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ENTREPRENEURIAL NETWORKS

A Study of the Impact of Social Networks and Resource Access on the Start-up of New Organizations

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CHAPTER 1: PURPOSE AND PERSPECTIVE

1.1. Purpose of the study

The *overall question* to be addressed in this study is ***how the use of social networks and access to resource affect entrepreneurship.*** This question will be answered through an empirical investigation of actual and prospective entrepreneurs.

Both the concept of social networks and the concept of entrepreneurship are used on a broad range of phenomena. In this study social networks will be defined as a pattern of lasting social relationships between people, and the networks will be investigated from the entrepreneur's point of view. Social networks have structure and process aspects. If the structural side of social networks is the focus, issues such as where the entrepreneur is placed in relation to other persons (the position) are considered. On the other hand, if the process side of social networks is the focus, issues such as the use of social networks and the strength of ties are discussed [1]. In this study both the structure and the process aspects of the social networks will be investigated. To a certain degree, the relationship between structure and process will also be focused on. For example, the relationship between network size and the development of the social network will be explored.

In the literature on this field, the term entrepreneurship covers the creation of new enterprises, innovation, and even the management of small enterprises (Mosted 1991). In this study, the concept is related to the

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[1] When the terms social networks, social network *properties*, or social network *characteristics* are used later in this dissertation, they will include both process and structural aspects.

creation (start-up) of a new organization. This means that the element of innovation in the venture and issues related to the management of small enterprises will not be discussed.

The overall question formulated in the first paragraph has to be specified in order to give a clear direction for the study. We have therefore formulated three goals that are discussed below.

The first goal of this study is to develop and test a new model describing the relationship between the social network, resources and entrepreneurship.

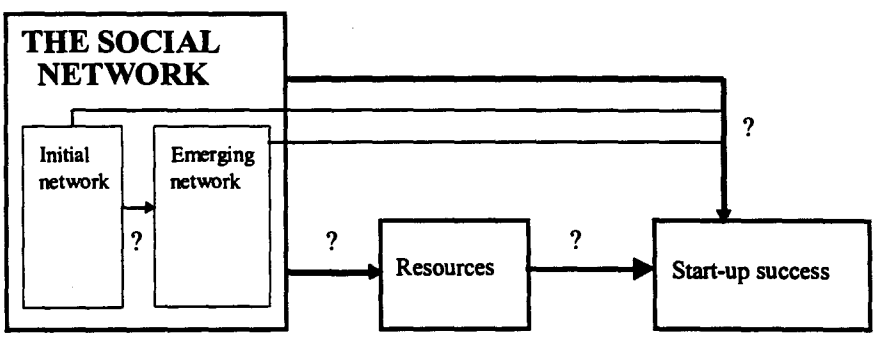
In the mainstream of empirical studies on how social networks affect start-up, there seems to be a direct link between social network and entrepreneurship. Resources are not used as an intervening variable. The focus in these studies has been on the structural properties of the social network and not on with what kind of resources the network supports the entrepreneur.

Other researchers like Greve and Foss (1990), Reese (1992), and Foss (1994) argue that the resource variable is an important intervening variable between social networks and entrepreneurship. However, we are not aware of anyone other than Foss (1994) who has actually integrated the resource variable as an intervening variable in an empirical study. She found evidence for the necessity of using resources as an intervening variable in her study of cod farmers.

From our point of view, both the model with a direct link between social networks and entrepreneurship and the model with resources simply as an intervening variable have their shortcomings. We agree with the researchers who underscore the importance of the resource variable as an

intervening variable. The importance of social networks can probably not be understood without understanding the relationships between the network and the resources it gives access to and between the resources and the effects these have on start-up success. However, the argument may inaccurately imply that an entrepreneur who is effective in developing and using his or her social network in order to receive necessary resources will be a successful entrepreneur. Such a goal-oriented strategy may not always guarantee start-up success. There is probably "something" in the relationships between the social network and start-up success that is outside the control of the entrepreneur. As will be discussed, it may be hard to specify all the resources that are transferred through the social network. Also, some of the resources might be tacit in the social network, or the network itself may be viewed as a resource. Based on this, we will argue that there are two paths between social networks and entrepreneurship. One goes through resources and a second goes directly from the social network properties to entrepreneurship. Second, we assume that the social network can be divided into two categories: the existing network before the entrepreneurial processes (the initial network) and the network developed during the entrepreneurial processes (the emerging network). Third, we assume that the initial network influences the development of the emerging network. The model with the assumed paths can be drawn as shown in figure 1.1:

