GFI	AGFI	NFI
1. Hypothesized	**8.92**	**.45**	**9**	**.98**	**.93**	**.90**
2. Null	77.16	.00	18	.81	.71	.14
3. Saturated	18.38	.01	6	.95	.76	.79

To summarize, the hypothesized structural equation model of effects of environmental dynamism on opportunity recognition behavior had a good fit in the sample. Goodness-of-fit statistics and the nested model tests support this conclusion. Hypotheses 11a, 11b, and 11c are confirmed. Environmental dynamism affects significantly knowledge acquisition, competitive scanning, and proactive searching.

5.5. Effects of business opportunity recognition behavior on performance

Table 54 below shows that all opportunity recognition behavior variables were positively correlated with the performance variables of growth and newness value. Statistically sig-

nificant are the correlations between knowledge acquisition and growth (r=.40; p≤ .001), competitive scanning and growth (r=.35; p≤ .001), and proactive searching and growth (r=.66; p≤.001). Further, significant are the correlations between knowledge acquisition and newness value (r=.34; p≤ .001), competitive scanning and newness value (r=.43; p≤ .001), and proactive behavior and newness value (r=.55; p≤ .001). This suggests that good performance quite soon already requires acquiring relevant knowledge, scanning the competitive arena carefully, and proactive visioning of the probable business future. It is important to notice that all the significant relations are strong and statistically highly significant. Growth and newness value correlate strongly and significantly with each other (r=.71; p≤ .01). However, the value is under 0.80, so they probably present different aspects of the performance, which was also shown in the methodological part using factor analysis.

Table 54. Correlations among the variables of opportunity recognition behavior and performance.

	1.	2.	3.	4.	5.	6.
1. Knowledge acquisition						
2. Competitive scanning	.50**					
3. Proactive searching	.50**	.40**				
4. Innovative behavior	.17	.38**	.12			
5. Collective action	.28**	.36**	.23*	.15		
6. Growth	.40***	.35***	.66***	.10	.15	
7. Newness value	.34***	.43***	.55***	.09	.03	.71**

*** p ≤ .001, ** p ≤ .01, * p ≤ .05; two tailed tests.

Regression analyses of influences of opportunity recognition behavior on performance variables

In order to test hypotheses 12a to 13e, regression analyses were again carried out. The analyses tested now the effects of opportunity recognition behavior on performance variables of growth and newness value. Since the ventures were rather new (established in 1998), profitability was not included in the performance measures, although it is an often used measure of performance. But, as many have proposed (see Yli-Renko 1999), among new ventures profitability is not a good measure of performance because very often profitability is achieved later in the life cycle of ventures. The results of the analyses are presented in sections so that the effects of opportunity recognition behavior on both performance variables are presented separately. The results are also indicated in Table 55. The Durbin-Watson test of multicollinearity presented values close to 2 suggesting that problems with multicollinearity shouldn't exist. Tolerance- and VIF-values of the variables

were also examined to study multicollinearity. The tolerance values were above 0.10 and the VIF-values below 10. Multicollinearity should not, therefore, cause problems.

Hypotheses 12a–12e: effects of opportunity recognition behavior on growth of ventures

Regression analyses of Hypotheses 12a to 12e indicated the following results: Hypothesis 12a (**knowledge acquisition → growth**) proposes that knowledge acquisition should increase growth because knowledge of the business area would help to find the most profitable opportunities. The relationship was positive, but not significant. Thus, Hypothesis 12a is rejected. Hypothesis 12b (**competitive scanning → growth**), again, suggests that competitive scanning should also increase growth. This is proposed because knowing the competitive arena should make it easier to find business gaps to be filled. Again the relationship was positive but not significant, and Hypothesis 12b doesn't thus receive support. Proactive searching should enhance growth, which was hypothesized in Hypothesis 12c (**proactive searching → growth**), because seeing the near future in respect of the business should offer an advantage compared to competitors. This was very strongly supported by the regression analysis (beta=.76; $p \leq .001$). This result might also suggest that future oriented businesses are able to create new value to customers, and thus, growth of the ventures is high. Hypotheses 12d (**innovative behavior → growth**) and 12e (**collective action → growth**) set fort that innovative behavior and collective action should, in addition, support growth. The relationships were not significant but they were, however, positive, as was expected. The results are also presented in Table 55.

The effect of the radius of business, of the control variables, on growth was negative and significant. The reason for this is probably that large geographical radius of business requires so much effort and such resources that new businesses simply don't have them, and thus, growth is not achieved. The provinces of Oulu and Vaasa promote positively and significantly growth. This probably shows the entrepreneurial ability of these areas to create value for customers and, thus, good performance.

Hypotheses 13a–13e: effects of opportunity recognition behavior on newness value of ventures

In respect of newness value, it was hypothesized that knowledge acquisition should further newness value because knowledge is the resource on which more sophisticated products and processes, for example, are based (Hypothesis 13a: **knowledge acquisition → new-**

ness value). The relationship was positive as expected. But again the relationship wasn't significant. Although the correlations were significant showing that knowledge acquisition has something to do with growth and newness value, and thus performance, though it doesn't straightforwardly cause performance (see Table 55). This is interesting since knowledge acquisition is often mentioned to be one of the main sources of good performance (see, e.g. Timmons 1994). Knowledge acquisition is significantly correlated with competitive scanning and proactive behavior, which are the main causes of performance in this study, and thus it is possible that knowledge acquisition affects performance through these two other variables. These causal relationships between opportunity recognition behavior variables should be studied more deeply in future studies. Hypothesis 13b (**competitive scanning → newness value**) presents newness value as affected positively by competitive scanning, because through knowledge of the competition and the competitive arena it is easier to construct more novel solutions. The relationship was positive and highly significant (beta=.35; p≤.001).

Hypothesis 13c (**proactive searching→ newness value**) argues that proactive searching supports newness value. It is proposed that, if future business possibilities are thought about and actively searched for, it is also more probable that the newness value of the venture increases. Hypothesis 13c gets strong support (beta=.46; p≤.001). Hypothesis 13d (**innovative behavior → newness value**) proposes that innovative behavior nurtures newness value because "playing with ideas" might offer ideas of novel ways of doing business. However, the relationship is not significant, though it is positive. This might be so because newness value requires also customer value and satisfaction, adding value to customers, and being cleverer than competitors, i.e., interpreting market information more alertly, and innovative ideas are often based on an individual's own preferences. Innovative behavior is, thus, more resource based than market-based thinking, and perhaps not significant to performance. Last, Hypothesis 13e (**collective action → newness value**) argues that collective action enhances newness value because social behavior offers the latest information on business making so the newness of the venture becomes possible. Hypothesis 13e was supported (beta=.24; p≤.05) by regression analysis. This shows, again, how important social relationships and networking are in new venture creation and performance building in new ventures.

The analyses of control variables indicated the following results: The radius of business increases significantly its newness value. This is probably because large geographical area of doing business requires novel ways of doing it in order to earn acceptance of customers.

The province of Oulu influences also positively and significantly newness value. Thus, it could be seen that the province of Oulu is very good in both growth and newness value of new ventures. The above results are presented in Table 55.

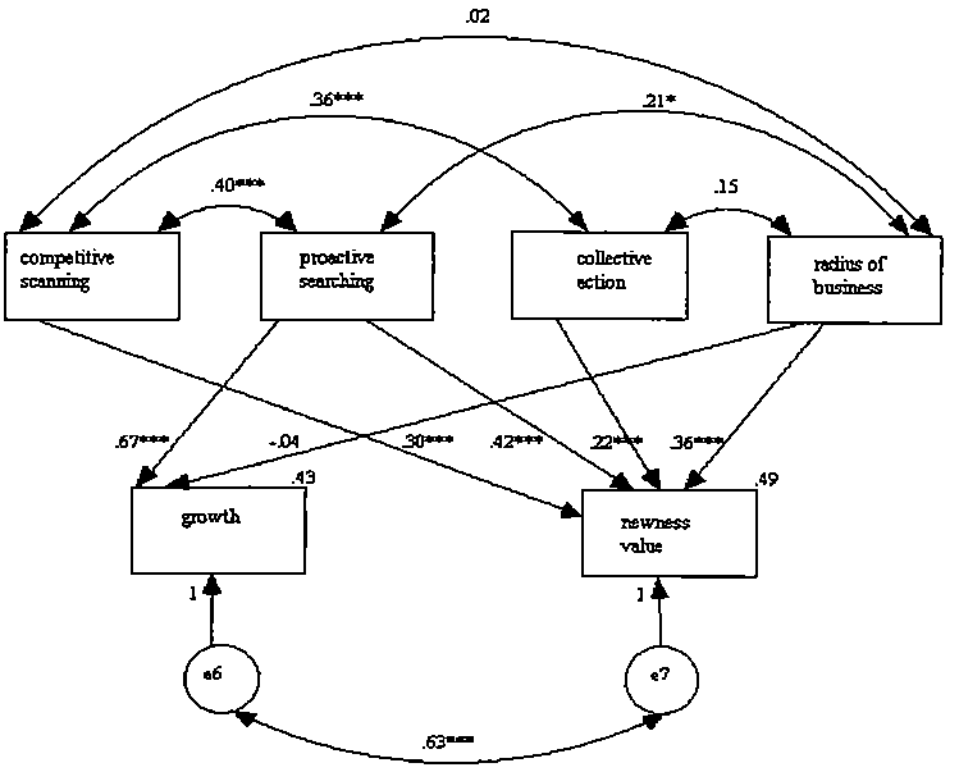
Table 55. Regression tests of Hypotheses 12a–13e.

Dependent variables	Growth	Newness value
Independent variables		
Knowledge acquisition	.05	.03
Competitive scanning	.05	.35***
Proactive searching	.76***	.46***
Innovative behavior	.01	.07
Collective action	.04	.24**
Control variables		
Age of founders	–.00	.03
Initial capital	–.04	.00
Number of employees	.17	–.02
Radius of business	–.16*	.29***
ICT-technology	–.04	–.13
Metal industry	.00	.00
Province of Jyväskylä	.00	.00
Province of Oulu	.16*	.16*
Province of Vaasa	.27**	.04
R^2	.65	.61
Adjusted R^2	.60	.55
F	12.94***	10.75***
Durbin-Watson	1.83	2.17

Coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$; one tailed tests.

Structural equation model of influences of opportunity recognition behavior on performance variables of growth and newness value

In the following is tested the significant hypotheses based on regression analyses in the structural equation model. The significant control variables are included in the model, except dummy variables. Knowledge acquisition and innovative behavior were excluded from the model because they didn't affect performance significantly. The model was run with AMOS structural equation modeling program. The model was identified. Error variances (e1–e2) were studied and they were all positive and significant. Further, the model coefficients were clearly below 1 and standard error coefficients normal. Problems in respect of these issues shouldn't exist. Multicollinearity shouldn't exist either because the correlations among the variables were all below the required 0.80. Figure 28 below illustrates the structural equation model.



Causal coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$.

Figure 28. The structural equation model for the effects of opportunity recognition behavior on performance.

The goodness-of-fit statistics in the Table 56 below indicate a good fit between the hypothesized model and the data. The chi-square value of 1.53 with 2 degrees of freedom is not significant (p=.47) indicating that the estimated and observed data matrices do not differ significantly. Further, the GFI value of 0.99 and the AGFI value of 0.95 indicate a very good fit between the model and the data as the recommended values of both indexes are 0.90. This is also supported by the NFI value of 0.99, which should be above 0.80 (Schumacker and Lomax 1996).

The model fit was further assessed using nested model tests (see Schumacker and Lomax 1996). Three nested models were compared: (1) the hypothesized model (presented in above in Figure 28), (2) a null model, in which no causal relationships between independ-

ent and dependent variables are posited, and (3) a saturated model, in which all the possible relationships are posited. As Table 56 shows the null model doesn't fit the data because its chi square statistics (chi square = 109.67; p=.00) indicate significant differences between the observed and estimated data matrices. The GFI value is 0.78, the AGFI value 0.43, and the NFI value 0.50 all pointing t poor fit. The saturated model, again, fits better and is significant. This is indicated by chi square statistics (chi square = 1.53; p=.22), which show that the difference between the saturated and the model in the sample is not significant. Even though the fit indexes (GFI =.99; AGFI=.89; NFI=.99) of the saturated model are good, the hypothesized model works even better. In addition, because the hypothesized model is more parsimonious, it is reasonable to choose the hypothesized model instead of the saturated model here in the study.

Table 56. Structural equation model statistics for opportunity recognition behavior model.

Model	Chi^2	p	df	GFI	AGFI	NFI
1. Hypothesized	**1.53**	**.47**	**2**	**.99**	**.95**	**.99**
2. Null	109.67	.00	9	.81	.71	.14
3. Saturated	1.53	.22	1	.99	.89	.99

To summarize, the hypothesized structural equation model had a good fit in the sample. Goodness-of-fit statistics and the nested model tests support this conclusion. The results of the hypotheses based on structural equation modeling were in line with the results of the regression analyses. Hypotheses 12c, 13b, 13c, and 13e are confirmed. Thus, growth is affected positively by proactive behavior and newness value by competitive scanning, proactive behavior, and collective action.

5.6. The combined structural model of business opportunity recognition

It was last tested if the above four submodels (the intellectual model, the social model, the environmental model, and the recognition behavior model) hold simultaneously when put into one model. To do this a combined structural equation model was run by using the AMOS program. The model consists of all, and only, the statistically significant paths received based on the above regression analyses and structural equation analyses. Thus, all the significant control variables were attached in the model, except dummy variables. The model is constructed so that opportunity recognition behavior variables mediate the capital variables (intellectual, social, and environmental) and the performance variables. It is hypothesized that intellectual and social capital and environmental dynamism cause behavior

(opportunity recognition), which then causes performance (growth and newness value). Before the results of the combined structural equation model are presented, it is tested if opportunity recognition behavior variables mediate the capital variables and performance. To test this, the following regression analyses were carried out.

Mediating effects of opportunity recognition behavior

First, direct effects of the intellectual, social, and environmental variables on the performance variables were studied. The results of the direct effects are presented in Table 57. The standardized beta coefficients in the table show that the relationship is significant. This makes the mediating effect possible in the first place. The capital variables must have significant effects on the performance variables in order for opportunity recognition behavior variables to be possible to have mediating effects.

Table 57. Regression tests of direct effects of intellectual, social, and environmental variables on performance.

Dependent variables	Growth	Newness value
Independent variables:		
Formal knowledge		.08†
Management experience	.37***	.25**
Intrinsic motivation	−.17*	−.08†
Creativity	.23**	.17*
Structural dimension	.41***	.24*
Relational dimension		.11†
Cognitive dimension	−.15†	−.11†
Environmental dynamism	.15†	.24**
Control variables:		
Age of founders		−.09†
Initial capital	.08†	−.10†
Radius of business	.08†	.08**

Coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$; one tailed tests.