Figure 1.1: General model for the study



Foss (1994) also argues that both social networks and resources are intervening variables. First, as done in this study, she views resources as an intervening variable between social network and start-up. Second, she views social networks as an intervening variable between human capital and resources. Human capital is a quality of the individual (Burt 1997) and is measured by variables such as education and work experience. Foss' results indicate that the human capital of entrepreneurs may have a minor impact on the social network. However, she also found a direct relationship between human capital and start-up success. For reasons that will be discussed in the chapter where the model is developed (3), we have decided not to make these links in our model.

One critical issue concerning the testing of the relationship between social networks and entrepreneurship is the reliability of the causal conclusion of the effect of social networks on entrepreneurship. Aldrich and Zimmer underscored in 1986 that none of the studies of Granovetter's (1973) assumptions concerning the importance of weak ties for access to information have focused on entrepreneurship (p. 20). Since 1986, there have been a few empirical studies of social network and entrepreneurship (see 2). The dependent variable in most of these studies has been the phases of entrepreneurship. Usually the entrepreneurial process is divided into the idea, the planning, and the business establishment phase (Wilken 1979, Garnes 1982). The studies have indicated that social network characteristics such as size, density, diversity and time spent on networking, vary dependent upon the phase of entrepreneurship (Aldrich, Rosen and Woodward, 1986; Johannisson and Johnsson, 1988; Greve and Foss, 1990; Greve and Gattiker; 1998). The focus on entrepreneurial phases indicates that there may be a causal relationship between social network (like time used on networking and network density) and entrepreneurship. However, none of these studies have made it possible to draw reliable conclusions about the causal relationship (Greve 1991). This discussion shows that it is

important to increase the possibility to draw more reliable causal conclusions concerning the relationship between social networks and start-ups.

To deal with this question of causality respondents selected for this study had different levels of start-up success. In other words this study makes it possible to test the impact of social networks on the degree of start-up success. Foss (1994) made a first step in this direction, by studying persons who had received a license to start codfish farming. She compared the social network of those who actually started cod farming with those who did not start. However, her tests were done within only one group of businesses (cod farming).

The second goal concerns the details of the social network arguments. The importance of weak ties (Granovetter 1973) such as a low degree of friendship, has been focused on in a few entrepreneurship studies (Aldrich, Rosen and Woodward 1986). Burt (1992) has further developed Granovetter's ideas. For the Burt, the number of weak ties is not the important aspect of the social network. However, weak ties are assumed to correlate positively with the number of non-redundant relationships. According to Burt (1992) the degree of redundancy in the social network is the critical phenomenon. Contacts are highly redundant to the extent that they lead back to the same people. A network with low redundancy is assumed to give the entrepreneur access to the necessary variety of information resources.[2]

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[2] Redundancy is a measure of the cohesion in social networks. It is not a synonym for variety or diversity. However, because a low degree of redundancy means that few of the entrepreneur's contacts know each other, it will most often imply a certain degree of diversity. At least this is the case if Burt's (1992) argument that low redundancy gives access to a *diverse* set of information resources is true.

On the other hand, other researchers have argued that strong ties are necessary for generating entrepreneurial action and for getting social support (Johannisson 1988). This point can also be derived from Brunsson (1985). He underscores the need for social support to promote action and argues that too much information can counteract action. However, it seems reasonable to argue that strong ties can compensate for the uncertainty developed from much pro-and-contra information provided through a diverse set of social ties (see for example Brunsson 1985). This indicates that the entrepreneur needs both weak and strong ties.