Second, direct effects of the mediating variables on the performance should also be significant. This has already been tested in chapter 5.5. The results indicated that of opportunity recognition behavior variables competitive scanning, proactive behavior, and collective action have significant effects on performance. Thus, only those variables are taken into the combined model as the mediating variables and knowledge acquisition and innovative behavior are excluded from the combined model. Third, the mediating effects were tested so that both independent and mediating variables were put into the same model as linear pre-

dictors of the performance. If the effects of the independent variables (intellectual capital, social capital, and environmental dynamism) are not significant or the effects decrease, opportunity recognition behavior variables mediate the effects. The results presented in Table 58 indicate that the effects of the independent variables decreases or became non-significant. Thus, opportunity recognition behavior mediates the intellectual capital, social capital, and environmental dynamism and performance variables. Still, direct effects of the management experience, intrinsic motivation, and cognitive dimension of social capital hold also after the mediating variables are brought into the model. Yet, the effect of them decreases, which shows that opportunity recognition behavior mediates partially these variables. Thus, management experience, intrinsic motivation, and the cognitive dimension of social capital have both direct and indirect effects on performance.

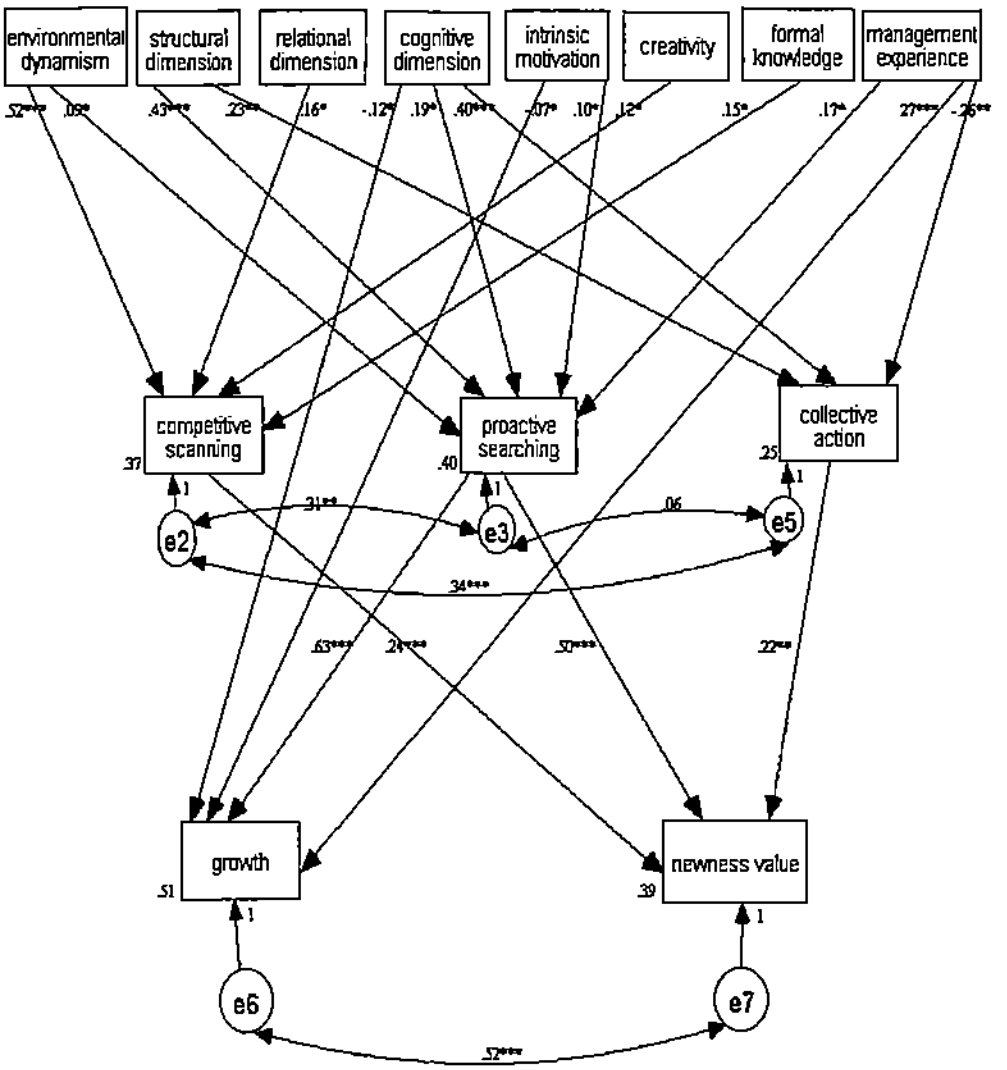
Table 58. Regression tests of mediating effects of opportunity recognition behavior variables.

Dependent variables	Growth	Newness value
Mediating variables:		
Competitive scanning		.20*
Proactive searching	.54***	.46***
Collective action		.17*
Independent variables:		
Formal knowledge		.05
Management experience	.32**	.15
Intrinsic motivation	**–.16***	–.08
Creativity	.12	–.17
Structural dimension	.14	.05
Relational dimension		.03
Cognitive dimension	**–.14***	–.07
Environmental dynamism	.14	.13
Control variables:		
Age of founders		–.06
Initial capital	.02	–.00
Radius of business	.05	.05

Coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$; one tailed tests.

Next, the independent variables, mediating variables, and dependent variables are put into the same model and tested in the structural equation model in order to find out if the model holds as a whole. The combined model was identified. The error variances were examined for negative or non-significant effects and none were found. Then standardized coefficients were examined and none of them exceeded or was close to 1.0. None of the standard errors were unusually large neither. Also, all the correlations were below 0.80, and thus multicollinearity shouldn't be a problem. All the paths, which were significant in the submodels,

were also significant in the combined model. Figure 29 below illustrates the combined model. It is possible to see that the estimates are close to the ones in the submodels. The significant direct effects, which hold also after mediating effects are attached in the model. The correlations between the predictors are presented in Table 59 after the figure because otherwise the figure would have been too complicated to be illustrative.



Causal coefficients are standardized beta weights.
*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$.

Figure 29. The combined structural equation model.

The goodness-of-fit statistics indicate a good fit between the combined model and the data. The chi-square value of 28.35 with 26 degrees of freedom is not significant (p=.34), indicating that the estimates and observed data matrices do not differ significantly. The GFI value of 0.95 and the AGFI value of 0.89 also indicate good fit between the model and the data. The NFI value of 0.94, in addition, shows a very good fit. This shows that the results of the submodels hold simultaneously.

Table 59 shows that the correlations between the exogenous variables in the combined model are all below 0.80. This means that the variables aren't so intercorrelated that multicollinearity interferes with the above presented results of the combined model.

Table 59. Correlations among the exogenous variables in the combined model.

	1.	2.	3.	4.	5.	6.	7.
1. Environmental dynamism							
2. Structural dimension	−.02						
3. Relational dimension	.12	.20					
4. Cognitive dimension	.05	.20*	.42***				
5. Intrinsic motivation	.17	.43***	.20*	.04			
6. Creativity	.30**	−.01	.17	.38***	.14		
7. Formal knowledge	.28*	−.13	.27*	−.03	−.05	−.00	
8. Management experience	.09	.23*	.14	.22*	.09	.30***	.00

*** p ≤ .001, ** p ≤ .01, * p ≤ .05

5.7. Summary of the results

All in all, the following relationships were found to be statistically significant: Of the intellectual capital variables, formal knowledge had a significant influence on knowledge acquisition and competitive scanning. This shows how general knowledge is important in analyzing the business situation. Creativity, again, influenced significantly competitive scanning and proactive searching. This means that a skill to see things differently is important in order to find gaps in the market and in order to see what will happen in near future. Management experience enhanced proactive searching and innovative behavior but decreased collective action. Thus, managerially experienced new venture creators use their experience to see where the business is developing and to innovate new kind of solutions to grab these developments earlier than others. But they have problem in that they are not willing to discuss with others about the business creation and thus they lose valuable new information. Intrinsic motivation affected positively proactive searching and innovative behavior. This indicates that envisioning the future and solutions that would add value in the

future requires that it is fun and internally rewarding.

Of the social capital variables, the amount of social interaction (structural dimension of social capital) affected positively knowledge acquisition, proactive searching, and collective action. This clearly points out that wide base of relationships is used to get new information. Also it shows that in order to see the future developments it is needed active dialogue with others. Last, the results indicate that the more you have social relationships, the more you discuss with them about venture creation. Thus, the more used you are to social dialogue, the more you also use it in opportunity recognition. The closeness of relational ties (relational dimension of social capital) had a positive influence on knowledge acquisition and competitive scanning. This shows interestingly that personal ties are used to get newest information and to find gaps in the competitive arena. This is interesting as it shows that the latest information is only shared if the relationships are personal. Finally, the commitment to relationship quality (cognitive dimension of social capital) affected positively knowledge acquisition, proactive searching, and collective action. These results indicate that information concerning future trends and common sense-making what will happen in the future are done together only if the relationships are cognitively very close and trusted.

Environmental dynamism, again, influenced positively knowledge acquisition, competitive scanning, and proactive searching. This shows illustratively how changes in the environment pull entrepreneurs to search knowledge asymmetries. The results show that entrepreneurs perceive the dynamism in the environment and thus start to the acquire knowledge about the changes, try to locate gaps in the market, and envision what will happen in the future. Thus, it could be suggested that perceptions of dynamism in the environment are very important because without these opportunity recognition wouldn't start at all.

Of the opportunity recognition behavior variables, proactive searching enhanced growth of new ventures and competitive scanning, proactive searching, and collective action newness value of new ventures. This means, first, that opportunity recognition behavior is important to performance of new ventures. Second, it means that the skill to see what will happen in the future creates the base for fast growth. It also means that it should be grabbed the opportunity before others if wanted to create fast growth. Third, it shows that to be able to create newness value to customers/end-users are needed skills to find gaps form the market, proactively see what are the trens in the future, and collectively discuss about the possible developments. A summary of the accepted and rejected hypotheses is presented in Table 60.

Table 60. Summary of the accepted and rejected hypotheses of the study.

Hypotheses	Relationship	Result
Hypothesis 1a	domain knowledge → knowledge acquisition	Not supported
Hypothesis 1b	formal knowledge → knowledge acquisition	Supported
Hypothesis 1c	management experience → knowledge acquisition	Not supported
Hypothesis 1d	intrinsic motivation → knowledge acquisition	Not supported
Hypothesis 1e	creativity → knowledge acquisition	Not supported
Hypothesis 2a	domain knowledge → competitive scanning	Not supported
Hypothesis 2b	formal knowledge → competitive scanning	Supported
Hypothesis 2c	management experience → competitive scanning	Not supported
Hypothesis 2d	intrinsic motivation → competitive scanning	Not supported
Hypothesis 2e	creativity → competitive scanning	Supported
Hypothesis 3a	domain knowledge → proactive searching	Not supported
Hypothesis 3b	formal knowledge → proactive searching	Not supported
Hypothesis 3c	management experience → proactive searching	Supported
Hypothesis 3d	intrinsic motivation → proactive searching	Supported
Hypothesis 3e	creativity → proactive searching	Supported
Hypothesis 4a	domain knowledge → innovative behavior	Not supported
Hypothesis 4b	formal knowledge → innovative behavior	Not supported
Hypothesis 4c	management experience → innovative behavior	Supported
Hypothesis 4d	intrinsic motivation → innovative behavior	Supported
Hypothesis 4e	creativity → innovative behavior	Not supported
Hypothesis 5a	domain knowledge → collective action	Not supported
Hypothesis 5b	formal knowledge → collective action	Not supported
Hypothesis 5c	management experience → collective action	Supported
Hypothesis 5d	intrinsic motivation → collective action	Not supported
Hypothesis 5e	creativity → collective action	Not supported
Hypothesis 6a	amount of social interaction → knowledge acquisition	Supported
Hypothesis 6b	closeness of relational ties → knowledge acquisition	Supported
Hypothesis 6c	commitment to relationship quality → knowledge acquisition	Supported
Hypothesis 7a	amount of social interaction → competitive scanning	Not supported
Hypothesis 7b	closeness of relational ties → competitive scanning	Supported
Hypothesis 7c	commitment to relationship quality → competitive scanning	Not supported
Hypothesis 8a	amount of social interaction → proactive searching	Supported
Hypothesis 8b	closeness of relational ties → proactive searching	Not supported
Hypothesis 8c	commitment to relationship quality → proactive searching	Supported
Hypothesis 9a	amount of social interaction → innovative behavior	Not supported
Hypothesis 9b	closeness of relational ties → innovative behavior	Not supported
Hypothesis 9c	commitment to relationship quality → innovative behavior	Not supported
Hypothesis 10a	amount of social interaction → collective action	Supported
Hypothesis 10b	closeness of relational ties → collective action	Not supported
Hypothesis 10c	commitment to relationship quality → collective action	Supported
Hypothesis 11a	environmental dynamism → knowledge acquisition	Supported
Hypothesis 11b	environmental dynamism → competitive scanning	Supported
Hypothesis 11c	environmental dynamism → proactive searching	Supported
Hypothesis 11d	environmental dynamism → innovative behavior	Not supported
Hypothesis 11e	environmental dynamism → collective action	Not supported
Hypothesis 12a	knowledge acquisition → growth	Not supported
Hypothesis 12b	competitive scanning → growth	Not supported
Hypothesis 12c	proactive searching → growth	Supported
Hypothesis 12d	innovative behavior → growth	Not supported
Hypothesis 12e	collective action → growth	Not supported
Hypothesis 13a	knowledge acquisition → newness value	Not supported
Hypothesis 13b	competitive scanning → newness value	Supported
Hypothesis 13c	proactive searching → newness value	Supported
Hypothesis 13d	innovative behavior → newness value	Not supported
Hypothesis 13e	collective action → newness value	Supported

6. CONCLUSIONS AND IMPLICATIONS OF THE STUDY

The purpose of this study has been to investigate business opportunity recognition. This has been done by studying the effects of the intellectual capital of entrepreneurs on their opportunity recognition behavior, the effects of social capital on opportunity recognition behavior, the effects of environmental dynamism on opportunity recognition behavior, the effects of opportunity recognition behavior on performance of young ventures, and how these submodels hold when together in the combined model. In this last chapter the results of the study and the implications of these results on theory and practice are discussed. Thus, limitations of the study and propositions for future studies are presented. The following discussion concerning the issues studied is presented in the same line as issues were introduced before in this study. Thus, accepted and rejected hypotheses are not presented in separate chapters. This is done so, contrary to normal practice, because it is thought that results, conclusions, and even speculations are equally important in both cases.