There is much literature on the importance of weak ties or strong ties for entrepreneurship. However, in most of this literature the relationship (or balance) between weak and strong ties is not explored except for statements that assume that it is the balance of weak and strong ties that makes the difference (Dubini and Aldrich 1991). Also, as far as we know, there have not been any studies that have focused mainly on the relations or balance of the effect of strong and weak ties on entrepreneurship.

The notion of the entrepreneur as a "networking man" (Johannisson 1988) indicates that the effect of networking (the development and use of the social relationships) cannot be accounted for only by concepts such as size, strength, density, etc. It will also be related to the timing of the networking. Successful entrepreneurs may develop more new relationships during the entrepreneurial process than non-successful entrepreneurs. Johannisson's (1988) arguments imply that the networking is closely related to the actual entrepreneurial process. Other researchers have underscored the importance of long-lasting relationships (Greve and Gattiker 1994). Consequently, it will probably be important to make a distinction between the initial network and the relationships developed during the entrepreneurial process (the emerging network).

These and other issues, which will be discussed later, indicate that there are several questions yet to be answered on how social networks relate to entrepreneurship.

The second goal in this study is therefore to further develop the social network arguments, i.e. increase knowledge of what kind of social network properties are important for entrepreneurship.

The third goal is related to the generality of the social network approach. We are not aware of any attempts to use the social network approach to study start-up processes of volunteer organizations. Most research on entrepreneurship has been in a business context. A few researchers have also focused on entrepreneurial activity in public offices (Holbek 1987) but these studies have not been from a social network approach and they have not focused on the start-up aspect of entrepreneurship.

Today there are many volunteer organizations and they are an important part of a modern society. It is therefore important to understand how they are established. We know that social networks probably have effects on business performance (see for example Granovetter 1985, Burt 1992). However, the social network approach as such is not based upon market economy theories and is not necessarily linked to business contexts. It is therefore of great interest to investigate how social network affects the establishment of organizations other than businesses.

The third goal is to test whether or not the social network properties that give advantage in the entrepreneurial process are similar across different types of organizations.

The use of both business and church entrepreneurs[3] as respondents will contribute to the understanding of the generality of the social network perspective across different types of organizations.

As this introduction shows, we will use the social network perspective as the main theoretical basis for this study. However, it will also be necessary to on other theories. The arguments concerning the resource variable will mainly be drawn from resource dependency theory (see 3). We will also use some arguments from institutional theory. These latter arguments will be related especially to the discussion of the direct effect between social networks and entrepreneurship.

We will assume that the entrepreneur, within certain limits, intentionally can build better social networks. In other words it is, as Andersen (1989) argues, possible to learn how to build better social networks. This study, therefore, should help us learn to build better social networks for entrepreneurial purposes.

1.2. Why Study Both Business and Church Entrepreneurs?

It is always necessary to be careful when one tries to use theories on new types of units of analysis (eg. churches) and in new contexts. On the other hand, the social network approach does not presuppose a business context. As mentioned, this approach probably has effects on business performance. However, the approach as such is not based upon market economy theories.

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[3] Business and church entrepreneurs are defined in the same manner: persons that create new businesses or new churches.

Therefore, it might even be argued that the social network approach is of more relevance to the development of other types of organizations than businesses, because other organizations might be driven less by the market forces than businesses are.

In most market economic theories, a clear distinction is made between business and non-profit organizations. This is usually caused by differences in purpose. In the sociologically oriented literature, this distinction is seen as less important. For example, Powell (1991 p. 184) argues that a clear separation between profit and non-profit organizations "seeds too much terrain to market processes".

In the institutional tradition organizations are defined as "systems of coordinated and controlled activities" which are developed "when work is embedded in complex networks of technical relations and boundary-spanning exchanges" (Meyer and Rowan, 1991, p. 41). Institutional theory emphasizes that organizations must be understood by investigating their relationships to the institutional environment (Meyer and Rowan, 1991). Hence, both businesses and churches, which are examined in this study, can be defined in the same terms.

Sometimes the concept of church is not related to a formal organization. However, in this study the term will be used to describe a formally organized church or congregation. Furthermore, this study will be limited to churches that have at least one public service every second week. This limitation is in line with the definition of churches used by Brierley (1991) in his study of Christianity in England.