6.1. Conclusions

6.1.1. The intellectual capital model

Intellectual capital → knowledge acquisition. In sum it could be said that knowledge acquisition was significantly affected only by formal knowledge. This shows that formal education and skills provide general abilities that could be used in turning bits of information into useable knowledge. Knowing well the theories, rules, techniques, etc. of the domain offers tools to analyze the situation and create knowledge of the situation. Even though knowing the theories, rules, techniques, etc. is crucial in order to be able to analyze the situation, the knowledge of the theories, rules, techniques, etc. is quite abstract knowledge that is not straightforwardly usable in real business-creating situations. Thus, entrepreneurs must search for new information in order to combine both abstract and empirical knowledge. Thus, formal knowledge enhances knowledge acquisition. Why, then, weren't the other variables significant although they were hypothesized to be? First, domain knowledge had a quite strong positive effect, though not significant. Thus, it could be said that it is still of some importance in knowledge acquisition. Like formal knowledge it also provides knowledge structures, but now experience-based, which could be leaned on when trying to understand the situation and acquire knowledge. However, it is not significant probably because domain knowledge is already usable knowledge there is no need to reshape by new knowledge acquisition. Thus, prior domain knowledge somewhat restricts searching for

new information because entrepreneurs rely, even too much, on their industry experiences. It could be concluded that it is maybe so that domain knowledge "tells" an entrepreneur that (s)he knows already quite a lot of the situation and needs new knowledge only to make sure that (s)he is right and to fill the knowledge gaps (s)he obviously has. The result is that domain knowledge doesn't significantly affect knowledge acquisition. In the case of formal knowledge, the knowledge structures are not in a ready, usable shape but must through empirical experiences be turned into behavioral knowledge.

Management experience doesn't significantly affect knowledge acquisition probably because management experience is, first, such experience as is linked to organizing and implementation of actions and not so much to information searching and analyzing. Second, managerially and/or entrepreneurially experienced entrepreneurs often don't want to search for and analyze information rationally but rather lean on their intuition (cf. de Koning and Muzyka 1996). Third, the situation might be that those who have no management experience, are not looking for information because knowledge structures of them doesn't support this type of behavior and, thus, they don't understand the importance of new knowledge (cf. Woo et al. 1992), and those who have management experience are not acquiring information either because their knowledge structures unrealistically tell them to trust present knowledge (cf. Baron 1998). The result is that management experience doesn't affect knowledge acquisition. Intrinsic motivation doesn't significantly affect knowledge acquisition either. The reason for this might be that intrinsic motivation pulls individuals to search for newness, play with ideas, and to do that which is fun, and not to analyze the situation rationally. Surprising was that creativity hasn't significant influenced knowledge acquisition, even though one of the main elements of creativity is curiosity about knowledge (see, e.g. Czsickzentmihalyi 1997). The relationship is positive, but yet not significant. The reason for the result could be that creativity is often linked to search for new knowledge and to curiosity about possible future outcomes, and because knowledge acquisition was here, more or less, about analyzing existing information, the creativity of entrepreneurs wasn't motivated to support knowledge acquisition.

As a conclusion, it is possible to suggest that it was surprising that only formal knowledge of the intellectual capital variables influenced knowledge acquisition significantly. This probably shows entrepreneurs to be oriented intuitively in their knowledge acquisition and to set aside more rational ways of information gathering, though they would be very important in opportunity recognition. The results also indicate that the best explicit and rational acquisition of knowledge of entrepreneurs is supported by developing their formal knowl-

edge of the domain. Formal knowledge gives them tools to think through and analyze the situation. It seems also that formal knowledge is important to both inexperienced and experienced entrepreneurs because neither domain nor management experience significantly supported knowledge acquisition. In addition, it is possible that formal knowledge works as a tool to resist what is usually expected from entrepreneurs by the cultural norms that is that entrepreneurs don't care about rational analysis and rely on their own experience and instincts. Those who have formal knowledge dare to do it in a different way.

Intellectual capital → competitive scanning. Formal knowledge affected significantly and positively competitive scanning. Thus, those who have learned the tools of thinking and had a thorough knowledge of the domain were able and willing to analyze competition and competitors and find more aggressively their own place in the competitive arena. Based on this, it is possible to say that formal knowledge raised the self-esteem of entrepreneurs to push aside others from the competitive arena. The reasons for this significant relationship are, hence, understanding of the importance of competitive scanning and analyzing the tools. It is also the self-esteem that formal knowledge brings to the fore. Creativity affects also significantly and positively competitive scanning. This indicates that by using creativity it is possible to understand the competitive arena in exceptional ways and see clues to opportunities that others are not able to see (cf. Kirzner 1997). Creativity, thus, makes it possible to interpret the information from the competitive arena so that entrepreneurs are capable of locating holes in the arena. Together with formal knowledge creativity locates holes in markets and discovers opportunities that it is possible to make use of.

Of the control variables, age of entrepreneurs and the ICT-sector influenced negatively and the Vaasa region positively competitive scanning. Thus, when the age of entrepreneurs rises, they don't bother any more to analyze the competition so actively, and hence their aggressiveness decreases. The reason for this might be the experience that comes with age. This experience might develop strong confidence in one's capabilities, and competitive scanning is set aside. Also it is possible that the age of entrepreneurs changes how entrepreneurs in general think about business and life as a whole. They are more willing to make room for others and less eager to compete. The reasons why the ICT-sector affects competitive scanning negatively might be that (1) technically educated people, who are the most probable ICT-entrepreneurs, are not so interested in markets and competition, (2) the ICT-sector still has a lot of opportunities for new businesses and thus new firms are tolerated easily, and (3) the ICT-sector as a whole is in the early phase of its life-cycle, which means that competition is not yet strong (Aldrich 1994). The entrepreneurs in the Vaasa re-

gion are probably active competitive scanners because entrepreneurship has long traditions in this region but yet not clear competitive advantages, as the regions of Oulu and Jyväskylä have in the creation of new ICT-information. Because of this, they have learned that they can survive also by using cleverly competitive information. Also, the region of Vaasa has a lot of metal companies, which might have a stronger competitive situation than ICT-sector firms.

Domain knowledge affected competitive scanning negatively, yet not significantly. The most probable relationship is negative because domain knowledge probably creates trust in one's own knowledge and ignorance of new analysis. Interesting is that management experience didn't have any significant effect on competitive scanning. The most probable cause for this is twofold: First, those who have no management experience don't understand that they should analyze competition because their knowledge structures and inexperienceness restrict scanning (Woo et al. 1992; Baron 1998). Second, those who have management experience trust their experience too much and consciously set scanning aside. This deficit is probably possible to reduce by providing education and by supporting creativity. Maybe then experience is used in scanning and in not forgetting the scanning. It is suggested here that behind competitive scanning is extrinsic motivation because intrinsic motivation doesn't significantly affect competitive scanning. Intrinsic motivation directs behavior to future trends, and analyzing the present doesn't thus motivate.

On the basis of the above, it is possible to see that formal knowledge gives analytical tools to analyze the competitive arena and aggressively find a place in the arena and creativity to interpret information so that holes in markets are possible to perceive. Very interesting is that domain and management experience don't affect the scanning. Inexperienced entrepreneurs don't know how to scan and experienced ones don't care to scan. It is clear that to find profitable holes entrepreneurs need and they use their formal knowledge and creativity and not their experience. Thus, to enhance competitive scanning attention should be paid to the formal knowledge and creativity of entrepreneurs. In addition, older entrepreneurs and ICT-entrepreneurs should make more effort to scan competitively because these two groups seem to forget it.

Intellectual capital → proactive searching. It is interesting that management experience is used in searching for future possibilities and not for knowledge acquisition or competitive scanning. Thus, management experience affected significantly and positively proactive searching. This result suggests that experience is used rather for intuitive future forecasting

than for rational analyzing of the present situation. It is, thus, possible to suggest that management experience offers understanding of what has happened in the business before, what is happening now, and what will happen in the future. In this way by using management experience entrepreneurs are able to predict future trends and search proactively for opportunities. Intrinsic motivation also has a positive effect on proactive searching. This result could be interpreted so that searching for future opportunities requires more internal motivation from individuals than analyzing the present situation. Proactive searching of newness is about linking a complex set of weak cues, and to be motivated to do this demanding work, intrinsic motivation of entrepreneurs must be high. This result, and the results before, that intrinsic motivation doesn't support rational analyzing, indicates that intrinsic motivation is connected more with intuitive searching for new possibilities than for rational information organizing. Also, creativity enhances significantly proactive searching. It is possible to propose that intrinsic motivation gives the enthusiasm, management experience the knowledge, and creativity mental information-processing tools.

Proactive searching was affected positively by formal knowledge, but not significantly, which might indicate, first, that hard knowledge doesn't give tools to forecast future trends and, second, that hard knowledge is more useful in the rational analyzing of the present situation. Surprising was that domain knowledge didn't have a significant effect on proactive searching. This reveals that knowing the rules, habits, and people of the industry doesn't help to forecast the future, because it is probable that most of these people are also past- and present-oriented, and thus not important informants in proactive searching. Management experience reveals wider trends, which then helps to see the future trends also.

Intellectual capital → innovative behavior. Management experience affects significantly and negatively innovative behavior. This illustrates how experience decreases the flexibility of thinking and directs it to be close to prior experiences, thus affecting negatively questioning the present and innovating something new. The negative effect of experience on innovative behavior is also supported by the negative, yet not significant, effect of domain knowledge on innovative behavior. This phenomenon is known as path-dependency, in which an individual stays in the path that is familiar to him/her in respect of his/her prior experiences (see, e.g. Tversky and Kahneman 1974). This leaning on knowledge-based paths decreases risks in principle and enhances the chances of succeeding because prior experiences have shown that these paths most likely lead to good performance. However, when times go by, the same types of solutions become more and more popular, and in some point there are too much of these types solutions. The environment can't any more bear

them and new innovations are needed. In addition, leaning on the "already experienced" means that often moderate results must be accepted and only innovativeness opens the doors to the "jack-pot". But, most people are afraid of risks and new ideas, and thus experiences take an individual to the familiar path, which might be in certain circumstances reasonable, but in other circumstances even stupid. For example, when the industry is young, it is reasonable to use prior knowledge, but when the industry is old and standardized solutions common, then it would be clever to ask if it would be profitable to be jump to another path (see Aldrich 1994). Intrinsic motivation enhanced very strongly innovative behavior. Research on creativity (e.g. Amabile 1997) has revealed that one of the most important factors supporting free play of ideas is the individual's internal will to play for the sake of playing without any concrete explicit goals. An individual is impossible to force to innovative behavior and innovative behavior is thus here in this study possible only when an individual is doing it without thinking that "now I'm starting to innovate".

Formal knowledge, like domain knowledge, didn't have a significant effect on innovative behavior. Education and technical skills don't, thus, help entrepreneurs to use their knowledge and skills innovatively. It was surprising that creativity wasn't significantly linked to innovative behavior, though the relationship was positive. The reason for this is probably that by creativity is here in this study meant questioning the whole situation and by innovative behavior rethinking the situation (and thus maybe doing things just better). This means that using innovative behavior entrepreneurs try to figure out how they could do things better in the industry, while creative entrepreneurs try to develop wholly new industries (it is like single-loop learning vs. double-loop learning). Thus, creativity doesn't necessarily support innovative behavior. It should be underlined that this is the view of this study and other points of departure can exist. Of the control variables, the Vaasa region supported significantly innovative behavior. The reasons for this might be the long entrepreneurial traditions, traditions to search for better solutions, and lack of large scale university-level technical education. These in some respect force entrepreneurs to innovate new but they also restrict real creativity. The phenomenon is interesting and it should be studied more deeply because basically the region of Vaasa doesn't have factors that enhance innovativeness. It is also possible that this innovativeness causes the good performance of the region.

Intellectual capital → collective action. The only variable of the intellectual capital variables which affected significantly collective action, was management experience. This effect was negative. This is an unexpected result because it would be reasonable to expect that the more management experience you have more willing and enterprising you are to

work with others. But the above result indicates that instead through management experience entrepreneurs learn to count and make the decisions themselves and to keep others out of their business opportunity recognition. This result, like results above, illustrates how prior experiences cause bias in thinking and overwhelming confidence in present knowledge. The other variables of intellectual capital didn't have significant influence. This suggests, at least, that individuals' internal capabilities don't develop social skills, but social behavior to develop needs social actions by an individual. Interesting is that the Oulu region significantly increased collective action. Entrepreneurs in the Oulu region have learned to trust each other and to collaborate with each other, and this might be one of the main reasons for the success of this region, besides technological knowledge. It is very probable that the Oulu region has social capital that nurtures opportunity recognition and new venture creation.

Summary. The above suggests that those entrepreneurs, who recognize business opportunities, have (1) formal knowledge to acquire knowledge, (2) management experience to see the proactively future trends and also understanding not to trust their management experience too much when new ideas should be innovated and collaboration with others should be encouraged, (3) intrinsic motivation to innovate new ideas and to proact the future, (4) creativity to see gaps in competitive arenas and to proact future-oriented opportunities to fill these gaps. These hypotheses were supported by the results. The above results propose that domain experience doesn't activate entrepreneurs to behave according to business opportunity recognition because domain experience wasn't significantly connected with any of opportunity recognition behavior variables. Instead, formal knowledge introduces important general tools for recognizing opportunities. On the basis of the results management experience affects negatively both innovative behavior and collective action. This suggests that although management experience is valuable it sometimes can be even dangerous if leaned on exclusively without even trying to search for new information, ideas, etc. Thus, it is valuable for opportunity recognition to have formal knowledge of the area because then it is more probable that you know where the business is now and where it is going on a larger scale. Management experience is valuable but based on the results of this study it should be used as a tool openly and fluently to find something new. Experience-based knowledge, both domain and management experience, might, but not necessarily of course, keep an entrepreneur in a path that is "woven" based on prior events. Important tools to achieve all the above are intrinsic motivation and creativity. The results suggest that those capabilities strongly support searching for newness, and in that way they also enhance the use of knowledge and experience so that new solutions are searched for. Thus, it is sug-

gested here that intrinsic motivation and creativity are the vehicles based on which knowledge and experience are changed to that kind of knowledge and experience that produce new value.

6.1.2. The social capital model

Social capital → knowledge acquisition. Knowledge acquisition was significantly supported by active social behavior. The reason for this is clear: when an entrepreneur is involved in social dialogue, (s)he gets information from different kinds of things. Thus, the fact that an entrepreneur has a lot of social relations increases the likelihood of development of knowledge, and social relations are the source from where information is collected in order to create this knowledge. The results further show that personal relations significantly enhance knowledge acquisition. This suggests that people share information when relationships are on a personal level. If an entrepreneur doesn't know his/her relations on a personal level, it is possible that these contacts won't share their knowledge, or that the information is not relevant. However, the relations don't have to be emotionally very strong, although personal. This is indicated by the result that the cognitive dimension didn't have significant influence on knowledge acquisition. Thus, it is enough that you are in personal contact with your social relations, discuss with them, and share information with them, but you don't have to be their "best friend" to get relevant information.