In this study, churches are seen as examples of voluntary organizations. As far as we know, this study will be the first one to use the social network approach on entrepreneurship to other areas than business organizations.

Therefore, it will examine how useful this approach is to voluntary and non-profit organizations, and especially to the development of new churches.

The focus on churches also gives an advantage compared with other voluntary organizations. In most areas there are relatively few new start-ups. However, there has been a steady growth of new churches during the last 10 to 15 years in Norway (Jenssen 1994). This makes it possible to obtain a large enough sample of newly developed organizations for this study. In addition, the focus on churches also springs out of my personal interest in these kinds of organizations.

1.3. How the Dissertation is Organized

This dissertation is divided into six chapters. The purpose of this study has been presented in this chapter. In the second chapter the social network perspective will be presented and empirical studies will be examined. The theory, hypotheses and model are developed in the third chapter. Method and descriptive statistics are discussed in the fourth chapter. The tests of hypotheses are discussed in the fifth chapter. In the sixed and last chapter the conclusions are drawn and implications are stated.

1.4. Summary

The overall goal of this study is to investigate how social networks affect the start-up of a new organization (entrepreneurship). The overall goal is divided into three sub-goals. The first sub-goal is to develop and test a new model of the relationship between social networks and start-up. Considering earlier studies of the relationship between social networks and entrepreneurship, we have argued that it is important to increase the possibility to draw reliable conclusions regarding the effect of social

networks on start-up success. This will be done by using entrepreneurs with different degrees of success as the dependent variable. In most earlier studies entrepreneurial stages have been the dependent variable. The second sub-goal is to further investigate what kind of social network properties are important for the entrepreneurs. The third sub-goal is to test whether the advantageous social network properties are similar across different types of organizations.

CHAPTER 2: THEORETICAL PERSPECTIVES AND EMPIRICAL STUDIES

2.1. Introduction

In the first chapter the goals and the perspective of this study were presented. In this chapter theoretical perspectives on entrepreneurship and the development of the social network perspective will be discussed. Thereafter the social network perspective including key concepts will be explored. In the study of entrepreneurship we will argue that the social network perspective and the resource dependency theory are closely related. Therefore this issue will be addressed in this chapter. Finally, empirical studies of entrepreneurship using a social network perspective will be reviewed.

There have been several research projects carried out during the last few years that lie within or are closely related to the perspective chosen for this study. These studies provide a basis of accumulated knowledge and a careful review of them reveals gaps in knowledge that is necessary in order to develop and positioning a fruitful study. Therefore, the empirical studies that are most relevant to this study are reviewed in this chapter.

The studies reviewed here can be divided into two categories. The first group of studies, which are surveys, have been done within the context of business entrepreneurship. The underlying theory is that social network properties are important for entrepreneurship because they give access to resources. It is also assumed that different types of social network properties (for example weak vs. strong ties) give access to different

categories of resources (for example information vs. material resources). However, resources are not a variable in most of these studies. The independent variable is usually social network properties and the dependent variable represents entrepreneurship (most often measured as entrepreneurial phases).

A second group of studies have been done within the context of church entrepreneurship. These studies are not only different from the business entrepreneurship studies because of the unit of analysis. They are also different because most of these studies tend to be more informal than the business studies. Many of them are based upon one or a few cases. This makes it necessary to separate the discussion of business and church entrepreneurship studies. This chapter will therefore be organized in the following manner:

Since the network approach on entrepreneurship has been developed in the field of business creations, these studies are presented first and discussed in order to single out the issues that are important. Then the church entrepreneurship studies are presented. Finally, the results of the church entrepreneurship studies are compared with the business entrepreneurship studies. This gives the necessary base for understanding how to expand the network approach into the church entrepreneurship context.

2.2. Theories of Entrepreneurship

The social network perspective is a relatively new approach to entrepreneurship. It has partly been developed as a reaction to earlier theories of entrepreneurship (Aldrich and Zimmer 1986). Earlier theories can be divided into three main categories: theories that emphasize personality traits, social-cultural theories, and economic theories (Aldrich

and Zimmer 1986).