Social capital → competitive scanning. Competitive scanning was affected significantly by personal relations. The amount of social interaction or cognitive commitment of relations didn't have any significant effect on competitive scanning. Based on these results, it is possible to say that entrepreneurs should know the right people in order to get the needed information about competition and gaps in there. The amount of social interaction is not now relevant but the location of certain persons who know the competitive arena well. It is not important either that you should have emotionally very trusted relationships with these persons. If you are able to help them is also enough. Thus, entrepreneurs have possibilities of building up the needed relationships though they don't know them before. Important is that entrepreneurs are able to get a chance to discuss face to face about the competitive arena. The results of the control variables indicated that both age of entrepreneurs and the ICT-industry significantly decreased competitive scanning. This might illustrate that a certain type of experience or domain leads to neglecting social behavior and, thus, scanning of competition issues.

Social capital → proactive searching. Proactive searching was significantly enhanced by the amount of social interaction and commitment to the relationships. This suggests that many kinds of information and relationships are needed for future trends to be seen. Important are also weak links and the latest information brought by these weak links (cf. Granovetter 1973). On the other hand, entrepreneurs need very close and trusted relationships to be able to discuss about the weak cues and enact the possible future (see, e.g. Johannisson 1984; Johannisson 1988; Steyaert et al. 1996). Of the control variables the amount of capital significantly decreased proactive searching. This proposes that, when a great amount of capital is invested in a new venture, risks are not taken by searching for proactive, future opportunities but one should rather concentrate on clear opportunities here and now. This might be risky as the results in this study of performance have shown that proactive searching heavily increases performance of the ventures.

Social capital → innovative behavior. None of the three social capital variables affected significantly innovative behavior. This proposes that innovative behavior is in its nature very individual phenomenon. Thus, at least in business opportunity recognition innovativeness is not a social phenomenon. Social relationships are not used to create new ideas and thoughts and new ideas and thoughts are not innovated socially together but rather the play with ideas happens alone. This is along the results by Kaish and Gilad (994). Of the control variables, innovative behavior was significantly decreased by age of entrepreneurs, ICT-industry, and Jyväskylä-region. Higher age might cause that it is leaned more on old and used ideas than started to play with new ideas. In the ICT-industry play with ideas most certainly happens but maybe a bit more rationally than thought here. It is possible that here in this study innovative behavior refers to "childish play" in the ICT-entrepreneurs minds while they want to see that their innovativeness is "serious business". The region of Jyväskylä is rather young in respect of entrepreneurial culture and maybe thus it has negative effect on innovative behavior (Vaasa-region was innovative and there entrepreneurial culture is quite old). On the other hand, there are a lot of ICT-entrepreneurs in the region Jyväskylä and this might also cause the effect.

Social capital → collective action. Collective action was increased significantly by the amount of social interaction and the emotional commitment of the relationships. This implies that when an entrepreneurs is active socially (s)he is willing to let others come and participate in his/her opportunity recognition. On the other hand, the more an entrepreneur trusts the other the more this relationship is involved by the entrepreneur in his/her recognition process. Thus, when entrepreneurs are socially active they generally have courage to

engage in collective action, but collective action to really take place needs trusted and emotionally strong relationships. Hence, it might be that an entrepreneur is not behaving collectively because although (s)he has emotionally strong relationships (s)he is not socially active in a broader sense, for example.

Summary. If the above is summarized, it could be proposed that entrepreneurs in business opportunity recognition need active social interaction in order to acquire knowledge, to create, based on information gathered through social interaction, an understanding of future trends, and to make collective decisions about what information is relevant and how the industry is developing. Through active social interaction entrepreneurs, thus, create knowledge, try to understand what will happen in the future, and evaluate the quality of information. The above suggests that social capital plays a very decisive role in opportunity recognition. The amount and activity of social interaction brings information to entrepreneurs, makes it possible to have a "hunch" of the future, and makes it possible to evaluate the information with different kinds of people. Personal contacts are needed to more rational analyses of the business situation. These analyses of the business situation don't call for emotionally close relations, which indicates that it is impossible to get a wide base of information only through some close relationships, but instead what is needed is a wide social network. Very close relationships are, then, important when information brought through wide social networks is processed into future trends and decisions about actions concerning the venture. Individuals have recognizing business opportunities have thus (1) active social interaction to find information, to see future trends, and to evaluate information and decisions, (2) personal contacts to find information and to analyze markets, and (3) emotionally strong relationships to evaluate and understand the information and to enact future trends.

6.1.3. The environmental dynamism model

Environmental dynamism → knowledge acquisition. Environmental dynamism increased knowledge acquisition significantly. This shows that, when a lot of changes are happening in the environment, entrepreneurs start to search actively for information because there is available information that is not widely shared. This, then, creates opportunities which have newness value. Environmental dynamism also causes ideas to get old soon, which means that new information must be actively searched for all the time.

Environmental dynamism → competitive scanning. Environmental dynamism enhanced

strongly competitive scanning. Thus, entrepreneurs clearly were activated to analyze the competitive arena and to search for market gaps when they perceived that the environment was dynamic and changes happened all the time. Entrepreneurs, hence, interpret environmental dynamism to mean that there are gaps and, thus, opportunities in markets. Of the control variables the ICT-industry and the regions of Jyväskylä and Oulu influenced competitive scanning negatively. This supports the above notion that in the ICT-industry in the business opportunity recognition phase the competition issues are, at least now, taken less seriously. It is possible that competition becomes more important in the later phases of a venture's life-cycle also in the ICT-industry. The results in the regions of Jyväskylä and Oulu strengthen the above result as the ICT-industry is important in both regions.

Environmental dynamism → proactive searching. Entrepreneurs also interpret environmental dynamism to mean that things get old fast and, thus, future oriented ideas are needed. The results, hence, showed that environmental dynamism significantly increased proactive searching. The results regarding control variables showed that the amount of capital decreased proactive searching, and the reason for this is that when the stakes get high the risks get low. On the other hand, proactive searching increased when it was planned to do geographically wide business. The reason for this might be that geographical wideness brings to the fore a lot of different types of competitors and thus proactive ideas are needed.

Environmental dynamism → innovative behavior. Environmental dynamism didn't have any significant influence on innovative behavior. This suggests, again, that innovative behavior is an individual phenomenon. It also shows that innovative behavior is internally motivated and not affected by changes in the environment. In addition, age of entrepreneurs, the ICT-business, and the region of Jyväskylä affected innovative behavior negatively. The reason for these effects has been presented above already and thus will not be repeated again.

Environmental dynamism → collective action. It was a surprising that environmental dynamism didn't enhance collective action. This suggests that collective action is dependent on the history of social actions of entrepreneurs. If an entrepreneur has been socially active before, (s)he is probably socially active still no matter how dynamic the environment is. The result also shows that environment can't force an individual into cooperation but cooperation is based on how used an individual is to cooperation.

Summary. The above shows that entrepreneurs actively perceive their environments. Thus, entrepreneurs are not deterministic adaptors to environmental changes but actively try to figure out the developments in the environment. On the other hand, entrepreneurs are not searchers either who by trial and error blindly try to find solutions, as the population-ecology model has suggested (e.g. Hannan and Freeman 1977). Rather entrepreneurs try to interpret present and future choices of markets and even change and create choices of markets.

6.1.4. The opportunity recognition behavior model

Opportunity recognition behavior → growth. Growth of a new venture was affected positively by opportunity recognition variables only by proactive searching, which affected very strongly. The reason why the other variables didn't affect it significantly might be, first, that the other variables affected through proactive searching. This is proposed by the high beta-value (.76) of the effect of proactive searching on growth. This was also supported by the initial analysis of the relationships between opportunity recognition behavior variables. The initial results are not, however, presented here in this study because it would not have been relevant the objectives of the study. On the other hand, it could also be that the other variables are not important in advancing the growth of young ventures. Knowledge acquisition and competitive scanning are mostly about analyzing the present situation and it is possible that understanding the present business situation doesn't create growth. Thus, it might be that only seeing the future trends creates growth. Thus, innovative behavior probably concentrates too much on developing and changing the present business and neglects future possibilities. In addition, collective action is rather aimed at collecting the needed "data-base" than at visioning growth opportunities. Still, it is proposed here in this study that the other opportunity recognition behavior variables make proactive searching possible, and thus affect through proactive searching the growth of new ventures. Without them proactive searching and growth wouldn't be possible.

Of the control variables, the radius of business decreased growth. This suggests that geographically wide business divides the resources of a young venture and thus affect growth negatively. The regions of Oulu and Vaasa supported growth. The region of Oulu grows because of its technological skills and cooperation and the region of Vaasa because of its competitiveness and innovativeness. This last result shows that growth doesn't necessarily have to be based on high technology only, as is often claimed in Finland. As a whole, the results indicated that opportunity recognition behavior affected growth of young ventures

very strongly (Adj. $R^2 = .60$***). Thus, it is very important to take into serious consideration business opportunity recognition if wishing to speed up the growth of a venture.

Opportunity recognition behavior → newness value. The newness value of a venture was increased significantly by competitive scanning, proactive searching, and collective action. By scanning the competitive arena entrepreneurs are able to bring into the business arena a venture that has newness value to customers. This shows how important market know-how is to be able to see what is missing and what kind of opportunities are developing. Proactive searching also affected newness value positively. It is possible to see that by seriously trying to see the future it is possible to support newness value and growth and thus the success of a venture. Collective action, as well, caused higher newness value. This indicates that other people bring to entrepreneurs that kind of information that is possible to turn into business with newness value. Of the control variables, radius of business supported newness value, while it decreased growth. Most likely large radius of business requires newness value because business is done in many areas, against many kinds of competitors, etc. The region of Oulu also supports newness value. The main reason for this is probably technological advancement of this area in ICT-business. But, it also shows that the entrepreneurs from this area know how to add new value to customers and end-users.

Summary. The business opportunity recognition process of recognizing fast growing and valuable opportunities might proceed mainly as described. To say this for sure more research on the subject is needed. Anyhow, form the above it could be concluded that the success of a young venture is created by developing comprehension of the business reality through social behavior. In this is used information brought by social relationships so that an entrepreneur tries to connect information from the reality and market gaps into a vision of future trends. These actions are combined into a business opportunity, which is the possibility of a venture creating new value and growing.

6.1.5. Combined model

Next a closer look is taken at the whole combined model and how entrepreneurs through business opportunity recognition create growth and newness value of ventures. The goal is to illustrate the general background of the process, so the limitation that must accepted is that reality is simplified. As a conclusion, it could be stated that in order to able to recognize business opportunities, which have the potentiality to grow and create new value, entrepreneurs must first analyze their competitive arena. To construct an understanding of the

competition and to find a gap in it entrepreneurs use and establish new personal social relationships to get the latest information of the recent business situation. This information entrepreneurs then analyze using their high formal knowledge of the industry. Good formal knowledge of the industry offers a good base for understanding what the industry stands for and what are the most likely future trends. Future trends, especially, are important to entrepreneurs and they try to on the basis of these trends to see market gaps which others haven't yet located. These entrepreneurs are also able to use their creativity to question the present ways of doing business and combine the fragmented information into a vision of the market gap, on which it is possible to create profitable business.

Second, when an understanding of the competitive arena is created and a gap found, those entrepreneurs who have been able to create ventures which grow fast and have newness value to customers concentrate very strongly on proactive searching. If put in another way, entrepreneurs try to recognize the kind of business opportunities which create value in the near future and of which value grows fast in the longer run. These entrepreneurs don't just search for and recognize a market gap but they search for opportunities which offer good possibilities of fast growth. Proactive searching is suggested to happen so that first entrepreneurs scan and perceive that in some industry or branch dynamic changes are taking place. This tells entrepreneurs that in that industry there are most likely gaps and thus business opportunities. This, then, motivates entrepreneurs intrinsically. It might be that they were already intrinsically motivated but dynamism and possibilities in the industry trigger motivated entrepreneurs to look for their own business. When an entrepreneur has perceived opportunities bringing dynamism and changes and has been motivated intrinsically, (s)he starts to acquire knowledge through active social interaction. An entrepreneur uses many and different kinds of relationships to find the latest information. Especially important is the information received from weak links (cf. Granovetter 1973). By linking and combining this information the industry can be renewed significantly. Prior management experience has a central role in collecting and understanding this information. Using this management experience an entrepreneur is able to see, what information is relevant and what is not, what kind of ventures there already are and what kind of ventures there is need for, and especially what ideas are realistic and what are not. Thus, by management experience an entrepreneur classifies fragmented information into a workable solution. But it is not enough for this type of entrepreneurs to construct realistic and workable business solutions; they still have to find new types of solutions, which involve potentiality to perform well and fast. With their creativity they combine pieces of information and try to see what will happen in the near future, what kind of ventures grow fast, and what kind of new value

is needed. Finally, an entrepreneur discusses with others and tries to understand changes in the environment and his/her own ideas and thus to create (enact) the final picture of a business opportunity.

Third, when the competitive arena is analyzed, the market gap located, and a proactive opportunity introduced to fill this gap, entrepreneurs try to bring into his/her final evaluation- and decision-process the social relationships (s)he has and to keep out of this process his/her management experience. Through this collective action entrepreneurs attempt to go through and evaluate once again all the information they posses about the whole situation and to make the decision about what kind of business is to be established, how the business is to be done, and where and when this business starts to take place, for example. In other words, entrepreneurs try to make a decision about the overall strategic business concept – what is my business opportunity. Those entrepreneurs who have managed to establish a venture which is growing and has newness value are clever and they don't trust only their own point of view. They involve in this process their closest contacts in which the entrepreneurs definitely trust. Together with these people the entrepreneurs then attach through the situation and give value to other people's experiences also. The result that management experience decreased collective action shows that leaning only on one's own experience in today's fast-changing world is dangerous.

Summary. The creation of growth and newness value by recognizing business opportunities is looked here at more precisely: It could be suggested that to able to create newness value (clear and tangible value for customers or end-users) (a) the competitive arena should be known well and located exploitable market gaps, (b) proactive searching should be active to perceive what will happen in the future in order to be able to fill the market gap with that kind of business idea that doesn't yet exist but which will create a great need in the future, and (c) collective action should be pointed at to collectively evaluate the situation carefully. On the other hand, growth seems to lean very heavily on proactive searching. In other words, growth is dependent on skills to see future trends and grabbing these trends in that phase when others haven't yet seen those trends as opportunities for business.