First, personality-based theories on entrepreneurship assume that personal traits give particular people an advantage in entrepreneurial activities. The list of traits is very long. Examples that have been proposed are the need for achievement motivation (McClelland 1961, Singh 1989), high propensity to take risks (Brockhaus 1980b), internal locus of control (Brockhaus 1975, 1980a, 1980b), ambition, aggressiveness, emotional stability, self-assurance, competitiveness, tolerance for work pressure, punctuality, independence, leadership, autonomy etc. (Singh 1989, Hornaday and About 1971, De Carlo and Lyons 1979, Komives 1972).

In the personal trait studies the traits have been observed very early in the entrepreneurial process or after the firm has been established (Foss 1989). In Brockhaus (1980b), for example, we do not know which of the students in fact established their own business. When the entrepreneurship is studied after the start-up, we do not know whether the personal trait factors are the result of the entrepreneurship or whether the entrepreneurship is the result of the personal trait factors (Foss 1989). The causal relationship may also operate in both directions.

Personal trait theories are individualistic. The second group, social-cultural theories, has emerged partly as a reaction to the individualistic approaches. These theories explain the entrepreneurial activity with national origins, culture, norms, or religion. The main point in these theories is that "certain groups are believed to possess beliefs, values, and traditions that predispose them to succeed in business" (Aldrich and Zimmer 1986).

The studies in this area have focused on entrepreneurial language and values. Examples of variables in this tradition are the value of hard work and responsibility, the strenght of emphasis on the individual, respect for successful entrepreneurs, the reduction of risk achieved through talking

with many colleagues, a culture that is positive to borrowing of production equipment, expert help (Gustaffson 1985), and positive entrepreneurial values and norms within groups (Geertz 1963). Other studies have focused on entrepreneurial decision making, and how norms and restrictions in the society influence them (e.g. mobilizing of local support and enthusiasm, Barth 1972). It is also argued that the "entrepreneurial force arising from the culture" will "seize the opportunities" (Fleming 1979).

Some studies in the culture and norm tradition have analyzed the connection between ethnic "group membership" and entrepreneurship. This has for example been done among immigrants in the USA and Britain (Light 1972 and Aldrich et. al. 1983). Immigrants who seem to have been successful in entrepreneurship are Koreans in Los Angeles, Atlanta, Chicago, and Indian immigrants in Britain.

Aldrich and Zimmer (1986), argue that the main problem with the social-cultural explanations are that they are:

> "deterministic and over-socialized because they presume the existence of a stereotypical standard that all members of the group display, and presume that behaviors are evoked regardless of the group members' situation."

Also, the cultural and norm approach only seems to be displayed under extraordinary circumstances:

> "the groups alleged to possess a propensity to entrepreneurship display their predisposition only under limited, country-specific and historically specific conditions. Prior to immigration, persons originating from alleged entrepreneurial cultures are mostly indistinguishable from others around them,...." (Aldrich and Zimmer 1986, p. 7).

Finally, Aldrich and Zimmer (1986) point out that the cultural and norm perspective does not explain why individuals in the same group act differently. Coleman (1988) touches on the same problem when he criticizes the sociological stream because the individual has no "engine of action" or "internal spring of action".

In the third group, economic theories, there has been little attention given to the role of entrepreneurship. The dependent variable in macro economy is very often economic growth. Entrepreneurship is usually treated as an exogenous variable. This has been strongly criticized (Hirschman 1958, Dedekam 1977 and Kent 1982). Casson (1991) calls this a gap in economic theory. He suggests that the reason for this is the extreme assumptions about access to information, which are implicit in orthodox economics.

Traditional macro economic theory usually operates on an aggregate level and, therefore, the entrepreneur is not important. On the individual level the independent variable is usually the profit motive, where only the profitability and the risk are in question. Personal traits and the micro economic explanations therefore seem to be based on the individual himself. Coleman (1988) highlights a fundamental problem with most economic theories when he points out:

> "The economic stream...flies in the face of empirical reality: persons' actions are shaped, redirected, constrained by the social context; norms, interpersonal trust, social networks and social organization..."