Interesting from the view of results was also that emotionally very close relationships and strong intrinsic motivation blocked growth of ventures while management experience enhanced growth of ventures. This suggests that, when entrepreneurs act in a small circle of relations, information gets old fast and, thus, new visions of the business are interrupted. This shows clearly that entrepreneurs need many kinds of weak and strong relations to ob-

tain information that could be turned into future trends and proactive opportunities. It is also possible that very close relations try to convince entrepreneurs to avoid risks. Intrinsic motivation leads to even too enthusiastic a play with ideas and to building ideas which are too innovative and not based on developments in the market or in technology. This suggests that opportunity recognition also requires rational sense besides internal flame. The positive effect of management experience shows how experienced entrepreneurs are able to read development trends and create realistic business solutions to exploit the trends. Innovative behavior and knowledge acquisition weren't important to growth or newness value. Based on this it is possible to conclude that innovativeness without clear market knowledge and need is useless. On the other hand, innovativeness might often concentrate on developing further products, services, etc., and proactive future orientation is neglected. However, innovativeness might positively affect proactive searching, so innovativeness could be valuable also in creation of growth and newness value. The same concerns knowledge acquisition. It concentrates heavily on the present situation while it should be looked at what is going to happen. Still, proactive future forecasting is difficult without knowledge of the present.

6.2. Theoretical and empirical contributions

Intellectual capital in opportunity recognition

The prior studies of opportunity recognition have regarded formal knowledge to be less important than domain knowledge (see, e.g. Hills 1995). However, formal knowledge has been widely seen to have an important role in knowledge acquisition as it gives more general analyzing tools to interpret information (Christensen and Peterson 1990; Woo et al. 1992; Zietsma 1999). The results of this study were in line with the results of the previous studies. The results of the study pointed out, first, that information gathering, data ordering, and thus knowledge acquisition require formal knowledge of particular domain. This was also indicated by Woo et al. (1992) and Zietsma (1999). With formal knowledge entrepreneurs are able to analyze and synthesize information to create usable knowledge. However, the study disagrees with the previous studies as regards the idea that also domain knowledge, management experience, intrinsic motivation, and creativity should enhance knowledge acquisition. The results of this study suggest instead that knowledge acquisition is very rational, purposeful behavior that requires mostly formal abilities to analyze information and perhaps even strength to put aside the rest of the intellectual capital an entrepreneur possesses.

Second, prior studies have strongly argued competitive scanning to be based on domain knowledge, as it would offer the tacit knowledge of the area (Cooper 1981; Long and McMullan 1985; de Koning and Muzyka 1996; Hills and Lumpkin 1997; Kirzner 1997). However, this study revealed that formal knowledge is more important in competitive scanning than domain knowledge. The reason for this might be that knowing the business and actors there (domain knowledge) don't show where the gaps are in the competitive arena. What is needed is also and especially formal analyzing- and technical skills to see where and what kind of gaps are going to open up. The results also indicated that creativity is significant in competitive scanning. This was in line with previous results (e.g. Hills et al. 1999). It is interesting that creativity is significant but domain knowledge is not. This implies that tacit knowledge, or in other words alertness to connections between pieces of information that is needed is involved in entrepreneurs' capabilities to process information in novel ways and not in knowing the business per se. This is also suggested by the fact that management experience wasn't significant. This further shows that experience doesn't tell what kind the competitive arena is but that what is needed is ability to formally analyze it and willingness to creatively play with information to create in entrepreneurs' minds an awareness of the gaps that are going to open. Interesting is also that intrinsic motivation is not so important, although it is proposed that competitive scanning is demanding emotionally (e.g. Herron and Sapienza 1992). This indicates that competitive scanning is not fun but hard work that must be done. Because it is an unpleasant job, it is thus possible that experienced entrepreneurs avoid it. Many times entrepreneurs even try to escape boring work and perhaps thus also avoid competitive scanning (see Kuratko et al. 1997). As a whole, in competitive scanning formal knowledge proposes the tools that are needed to understand the competition and creativity vehicles to see holes in this competition.

Third, the study showed proactive searching to be even more important than was thought before. Previous studies argued that proactive searching requires both domain- and formal knowledge (e.g. Woo et al. 1992; Christensen et al.; Hills 1995). However, the results of study revealed that proactive searching is not about rational analyzing of information but merely intuitive visioning of the future. The results indicated that proactive searching is enhanced by prior management experiences, intrinsic motivation, and the creativity of entrepreneurs. Proactive searching, which is more about abstract projecting of the future than rational and "hard" analyzing of the present situation, calls for knowledge of how the industry is developing in a larger frame (cf. Hills et al. 1997; Hills and Shrader 1998). This knowledge is dependent on managerial/entrepreneurial experiences. In other words, if you have worked as a manager or/and an entrepreneur, it is probable that you have a vision of

the larger trends in that business, and thus you have also capabilities to forecast the future. However, proactive searching requires also strong intrinsic motivation to explore the future. This is so maybe because proactive searching is largely based on intuitions, which are possible only if an individual is really internally motivated. Intuitions are not possible to create by force or necessity (cf. Manimala 1992; Martello 1994; Hills 1995; Baron 1998). Creativity is also necessary to be able to link weak information cues so that an entrepreneur recognizes the future developments (Gilad 1984; Hills and Shrader 1998). The study showed that although rational analyzing of the competitive arena and knowledge acquisition are very important in order to know what the industry stands for creative and intuitive visioning of future possibilities is the most crucial part of opportunity recognition. Thus, it should be underlined that, when the capabilities to recognize opportunities are developed, serious time and effort should be given to developing creative and intuitive capabilities as well.

On the basis of the research on the subject, it was proposed that innovative behavior should rely on information, i.e. domain- and formal knowledge (e.g. Christensen and Peterson 1990; Hills 1995). However, the results indicated that innovative behavior is not activated by level of knowledge. Instead, innovative behavior is probably very natural to all human beings and thus it needs only intrinsic motivation to be turned on (cf. Amabile 1997). Innovative behavior needs strong intrinsic motivation, since it is internal, mental playing with ideas. It is impossible if an entrepreneur doesn't enjoy it. Innovativeness is hard to rationalize and thus it needs a pull from inside. Thus, this study agrees with Gaglio and Taub (1992) and Manimala (1992), who have suggested that innovative behavior in opportunity recognition requires a strong internal motivation base. Management experience, again, decreases innovative behavior. This points very clearly to how existing knowledge might hinder free play with ideas (Baron 1998). The fact that creativity doesn't enhance innovative behavior further shows that although innovative behavior is not about rational processing of information neither it is totally creative but has certain goals to obtain.

All the other variables besides management experience didn't have any significant effect on collective action. Many studies have proposed that collective action is also a result of individual capabilities (de Koning and Muzyka 1996; Steyaert et al. 1996; Hills and Lumpkin 1997; Hills et al. 1997; Singh et al. 1999). However, this study revealed that collective action is mostly learned in a social community and is thus a social phenomenon. Thus, in spite of the intellectual capital, entrepreneurs can behave socially collectively dependent on how used they are to social behavior. Still, management experience hindered collective ac-

tion. On the basis of this, it seems that managerially experienced persons want to control by themselves the actions and decisions in opportunity recognition and keep others out. Perhaps experienced managers/entrepreneurs feel that somehow new opinions threaten their own opinions. On the other hand, management experience might create cognitive biases that cause managerially experienced entrepreneurs to trust themselves too much (Baron 1997, 1998). This shows very clearly how dangerous experience can be if it is used in a stubborn and inflexible way.

Prior research has strongly argued that domain knowledge of a particular profession should enhance opportunity recognition (e.g. Kaish and Gilad 1991; Woo et al. 1992; de Koning and Muzyka 1996; Hills and Lumpkin 1997). Shane and Venkataraman (2000) argue even that opportunity recognition is possible only when an entrepreneur has knowledge structures, i.e. domain knowledge of that particular domain. Otherwise, entrepreneurs wouldn't see what they should search for and what they should do with the information. Woo et al. (1992) indicated that less experienced entrepreneurs didn't search because their lack of knowledge produced the bias that new knowledge is not important. This study revealed that the relationship is positive but at least here not significant. This might point out that experienced entrepreneurs in the domain rely on their existing knowledge and only fill the gaps they have. This suggests, as research on cognitive knowledge structures has revealed (Tversky and Kahneman 1974), that prior knowledge interferes and cause biases in thinking and behavior. Baron (1997, 1998) already indicated that this is possible in opportunity recognition. Thus, domain knowledge enhances opportunity recognition, but after some point, when domain knowledge is quite high, it starts to interfere with opportunity recognition because of the bias to think that it is known enough already (cf. Baron 1998). Hereafter, this study points out that domain knowledge might be important, as previous studies have strongly argued, but it can also be dangerous when interfering with opportunity recognition behavior.

Social capital in opportunity recognition

Prior research has indicated that social capital is important in opportunity recognition (e.g. de Koning and Muzyka 1996). Most research, like that of Burt (1992), Krackhardt (1995), and Singh et al. (1999), has suggested that the amount of social interaction is important in acquiring knowledge. This study also showed also that this is the case. This implies that information is gathered from various sources and for knowledge to be acquired intentional social behavior is needed. The above studies, among others, also suggested that personal

relations are needed to get relevant information. It is important to have many types of relations to get information in the first place, but it is also important to know the right individuals personally to get relevant information and maybe to interpret information with these individuals. For example, Johannisson (1988) and Steyaert et al. (1996) proposed that emotionally close relations are important. However, the results of this study agree with the studies by Burt (1992, 1997) that very close relationships restrict searching for new information. This is so probably because the information that very close relations have is normally known by all the relations – there is nothing new to find.

Previous research (Hills 1995; Krackhardt 1995; de Koning and Muzyka 1996; Singh et al. 1999) proposed that a great number of relations and also personal relations are important in competitive scanning. This study revealed that only personal relations are significant probably because they offer inside information of the competitive arena. Thus, the claim by Christensen and Peterson (1990) and Christensen et al. (1994) that personal relations are especially valuable stems from competitive scanning. Manimala (1992), Krackhardt (1995), and Steyaert et al. (1996) suggested also emotionally very close relations are significant in competitive scanning. However, this study disagrees with the above studies because close relations probably are not able to bring entrepreneurs inside the competitive arena to gain knowledge of it.

Christensen and Peterson (1990), Burt (1992), Krackhardt (1995) and de Koning and Muzyka (1996), at least, saw that active social dialogue would bring the latest information to be proacted into an opportunity. This was also indicated by this study. On the other hand, very close, emotionally strong relationships were suggested to be needed in proactive searching (Johannisson 1988; Steyaert et al. 1996). Proactive future searching is about connecting pieces of information into a wider picture. For this to be possible social relations are required, in which energy is not wasted on other things than to achieve the goal. Very close relationships are of this kind because in these the work happens automatically without investment in relationship building, which has been done a long time ago. This study arrived at results supporting this claim. However, personal relations were not significant. Granovetter (1973) and Burt (1992) have suggested that strong, personal ties don't bring the latest information but rather the weak ties. This has also been pointed out in the present study. But it should be remembered that strong ties are important to activate different types of behavior, like collective action. Thus, in opportunity recognition things are not so simple that weak ties are more important than strong ties. It depends on the behavior.

Above was already shown that intellectual capital doesn't significantly enhance collective action. The studies by Hills (1995), de Koning and Muzyka (1996), and Singh et al. (1999) have indicated that social dialogue is enhanced by the amount of prior social dialogue, in other words, by how used the entrepreneurs are to social dialogue. This was also pointed out in this study, since the extent of social interaction and emotionally close relations was found to be enhanced by collective action. This is also in line with the results reached by Burt (1992). It could also be underlined that decision-making concerning what is important information, what is happening in the industry, and what will happen requires from the relationships trust in each other and strong commitment. Thus, to those entrepreneurs who want to act collectively emotionally strong relationships are valuable.

Many studies have maintained that social capital enhances innovative behavior (e.g. Christensen and Peterson 1990; Christensen et al. 1994; Gunther McGrath 1994; Hills and Lumpkin 1997; Rea et al. 1999; Sigrist 1999). This study came to just the opposite results. According to this study, social capital is not significant in innovative behavior. Therefore, this result proposes that innovative behavior in opportunity recognition is a very individual phenomenon that occurs in an entrepreneur's cognitive processes.

Environmental dynamism in opportunity recognition

Many studies suggested that environmental dynamism activates knowledge acquisition (e.g. Christensen and Peterson 1990; Ray 1992; Christensen et al. 1994; Hills and Lumpkin 1997, Hills et al. 1997, and Hills and Shrader 1998). Also other opportunity recognition variables were suggested to have a positive influence besides environmental dynamism (e.g. Kirzner 1979; Long and McMullan 1984; Burt 1992; Cadotte and Woodruff 1994). This has been proposed mostly because environmental dynamism tells entrepreneurs that there are gaps to be filled and opportunities to be found. This study maintained that environmental dynamism activates knowledge acquisition, competitive scanning, and proactive searching. This could be seen so that environmental dynamism indicates, first, that there is knowledge to be looked for that is not widely shared. Second, environmental dynamism also points out that the competitive arena is changing constantly, and thus it is possible to scan gaps in the competitive arena. Third, environmental dynamism shows that the business is changing all the time, and thus near future businesses should be proactively searched. Thus, environmental dynamism activates entrepreneurs to search for and create new business solutions because it implies that there are plenty of opportunities to be grabbed. But, environmental dynamism doesn't support innovative behavior because it is strongly internally motivated (see Amabile 1997) and doesn't enhance collective action be-

cause it is mostly motivated by the prior history of social behavior.

Opportunity recognition behavior in creation of performance of young ventures

The present study indicated that the growth of young ventures is very strongly dependent on proactive behavior in opportunity recognition phase. This is in line with the results reached by Miller (1987), Covin et al. (1999), Hamel (1999), and Wiklund (1999). However, the results showed such a significant effect only by proactive searching that they should be discussed a bit more deeply. First, this result might imply that those entrepreneurs who are able to proact the future can be the first to exploit the future opportunities (Kirzner 1997). Thus, if you want to be successful in the very early phases of your venture, you should right now proact the possible future. Possibly this skill might be studied more thoroughly from the viewpoint of interaction of cognitive information processing and social-networking behavior. Anyhow, the previous research doesn't understand thoroughly proactive behavior of individuals (see Busenitz 1996). One of the most important contributions of this study is that it showed how important proactive searching is in the creation of good performance. It is recommended that this behavior should be studied more profoundly in the future. Further, it could be discussed why the other behavioral variables didn't affect growth significantly. It is probable that these other behaviors are necessary to be able to proact the future. They don't create the opportunity, based on which fast growth is created, but without them there wouldn't be "raw material" to proact upon. Thus, it might be that these other variables affect the growth of young ventures through proactive behavior. This should be studied in more detail because the previous knowledge in this respect is very immature (cf. the review of opportunity recognition literature by Sigrist 1999). However, it is an important notion that as such neither knowledge acquisition, competitive scanning, innovative behavior, nor collective action significantly influences the growth of young ventures.

The results of the study showed that competitive scanning, proactive searching, and collective action enhanced significantly the newness value of young ventures. This is in line with the results achieved by Sandberg and Hofer (1986), Burt (1992), Zahra (1993), Covin et al. (1999), and Leana and Van Buren (1999). The above results suggest to the domain that newness is created by knowing well the competitive arena and gaps in it, by proacting the most possible and interesting future possibilities, and by collectively interpreting the information and enacting the most promising business opportunity. Knowledge acquisition doesn't affect newness value significantly probably because the knowledge is based on the

present situation and it lacks the visions of future situations. Thus, it might be important to proacting but it doesn't enhance newness value straightforwardly. This is an important result that underlines that knowledge of the present situation is not enough. Entrepreneurs should somehow "see the future". An important issue to be studied is how entrepreneurs use knowledge acquisition in order to get material for their proacting and how these rational- and intuitive processes are interacting.

6.3. Managerial implications

Managerial implications presented the next are meant for those persons, who are thinking of establishing their own venture. First of all, this study has revealed very clearly that opportunity recognition is highly important. Would-be entrepreneurs should give serious time and effort to opportunity recognition because time used in this part of entrepreneurial process affects very significantly performance of the venture. What, then, should would-be entrepreneurs do?

First, entrepreneurs should find time to scan the competitive environment. Entrepreneurs should know who are the competitors, what are their products, what kind of strategies they are using, what their competitive advantages are, how they acknowledge future technologies and trends, etc. The knowledge on these things tells the entrepreneur what kinds of businesses are taking place, what kinds of gaps exist, and what are the possible future trends. Further, the results showed that entrepreneurs should have good personal contacts to get the latest information, high formal knowledge to be able to analyze this information and to frame the situation more widely, and creativity to see links between peaces of information. Thus, would-be entrepreneurs should obtain a high formal education in the field, create a wide, personal net of relationships, and have the courage to play creatively with the information.

Second, it is not enough that the competitive environment is known and gaps located. This study indicated that the best possibilities of good performance are possessed by those entrepreneurs who concentrate on finding proactive opportunities. By this is meant that entrepreneurs should vision the future (based on competitive scanning and existing knowledge) and what are the most probable future trends in the business. Further, entrepreneurs should grab the near future trends that others are not yet capable of seeing. However, it should be underlined that the visions of the future are based on careful analyses of the industry and the competitive arena and on skills to analyze information obtained from relevant relation-

ships. Would-be entrepreneurs should also remember that possibilities of proacting are usually found where environmental dynamism is high, because dynamism causes knowledge gaps. Further, proacting is very demanding emotionally and insecure, so intrinsic motivation to create businesses that don't yet exist is needed. In addition, the results showed that proactive behavior requires creativity to see future trends, management experience to see the general trends in the business, active social interaction to obtain the latest information, and trusted relationships to be able to discuss about the possible future. These results of proactive behavior show would-be entrepreneurs that a proactive conception of the future is demanding and requires many kinds of capabilities. Thus, to be able to proact, entrepreneurs should create a wide network of relationships, should be active to get managerial and/or entrepreneurial experience, should study constantly how business is changing and what causes dynamism, should creatively link different types of information into a new whole, and should have intrinsic motivation to do this because it is fun.

Third, because opportunity recognition, and especially proactive opportunity recognition, is insecure, well-performed entrepreneurs involve other people in their opportunity recognition. Would-be entrepreneurs should, thus, from the very beginning trust some people who can advise them and give them a second opinion about the issues involved in opportunity recognition. To find those people who are able to advise and whom entrepreneurs can trust, entrepreneurs need wide and active social dialogue in general. Out of this active social dialogue entrepreneurs can then locate those people whom they can really trust. The above may contradict the view that is normally accepted. Entrepreneurs are often seen as individuals who trust only themselves and are very independent. This might be true but at least this study shows that those entrepreneurs who are able and willing to stretch these principals are performing better. This might also show that team-entrepreneurship might be a good solution for would-be entrepreneurs. It is important to remember, based on the results of the study, that managerial/entrepreneurial experience causes entrepreneurs rely only on themselves, although a second opinion is very important. Thus, managerially/entrepreneurially experienced would-be entrepreneurs should be aware that they have a tendency to trust too much themselves only.

What new does this study bring if compared with previous research? First, it shows that proactiveness is very important. Often it is thought that proactiveness is dangerous because innovative, proactive new firms are seen to be risky and weak. This is true if the work of analyzing the present and future situations has not been done. Proactiveness which leads to success is best achieved through hard work to understand what is going to happen in the

near future and is not based on radical innovations per se – a new radical product is nothing if customers don't see the value of it. Second, the study reveals how important background work is. Often research indicates that entrepreneurs use their intuition and experience to understand the situation. These are also very important but to get "fuel" for these processes hard work to analyze the situation is needed first. Without hard work to understand markets, industry, and etc. success is very difficult. Third, the study shows that rationality is not enough but entrepreneurs need also their creativity. Creativity is very important in questioning the present solutions and creating new ones by combining many types of information. Fourth, the study shows that domain knowledge is not everything. There might be some problems with results but anyhow it is very important for would-be entrepreneurs to understand that leaning solely on domain experience is extremely dangerous. Domain experience is not according to this study so crucial as has been thought and it might restrict search for new solutions. Last, what is new compared with previous studies is that the study shows how important opportunity recognition is to performance. Previous studies have touched this problem only little. But this study shows would-be entrepreneurs that opportunity recognition is at least one of the most important factors affecting the performance of their firms. Thus, it could be said a little provocatively that, if entrepreneurs haven't done their job before venture launching, it might mean that there isn't anything to do any more – it is too late. This study of course starts from the assumption that opportunity recognition is important. It could be also thought that opportunity recognition is not so important but that there are other much more important issues like for example how to create growth, how to market a new firm's products, how to obtain needed resources, or how to get the first customer. All those issues are important. But it could be suggested to those who think that opportunity recognition isn't so important that to be open and try to use the knowledge of opportunity recognition in the arena that you think important is essential.

6.4. Limitations and propositions for future research

Limitations. The study revealed five main limitations. First, it could have studied more closely the interconnections between opportunity recognition variables. Now, the more specific nature of the behavior of entrepreneurs wasn't covered. The behaviors that were studied were obviously important in opportunity recognition, but knowledge acquisition and innovative behavior weren't important in creating good performance. The question why this happened, wasn't studied in this study. It is quite probable that knowledge acquisition and innovative behavior affected other behavioral variables significantly, and thus also performance. This suggests that maybe opportunity recognition variables work sequen-

tially. However, this would be interesting and very important to know, but as it wasn't the objective of this particular study this problem was left out of the study

Second, the population of the study is rather limited, which means that generalizing the results to wider populations is a little problematic. The choice to use a smaller population was made because it was thought that in this way the quality of the data would be better. Using a smaller population it was easier to contact all the members of the population, to collect data that has so high a rate of return that it is really possible to generalize the results to the population under study, and to be sure that cultural or geographical differences wouldn't cause any problems. Thus, it was important that because entrepreneurs are difficult to motivate to participate in a research, it was decided that it should be possible to visit the entrepreneurs. Thus, entrepreneurs coming from close geographical areas were chosen. However, the fact that the entrepreneurs represented ventures belonging only two industries, three regional areas, and only one year (1998) means that the results should be taken a little cautiously. More comparative studies involving studies in different industries and different areas and countries are needed. The study also used cross-sectional logic by employing only data obtained from entrepreneurs who had established their businesses in 1998. It is possible that the aspect of time somehow masks the results. Thus, also several cross-sections and longitudinal studies are needed. Anyhow, because the study used quite holistically previous research, formulated a model based on the previous research, collected the data and analyzed it rigorously, it is reasonable to believe that the results of the study are, nevertheless, generalizable.

Third, the study didn't use a control group of failed entrepreneurs, and this also causes limitations with regard to generalizability. The study used entrepreneurs from different industries and regions to enhance generalizability, but still the control group of those entrepreneurs that according to themselves have recognized an opportunity and established a venture but failed to survive would have been important. The reason why these failed entrepreneurs were left out of the study was that it is very difficult to obtain data from these persons. They are not willing to participate in a research because at least now it is still a shame to fail in entrepreneurship in Finland, although this is changing. One reason why the performance-variable was used into the study was that it was thought that somehow the differences in success should be taken into consideration. But because a comparable control group would have been almost impossible to obtain the performance of the studied ventures was used instead. The performance shows at some level how well-performed entrepreneurs have done their opportunity recognition compared with less well-performed en-

trepreneurs.

Fourth, because the study concentrated on studying the relationships of intellectual and social capital, environmental dynamism, opportunity recognition behavior, and performance on a general level, the study didn't try to find clusters of different types of opportunity recognizers. However, it would be important to know if there are different patters of opportunity recognition leading to different types of opportunities. Thus, it is possible that the patterns are different in different industries and regions. This study left these important questions out because it was thought and suggested in the beginning of the study that at the moment the sphere of opportunity recognition research needs a study that reviews all the research until now and tries, based on that research, empirically to test which are important variables in opportunity recognition and what their effects is. Still, the need for studies clustering the different patters of opportunity recognition is strongly acknowledged.

Fifth, the results indicated that domain knowledge is not important in opportunity recognition. This is contrary to the results of previous research. There are two possible reasons for this: First, the result is right and domain knowledge is less important than has been thought before. Second, there are some problems with the measurement of the domain knowledge, although it was used before validated measurement items. Because previous studies have indicated that domain knowledge is very important in opportunity recognition and because this study showed that domain knowledge doesn't have any significant influence, the results of this study concerning domain knowledge should be regarded as preliminary.

Propositions for future research. First, it is proposed that the process of opportunity recognition behavior should be studied in more detail. This study left this out because it would have been outside the scope of the study. It is proposed here that in future it would be interesting to know in what order and how entrepreneurs sequentially use knowledge acquisition, competitive scanning, proactive behavior, innovative behavior, and collective action. Second, it is proposed that in the future it would be important to study what kind of different patterns entrepreneurs have to recognize entrepreneurs, as was mentioned above. It is likely that entrepreneurs use different patterns to recognize even the same types of opportunity. It would be very interesting to know whether these patterns are different or of the same kind in different industries, regions, and dynamic situations. Third, the study indicated that obviously intellectual and social capital and certain kinds of opportunity recognition behavior are needed to recognize an opportunity. But, the study didn't reveal how these capabilities are acquired. Thus, it would be very important to study in the future how

intellectual and social capabilities and likelihood of behaving in a certain way have developed. This would, then, help to develop would-be entrepreneurs.

Fourth, it is suggested that it should be studied how the capability to recognize opportunities develops among entrepreneurs. For example, would-be entrepreneurs, novice entrepreneurs, experienced one-venture entrepreneurs, and serial entrepreneurs and their opportunity recognition could be studied to find out if entrepreneurial experience enhances skill to see opportunities and if opportunity recognition capabilities could be developed by engaging people in real entrepreneurial situations. As a whole, the field of business opportunity recognition is young, although business opportunity recognition is often seen as one of the main behaviors of entrepreneurship. Thus, all kinds of research on opportunity recognition is needed. However, future research on opportunity recognition should take into account what has been learned from wider entrepreneurship studies, namely that entrepreneurship is about behavior and not about personal, social, and/or environmental sets of traits. Hereafter, opportunity recognition should also be studied as behavior aimed at recognizing business opportunities.

Finally, renewal capacity to search for new businesses in existing companies is crucial nowadays. Thus, research on business opportunity recognition should also investigate the phenomenon in existing companies. The research in opportunity recognition is very young. The sphere is not developed although it is one of the most important lines of behavior of entrepreneurs. Thus, to develop knowledge it is needed domestic and international collaboration and research programs to study many sides of this complicated phenomenon.

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APPENDICES

Appendix 1. Hypotheses of the study.

Hypotheses	Relationship	Nature of relationship	
Hypothesis 1a	domain knowledge → knowledge acquisition	positive	+
Hypothesis 1b	formal knowledge → knowledge acquisition	positive	+
Hypothesis 1c	management experience → knowledge acquisition	positive	+
Hypothesis 1d	intrinsic motivation → knowledge acquisition	positive	+
Hypothesis 1e	creativity → knowledge acquisition	positive	+
Hypothesis 2a	domain knowledge → competitive scanning	positive	+
Hypothesis 2b	formal knowledge → competitive scanning	positive	+
Hypothesis 2c	management experience → competitive scanning	positive	+
Hypothesis 2d	intrinsic motivation → competitive scanning	positive	+
Hypothesis 2e	creativity → competitive scanning	positive	+
Hypothesis 3a	domain knowledge → proactive searching	positive	+
Hypothesis 3b	formal knowledge → proactive searching	positive	+
Hypothesis 3c	management experience → proactive searching	positive	+
Hypothesis 3d	intrinsic motivation → proactive searching	positive	+
Hypothesis 3e	creativity → proactive searching	positive	+
Hypothesis 4a	domain knowledge → innovative behavior	positive	+
Hypothesis 4b	formal knowledge → innovative behavior	positive	+
Hypothesis 4c	management experience → innovative behavior	positive	+
Hypothesis 4d	intrinsic motivation → innovative behavior	positive	+
Hypothesis 4e	creativity → innovative behavior	positive	+
Hypothesis 5a	domain knowledge → collective action	positive	+
Hypothesis 5b	formal knowledge → collective action	positive	+
Hypothesis 5c	management experience → collective action	positive	+
Hypothesis 5d	intrinsic motivation → collective action	positive	+
Hypothesis 5e	creativity → collective action	positive	+
Hypothesis 6a	amount of social interaction → knowledge acquisition	positive	+
Hypothesis 6b	closeness of relational ties → knowledge acquisition	positive	+
Hypothesis 6c	commitment to relationship quality → knowledge acquisition	positive	+
Hypothesis 7a	amount of social interaction → competitive scanning	positive	+
Hypothesis 7b	closeness of relational ties → competitive scanning	positive	+
Hypothesis 7c	commitment to relationship quality → competitive scanning	positive	+
Hypothesis 8a	amount of social interaction → proactive searching	positive	+
Hypothesis 8b	closeness of relational ties → proactive searching	positive	+
Hypothesis 8c	commitment to relationship quality → proactive searching	positive	+
Hypothesis 9a	amount of social interaction → innovative behavior	positive	+
Hypothesis 9b	closeness of relational ties → innovative behavior	positive	+
Hypothesis 9c	commitment to relationship quality → innovative behavior	positive	+
Hypothesis 10a	amount of social interaction → collective action	positive	+
Hypothesis 10b	closeness of relational ties → collective action	positive	+
Hypothesis 10c	commitment to relationship quality → collective action	positive	+
Hypothesis 11a	environmental dynamism → knowledge acquisition	positive	+
Hypothesis 11b	environmental dynamism → competitive scanning	positive	+
Hypothesis 11c	environmental dynamism → proactive searching	positive	+
Hypothesis 11d	environmental dynamism → innovative behavior	positive	+
Hypothesis 11e	environmental dynamism → collective action	positive	+
Hypothesis 12a	knowledge acquisition → growth	positive	+
Hypothesis 12b	competitive scanning → growth	positive	+
Hypothesis 12c	proactive searching → growth	positive	+
Hypothesis 12d	innovative behavior → growth	positive	+
Hypothesis 12e	collective action → growth	positive	+
Hypothesis 13a	knowledge acquisition → newness value	positive	+
Hypothesis 13b	competitive scanning → newness value	positive	+
Hypothesis 13c	proactive searching → newness value	positive	+
Hypothesis 13d	innovative behavior → newness value	positive	+
Hypothesis 13e	collective action → newness value	positive	+

Appendix 2. The municipalities in the provinces of Jyväskylä, Oulu, and Vaasa.

Province of Jyväskylä:

-Hankasalmi	-Joutsa	-Jyväskylä
-Jyväskylän maalaiskunta	-Jämsä	-Jämsänkoski
-Kannonkoski	-Karstula	-Keuruu
-Kinnula	-Kivijärvi	-Konnevesi
-Korpilahti	-Kyyjärvi	-Laukaa
-Luhanka	-Multia	-Muurame
-Petäjävesi	-Pihtipudas	-Pylkönmäki
-Saarijärvi	-Sumiainen	-Suolahti
-Toivakka	-Uurainen	-Viitasaari
-Äänekoski		

Province of Oulu:

-Alavieska	-Haapajärvi	-Haapavesi
-Hailuoto	-Haukipudas	-Hyrynsalmi
-Ii	-Kajaani	-Kalajoki
-Kempele	-Kestilä	-Kiiminki
-Kuhmo	-Kuusamo	-Kärsämäki
-Liminka	-Lumijoki	-Merijärvi
-Muhos	-Nivala	-Oulainen
-Oulu	-Oulunsalo	-Paltamo
-Pattijoki	-Piippola	-Pudasjärvi
-Pulkkila	-Puolanka	-Pyhäjoki
-Pyhäjärvi	-Pyhäntä	-Raahe
-Rantsila	-Reisjärvi	-Ristijärvi
-Ruukki	-Sievi	-Siikajoki
-Sotkamo	-Suomussalmi	-Taivalkoski
-Temmes	-Tyrnävä	-Utajärvi
-Vaala	-Vihanti	-Vuolijoki
-Yli-Ii	-Ylikiiminki	-Ylivieska

Province of Vaasa:

-Alahärmä	-Alajärvi	-Alavus
-Evijärvi	-Halsua	-Himanka

-Ilmajoki
-Isojoki
-Isokyrö
-Jalasjärvi
-Jurva
-Karijoki
-Kaskinen
-Kauhajoki
-Kauhava
-Kaustinen
-Kokkola
-Korsnäs
-Kortesjärvi
-Kristiinankaupunki
-Kruunupyy
-Kurikka
-Kälviä
-Laihia
-Lappajärvi
-Lapua
-Larsmo
-Lehtimäki
-Lestijärvi
-Lohtaja
-Maalahti
-Maksamaa
-Mustasaari
-Nurmo
-Närpiö
-Oravainen
-Pedersöre
-Perho
-Peräseinäjoki
-Pietarsaari
-Seinäjoki
-Soini
-Teuva
-Toholampi
-Töysä
-Ullava
-Uusikaarlepyy
-Vaasa
-Veteli
-Vimpeli
-Vähäkyrö
-Vöyri
-Ylihärmä
-Ylistaro
-Ähtäri

Appendix 3. The survey instrument of the study.

Name and company

I. PERSONAL FEATURES

Ensimmäinen kysymysjoukko liittyy yksilöllisiin ominaisuuksiisi yrityksesi perustamishetkellä. Kysymykset on esitetty sivun vasemmassa laidassa ja vastaukset oikeassa laidassa. Lue kysymykset ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii kohdallesi.

1. Mikä seuraavista lähinnä vastaa ylintä suorittamaasi koulutusta yrityksesi perustamishetkellä?	1	= ei muodollista koulutusta
	2	= peruskoulu/kansakoulu/oppikoulu
	3	= ammattikoulu/ammattitutkinto tai lukio
	4	= teknillinen-, kauppa- tai vastaava opisto
	5	= ammattikorkeakoulu
	6	= korkeakoulu/yliopisto
	7	= lisensiaatin-/tohtorin tutkinto
2. Kuinka paljon sinulla oli työkokemusta yrityksesi toimialalta yrityksesi perustamishetkellä?	1	= alle vuosi
	2	= alle 2 vuotta
	3	= alle 4 vuotta
	4	= alle 6 vuotta
	5	= alle 8 vuotta
	6	= alle 10 vuotta
	7	= 10 vuotta tai yli
3. Minkä tavoitteen olit asettanut itsellesi aloittaessasi yritystoiminnan? Merkitse rasti niiden kohdalle, jotka olivat sinulle tärkeitä (laatikkoon) ja numero yksi (1) tärkeimmän kohdalle (vilvalle).	☐ __	= minulla ei ollut erityisiä tavoitteita
	☐ __	= tavoitteeni oli harjoittaa yritystoimintaa työn ohessa
	☐ __	= tavoitteeni oli luoda itselleni työpaikka
	☐ __	= tavoitteeni oli perustaa perheyritys, jonka voisin siirtää myöhemmin esim. lapsilleni
	☐ __	= tavoitteeni oli perustaa yritys, kehittää sitä, myydä se hyvästä hinnasta ja saada "työni hedelmistä"
	☐ __	= tavoitteeni oli perustaa ensin yksi yritys, ja kun sen elinkaari päättyisi, perustaa uusi yritys
	☐ __	= tavoitteeni oli perustaa vähitellen useita yrityksiä ja ylläpitää niitä samanaikaisesti
4. Kuinka hyvin perustamasi yrityksen tuotteet muistuttavat aikalsempien työnantajiesi tuotteita*? * Verraa tilannetta perustamishetkellä, sillä yrityksesi tilanne on voinut muuttua perustamisen jälkeen.	1	= täysin erilaiset
	2	= melko erilaiset
	3	= jonkin verran erilaiset
	4	= neutraali
	5	= jonkin verran samanlaiset
	6	= melko samanlaiset
	7	= täysin samanlaiset

5. Mikä seuraavista lähinnä vastaa teknistä osaamistasi* toimialalla, jolla yrityksesi toimii, yrityksesi perustamishetkellä? *Teknisellä osaamisella tarkoitetaan esim. sydänkirurgin tietoa siitä, mitä analyysejä pitää tehdä ja milloin kannattaa tehdä ohitusleikkaus, mekaanikon tietoa, miten vaihdetaan männänrenkaat ja miksi ne ovat pakollisel moottorissa, rakennusmestarin tietoa, miten kosteus rakenteissa vaikuttaa ja miten kosturninen estetään, tai tietokoneohjelmoijan tietoa, miten tehdään ohjelma, joka esim. ohjaa autoa, ja miksi se on niin vaikeaa, että sen kehittely vie vuosia.	1 2 3 4 5 6 7	= ei juurikaan osaamista = aloittelija, jolla vähän osaamista = harjoittelija, jolla on jonkin verran osaamista = ammattimies/-nainen, joka osaa asiansa = asiantuntija, jonka osaaminen on korkeatasoista = huippuosaaja, jonka osaaminen on alan kärkitasoa = alan yksi johtavista osaajista, jonka osaaminen on erittäin korkeatasoista
6. Kuinka paljon sinulla oli johtamiskokemusta* yrityksesi perustamishetkellä? *Johtamiskokemuksella tarkoitetaan vastuuta päätöksenteosta, asioiden suunnittelusta, toteuksesta ja valvonnasta sekä alaisten ohjaamisesta, opettamisesta ja kehittämisestä	1 2 3 4 5 6 7	= alle vuosi = alle 2 vuotta = alle 4 vuotta = alle 6 vuotta = alle 8 vuotta = alle 10 vuotta = 10 vuotta tai yli
7. Kuinka hyvin perustamasi yrityksen asiakkaat muistuttavat aikaisempien työnantajiesi asiakkaita*? * Vertaa tilannetta perustamishetkellä, sillä yrityksesi tilanne on voinut muuttua perustamisen jälkeen.	1 2 3 4 5 6 7	= täysin erilaiset = melko erilaiset = jonkin verran erilaiset = neutraali = jonkin verran samanlaiset = melko samanlaiset = täysin samanlaiset
8. Kuinka paljon sinulla oli aikaisempaa yrittäjäkokemusta* yrityksesi perustamishetkellä? *Yrittäjyyskokemuksella tarkoitetaan aikaisempaa omistusta tai huomattavaa osakkuutta yrityksessä, jossa päätöksentekovalta ja vastuu asioiden hoitamisesta oli sinulla ja kumppanillasi.	1 2 3 4 5 6 7	= alle vuosi = alle 2 vuotta = alle 4 vuotta = alle 6 vuotta = alle 8 vuotta = alle 10 vuotta = 10 vuotta tai yli
9. Kuinka hyvin perustamasi yrityksen toimittajat muistuttavat aikaisempien työnantajiesi toimittajia*? * Vertaa tilannetta perustamishetkellä, sillä yrityksesi tilanne on voinut muuttua perustamisen jälkeen.	1 2 3 4	= täysin erilaiset = melko erilaiset = jonkin verran erilaiset = neutraali

10. Mitkä olivat sinulle tärkeitä syitä perustaa oma yrityksesi? Lue väittämät ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Ota kantaa väittämiin (a – j) käyttäen asteikkoa, jossa:

1 = erittäin vähän tärkeä, 2 = vain vähän tärkeä, 3 = jonkin verran tärkeä, 4 = keskinkertaisen tärkeä, 5 = alka huomattavan tärkeä, 6 = huomattavan tärkeä ja 7 = erittäin huomattavan tärkeä.

	erittäin vähän tärkeä			*keskin-kertaisen tärkeä*			*erittäin huomattavan tärkeä*
a. Tavoitteeni oli saavuttaa korkea henkilökohtainen varallisuus.	1	2	3	4	5	6	7
b. Tavoitteeni oli saavuttaa arvostusta.	1	2	3	4	5	6	7
c. Tavoitteeni oli osoittaa, että pystyn siihen.	1	2	3	4	5	6	7
d. Tavoitteeni oli henkilökohtainen kehittyminen.	1	2	3	4	5	6	7
e. Tavoitteeni oli parantaa mahdollisuuksiani saavuttaa korkeammat tulot.	1	2	3	4	5	6	7
f. Tavoitteeni nouttia yrittäjyyden luomasta jännityksestä.	1	2	3	4	5	6	7
g. Tavoitteeni oli päästä tekemään sellaista työtä, josta pidän.	1	2	3	4	5	6	7
h. Tavoitteeni oli nostaa tulotasoani.	1	2	3	4	5	6	7
i. Tavoitteeni oli työ, jossa on henkilökohtaista haastetta.	1	2	3	4	5	6	7
j. Tavoitteeni oli luoda menestyvä yritys.	1	2	3	4	5	6	7

11. Minkälaisena näet omat ideointitaitosi? Lue väittämät ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Ota kantaa seuraaviin väittämiin (a – j) käyttäen asteikkoa, jossa:

1 = täysin eri mieltä, 2 = melko eri mieltä, 3 = jonkin verran eri mieltä, 4= neutraali, 5 = jonkin verran samaa mieltä, 6 = melko samaa mieltä ja 7 = täysin samaa mieltä.

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
a. Minulla on valtavasti ideoita.	1	2	3	4	5	6	7
b. Pyrin usein etsimään uusia ratkaisuja, silloinkin kun sitä ei ehkä odoteta.	1	2	3	4	5	6	7
c. Olen herkkä näkemään ongelmia, joihin voisi etsiä uudenlaisia ratkaisuja.	1	2	3	4	5	6	7
d. Ideani ovat usein hyvin omaperäisiä.	1	2	3	4	5	6	7
e. Olen hyvä kyseenalaistamaan totuttuja toimintatapoja.	1	2	3	4	5	6	7
f. Minun on helppo löytää parannusehdotuksia ratkaisuihin	1	2	3	4	5	6	7

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
h. Kun "seinä tulee eteen", pystyn löytämään kiertotien aivan uudesta suunnasta.	1	2	3	4	5	6	7
i. Keksin ongelmiin erikoisia ja yllättäviä ratkaisuja.	1	2	3	4	5	6	7
j. Kun näen uuden ratkaisun, alkaa runsaasti täydentäviä yksityiskohtia virtaamaan mieleeni.	1	2	3	4	5	6	7

II. SOSIAALISET SUHTEET

Toinen kysymysjoukko liittyy sosiaalisiin suhteisiisi yrityksen perustamishetkellä. Kysymykset on muotoiltu välttämättä (15 kpl). Niiden avulla selvitetään suhteita ihmisiin, joiden kanssa keskustelit, pohdit, suunnittelit, teit arvioita tms. yrityksestäsi ja jotka pystyivät auttamaan sinua yrityksen perustamisessa. He voivat olla esim. asiakkaita, työkavereita, esimiehiä, alaisia, yrittäjiä, hankkijoita, jakelijoita, perheitä, rahoittajia, keksijöitä jne. Mieti siis ensin keiden kanssa keskustelit yrityksestäsi ja mieti sitten edelleen keitä heistä pystyivät auttamaan sinua jollakin tavalla yrityksesi perustamisessa. Tässä ollaan kiinnostuneita näistä sinua auttaneista ihmisistä ja kysymykset koskevat heitä.

Lue väittämät ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Ottaaksesi kantaa väittämiin käytä asteikkoa, jossa:

1 = täysin eri mieltä, 2 = melko eri mieltä, 3 = jonkin verran eri mieltä, 4= neutraali, 5 = jonkin verran samaa mieltä, 6 = melko samaa mieltä ja 7 = täysin samaa mieltä.

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
1. Minä ja he, jotka pystyivät auttamaan minua konkreettisesti yritykseni perustamisessa, ymmärrämme ja hyväksymme toistemme tavoitteet.	1	2	3	4	5	6	7
2. Keskustelin yritykseni perustamisesta hyvin monen sellaisen henkilön kanssa, joka pystyi auttamaan minua yritykseni perustamisessa.	1	2	3	4	5	6	7
2.1. Etsi lukumäärä (esim. 5), kuinka monen kanssa:_____							
3. Suhteissani henkilöihin, jotka pystyivät auttamaan minua yritykseni perustamisessa, kumpikaan osapuoli ei käyttäisi toistaan hyväkseen, vaikka siihen tarjoutuisi tilaisuus.	1	2	3	4	5	6	7
4. Minulla on läheiset suhteet henkilöihin, jotka pystyivät auttamaan yritykseni perustamisessa.	1	2	3	4	5	6	7
5. Sain henkilöiltä, jotka pystyivät auttamaan yritykseni perustamisessa, tärkeää informaatiota.	1	2	3	4	5	6	7
6. Suhteeni, jotka auttoivat yritykseni perustamisessa, auttoivat avaamaan ovet moninaisten muiden yritykseni perustamisen kannalta tärkeiden henkilöiden luo.	1	2	3	4	5	6	7
7. Suhteissani henkilöihin, jotka auttoivat minua yritykseni perustamisessa, molemmat osapuolet välittävät vahingoittamasta vakavasti toisten etuja.	1	2	3	4	5	6	7
8. Henkilöt, jotka pystyivät auttamaan yritykseni perustamisessa, pitävät aina lupauksensa.	1	2	3	4	5	6	7

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
9. Minulla on hyvin monia sellaisia suhteita, jotka pystyivät auttamaan minua yritykseni perustamisessa	1	2	3	4	5	6	7
10. Henkilöiden, jotka pystyivät auttamaan yritykseni perustamisessa, asiantuntemus oli suureksi avuksi.	1	2	3	4	5	6	7
11. Sain niiden henkilöiden kautta, jotka auttoivat minua yritykseni perustamisessa, paljon uusia, yrityksen perustamisessa hyödyllisiä kontakteja.	1	2	3	4	5	6	7
12. Henkilöillä, jotka auttoivat minua yritykseni perustamisessa, on samanlaiset päämäärät, kuin minulla	1	2	3	4	5	6	7
13. Tunnen erittäin hyvin ne henkilöt, jotka pystyivät auttamaan yritykseni perustamisessa	1	2	3	4	5	6	7
14. Henkilöt, jotka pystyivät auttamaan yritykseni perustamisessa, olivat tukenani vaikeissakin tilanteissa.	1	2	3	4	5	6	7
15. Hankin niiden henkilöiden, jotka pystyivät auttamaan yritykseni perustamisessa, avulla konkreettisia resursseja yritykseni toiminnalle.	1	2	3	4	5	6	7

III. KILPAILUYMPÄRISTÖ

Kolmas kysymysjoukko kartoittaa yrityksesi kilpailuympäristöä. Kysymykset on muotoiltu väittämiksi (9 kpl). Niiden kautta pyritään hahmottamaan yrityksesi toimialan muutosnopeutta tästä hetkestä kolme vuotta taaksepäin (vaikka yrityksesi olisi vain kaksi vuotta vanha, olet varmaan seurannut alaasi tavalla tai toisella ainakin sen kolme vuotta).

Lue väittämät ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Ottaaksesi kantaa väittämiin käytä asteikkoa, jossa:

1 = täysin eri mieltä, 2 = melko eri mieltä, 3 = jonkin verran eri mieltä, 4= neutraali, 5 = jonkin verran samaa mieltä, 6 = melko samaa mieltä ja 7 = täysin samaa mieltä.

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
1. Yritysten toimet ovat toimialallani olleet ennustettavissa viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7
2. Kysynnän ja asiakkaiden mieltymysten muutokset ovat toimialallani olleet hyvin vaikeasti ennakoitavissa viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7
3. Toimialallani tuotteet ja palvelut ovat muuttuneet erittäin nopeasti vanhanaikaisiksi viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7
4. Toimialani tuotantoteknologia ja/tai tapa tuottaa palveluita ei ole juurikaan muuttunut viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
5. Toimialallani tavat markkinoida tuotteita/palveluita muuttuvat hitaasti	1	2	3	4	5	6	7
6. Yritysten toimet toimialallani ovat olleet arvaamattomia viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7
7. Toimialani tuotteita ja palveluita on viimeisen kolmen vuoden aikana voinut myydä pitkiä aikoja ilman, että niihin on tarvinut tehdä mitään muutoksia.	1	2	3	4	5	6	7
8. Toimialani tuotantoteknologia on kehittynyt ja muuttunut hyvin paljon viimeisen kolmen vuoden aikana.	1	2	3	4	5	6	7
9. Toimialallani on täytynyt erittäin usein muuttaa tapoja markkinoida tuotteita/palveluja viimeisen kolmen vuoden aikana, jotta on pysynyt kilpailijoiden perässä.	1	2	3	4	5	6	7

IV. YRITYSMAHDOLLISUUDEN HAHMOTTAMINEN

Ohje: Yrityksen alkuvaihe ennen varsinaista liiketoimintaa voidaan jakaa kolmeen vaiheeseen: mahdollisuuden hahmottamiseen, suunnitteluun ja käytännön perustamiseen. Mahdollisuuden hahmottamisessa pyritään löytämään sellainen YRITYSIDEA, johon tarttumalla voi palvella asiakasta niin, että yritys tuottaa voittoa. Suunnittelussa rakennetaan "paperilla" ja/tai mielessä toimintakokonaisuus, jolla mahdollisuuden voisi toteuttaa ja joka toimisi käytännössä. Käytännön perustamisessa yritys pannaan sitten todellisuudessa pystyyn. Nämä vaiheet tapahtuvat siis ennen kuin asiakkaan palvelusta "kilahtaa markkoja kassaan". Tässä nyt ollaan kiinnostuneita mahdollisuuden hahmottamisesta. Mahdollisuudella tarkoitetaan tässä sellaista tarvetta tai puutetta markkinoilla, jota palvelemalla tuotteilla/palveluilla voidaan luoda sellaista arvoa asiakkaalle, että hän on valmis maksamaan siitä hintaa, josta jää yritykselle sellaista voittoa, että toiminta kannattaa pitkällä aikavälillä. Kyseiset vaiheet toki todellisuudessa ovat osittain päällekkäisiä, mutta pyytäisin silti sinua muistelemaan, mitä ja miten teit asioita, kun hahmottelit mahdollisuutta yritystoiminnallesi. Kysymykset on muotoiltu väittämiksi (25 kpl).

Lue väittämät ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Ottaaksesi kantaa väittämiin

1 = täysin eri mieltä, 2 = melko eri mieltä, 3 = jonkin verran eri mieltä, 4= neutraali, 5 = jonkin verran samaa mieltä, 6 = melko samaa mieltä ja 7 = täysin samaa mieltä.

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
1. Keräsin hahmottaakseni yritysmahdollisuuden paljon tietoa alan myynnistä, asiakkaiden mieltymyksistä, teknologiasta jne.	1	2	3	4	5	6	7
2. Tein hyvin järjestelmällisesti työtä hahmottaakseni yritysmahdollisuuden.	1	2	3	4	5	6	7
3. Hankin hahmottaakseni yritysmahdollisuuden paljon tietoa markkinoista.	1	2	3	4	5	6	7
4. Hahmottelin asioita usein useamman vuoden tähtäimellä, kun etsin yritysmahdollisuutta.	1	2	3	4	5	6	7
5. Käytin usein asiantuntijoita apuna yritysmahdollisuuden hahmottamisessa.	1	2	3	4	5	6	7
6. Pyrin hyvin aktiivisesti hahmottamaan sellaisen yritysmahdollisuuden, joka olisi selkeästi edellä kilpailijoitani tuotteiden uutuudessa ja uusien ideoiden esiintuomisessa.	1	2	3	4	5	6	7

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
7. Keräsin hahmottaakseni yritysmahdollisuuden paljon tietoa kilpailijoiden toiminnasta.	1	2	3	4	5	6	7
8. En suunnitellut tarkkaan yritysmahdollisuuden etsimistäni, vaan se pikemminkin tapahtui ja kehittyi ajan myötä itsestään.	1	2	3	4	5	6	7
9. Hahmottaakseni yritysmahdollisuuteni tein paljon ennusteita myynnistä, voitosta ja markkinoiden luonteesta.	1	2	3	4	5	6	7
10. Keräsin hahmottaakseni yritysmahdollisuuden paljon tietoa asiakkaiden tarpeista, suunnitelmista ja mielipiteistä.	1	2	3	4	5	6	7
11. Hahmotellessani yritysmahdollisuutta kokeilin ja leikin mielessäni monenlaisilla uudentyyppisillä ja alalle uusilla yritysideoilla.	1	2	3	4	5	6	7
12. Pyrin aktiivisesti hahmottamaan yritysmahdollisuuden, jossa olisi korkeat tuotot, valkkakin myös korkea riski, mieluummin kuin hyväksyin idean, jossa oli alhaiset tuotot ja myös riski.	1	2	3	4	5	6	7
13. Käytin tietoisesti aikaa luovaan pohdiskeluun etsiessäni yritysmahdollisuutta.	1	2	3	4	5	6	7
14. Suunnittelin toimintaani jo yritysmahdollisuuden havaitsemisvaiheesta lähtien pidemmällä (esim. 3 vuoden) tähtäimellä.	1	2	3	4	5	6	7
15. Hahmottaakseni yritysmahdollisuuden teln paljon ennusteita teknologiasta, joka tulisi olemaan tärkeää yritykseni tuotteille ja palveluille.	1	2	3	4	5	6	7
16. Hahmottelin mieluummin yksikseni yritysmahdollisuuteni, kuin teln sen yhteistyössä muiden kanssa	1	2	3	4	5	6	7
17. Hahmottaakseni yritysmahdollisuuden teln paljon ennusteita tulevista investointitarpeista.	1	2	3	4	5	6	7
18. Pyrin hyvin aktiivisesti hahmottamaan yritysmahdollisuuden, joka olisi kasvu-, innovaatio- ja kehitysuuntautunut ennemmin kuin perinpohjin kokeiltu ja varma idea.	1	2	3	4	5	6	7
19. Käytin hahmottaakseni yritysmahdollisuuden hyvin usein systemaattista tapaa etsiä ja arvioida uusia markkinoita, uusia tuotteita, uusia tuotantoteknologioita jne.	1	2	3	4	5	6	7
20. Pyrin hyvin aktiivisesti hahmottamaan yritysmahdollisuutta, joka "löisi kilpailijat laudalta" eikä antaisi antaisi "kaikkien kukkien kukkia".	1	2	3	4	5	6	7
21. Käytin yritysmahdollisuuden hahmottamisessa usein tietoteknisiä apuvälineitä.	1	2	3	4	5	6	7
22. Pyrin hyvin aktiivisesti hahmottamaan yritysmahdollisuutta, jossa toimittaisiin rohkeasti ja laajamittaisesti ja jossa vältettäisiin liian varovaista ja perinpohjaisesti tutkittua toimintatapaa.	1	2	3	4	5	6	7
23. Yritysmahdollisuuden hahmottamiseksi neuvottelin ja keskustelin erittäin mielelläni toisten kanssa siihen liittyvistä asioista.	1	2	3	4	5	6	7
24. Hahmottaakseni yritysmahdollisuuden pyrin hakemaan uusia, omaperäisiä ideoita.	1	2	3	4	5	6	7

V. TOTEUTUMINEN

Kuudes kysymysjoukko liittyy yrityksesi liikeidean toteutumiseen. Kysymyksiä on 12 kappaletta. Tarkastele yritystäsi tästä hetkestä taaksepäin ja mieti, miten yrityksesi liikeidea on toteutunut suhteessa seuraaviin kysymyksiin.

Lue kysymykset ja YMPYRÖI numero sen vastauksen kohdalta, joka parhaiten sopii sinun kohdallesi. Valitse vain yksi vastaus ja pyri vastaamaan kaikkiin väittämiin. Otteeksesi kantaa käytä asteikkoa:

1 = täysin eri mieltä, 2 = melko eri mieltä, 3 = jonkin verran eri mieltä, 4= neutraali, 5 = jonkin verran samaa mieltä, 6 = melko samaa mieltä ja 7 = täysin samaa mieltä.

	täysin eri mieltä			*neutraali*			*täysin samaa mieltä*
1. Yritykseni myynti on kasvanut yli 20 % vuosittain.	1	2	3	4	5	6	7
2. Yritys on osoittanut, että omistajat saavat nopeasti sijoituksilleen katetta.	1	2	3	4	5	6	7
3. Yritykseni myynti on kasvanut nopeammin kuin kilpailijoiden myynti.	1	2	3	4	5	6	7
4. Yritykseni on tuonut markkinoille enemmän uusia tuotteita kuin kilpailijat	1	2	3	4	5	6	7
5. Yritykseni myynti nyt kerryttää kassaan tuloja enemmän kuin menoina pitää maksaa ulos.	1	2	3	4	5	6	7
6. Yritykseni työntekijöiden määrä on lisääntynyt nopeasti.	1	2	3	4	5	6	7
7. Yritykseni on tuonut paljon uudentyyppisiä, innovatiivisia tuotteita markkinoille.	1	2	3	4	5	6	7
8. Yritykseni markkina-arvo* on kasvanut nopeammin kuin kilpailijoiden. * markkina-arvolla tarkoitetaan tässä hintaa, joka yrityksestä saataisiin, jos se nyt myytäisiin kokonaisuudessaan.	1	2	3	4	5	6	7
9. Yritykseni tuotteet ovat olleet uutuudeltaan kehittyneempiä kuin kilpailijoiden. • *Huom! Seuraavien kolmen kysymyksen kohdalla vastaa viivalle.*	1	2	3	4	5	6	7

10. Yritykseni saavutti kannattavuusrajan _____ kuukaudessa käynnistämisestä.

11. Yritykseen toiminnan alussa sijoitetut pääomat maksavat itsensä takaisin _____ vuodessa.

12. Yritys tuottaa tällä hetkellä sijoitetulle pääomalle _____ %:n tuoton*.
* tuotto = tulos ennen veroja jaettuna taseen kokonaissummalla

VI. TAUSTATEKIJÄT

Seitsemäs kysymysjoukko kartoittaa vaikuttavia taustatekijöitä. Kysymyksiä on yksitoista (11). Pyydän, että VASTAISIT niihin kaikkiin.

1. Vastaajan ikä ja sukupuoli: _____

2. Kuinka monta vuotta olet työskennellyt toimialalla, jolla yrityksesi on? _____

3. Onko vastaaja yrityksen perustaja/perustajia (rasti viivalle): __ Kyllä __ Ei→ kuka tai keitä olivat: _____

4. Yrityksesi ensimmäinen asiakassuhde (vuosi ja kuukausi): _____

5. Yrityksesi (a) kotipaikka, jonne rekisteröity, ja (b) toimipaikat (paikkakunnat): _____

6. Arvioi kuinka monen kilometrin säteellä yrityksesi toimipaikasta/toimipaikoista 80% asiakkaista asuu: _____

7. Yrityksesi työntekijöiden lukumäärä perustamishetkellä:_____

8. Yritykseesi sijoitettu oma- ja vieras alkupääoma: _____

9. Yrityksesi toiminta:_____

10. Onko yritys (rasti viivalle) __ vastaajan itsensä/kumppanien kanssa perustettu, __ toimivana hankittu vai __ vanhemmilta/muulta perity?

11. Onko teillä ollut aikaisemmin, tai on tällä hetkellä, muita yrityksiä? Jos on ollut, mitä: _____

KIITOS PALJON AJASTANNE JA VÄIVÄNNÄÖSTÄNNE!