Unlike other economists, Schumpeter has paid much attention to the supply of entrepreneurs. He explains entrepreneurship by means of economic, psychological and social factors. He argues that it is "very difficult to replace it (pecuniary gain) as a motor of industrial development" (Oakley 1990, p.

115). Schumpeter's argument has much in common with the norm approach in the sociological literature.

Granovetter (1985) refers to several modern economists and tries to show that they (as Schumpeter), in their attempts to take account of social influences, represent them in an over-socialized manner. He (p. 485) also emphasizes the paradox that both the over- and under-socialized approaches have the concept of action carried out by atomized individuals:

> "In the under-socialized account, atomization results from narrow utilitarian pursuit of self-interest; in the over-socialized one, from the fact that behavioral patterns have been internalized and ongoing social relations thus have only peripheral effect on behavior."

Though there are problems related to the three main perspectives presented in this sub-chapter (personality, cultural-norm and economic theories), they have given valuable insights into entrepreneurship. However, the problems related to the perspectives have stimulated the development of the social network perspective. We can probably say that the study of entrepreneurship, using the social network perspective, is partly developed as a reaction to the under- and over-socialized perspectives described above (Aldrich and Zimmer 1986).

2.3. The Network Perspective

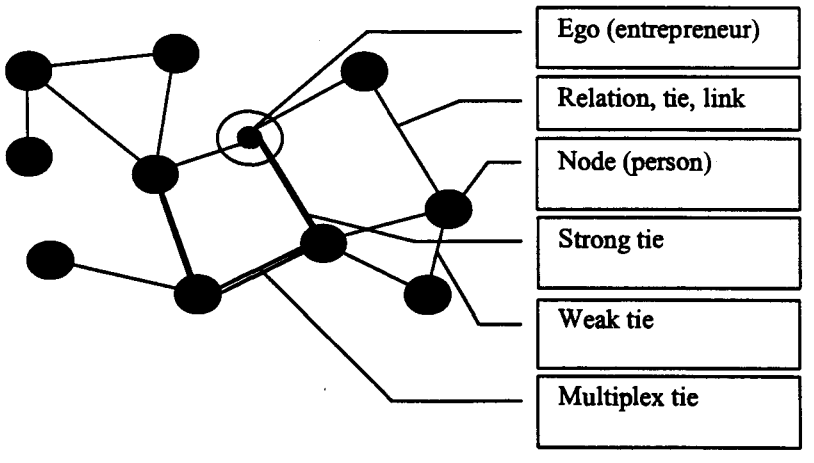
Social networks are an important part of an entrepreneur's social capital (Coleman 1988). According to Burt (1997) social capital is a quality created between people and it increases the return of a person's human capital such as intelligence, education, and work experience (Burt 1997). It is therefore of critical value for understanding, for example, prospective entrepreneurs'

efforts to explore and improve their social networks.

A social network can be defined as a "...specific set of linkages among a defined set of persons" (Mitchell 1962 p. 293). In other words social network refers to social relationships between people. However, it is reasonable to argue that relationships also have to last for a while for them to be considered as part of a social network. A short accidental meeting is usually not enough for a person to be included in a network. Consequently, networks can be defined as a pattern of lasting social relationships between people (Greve and Foss 1990). The focus in the social network approach is on the structural properties of the relationships. The properties that characterize the network may be used to interpret the social behavior of the persons involved (Mitchell 1962).

The central elements in social network theory are nodes and relationships or links (see figure 2.1). Together these two elements constitute the network structure (Paasche et. al. 1993).

Figure 2.1. Nodes and links in network perspective



First, we can study a social network as a whole and we can look at an ego-centered network. If it is the ego-centered network that is investigated the network is seen from the focal person's (ego's) point of view and we do not

have data on the whole network. As mentioned, we will look at the ego-centered network.

For the ego-centered network, two concepts are under investigation: redundancy and density. Density is often applied as a measure of the whole social network but can also be applied to an ego-centered network. Density and redundancy are different concepts, but they both concern the relationships between the focal person's (ego's) contacts and they are assumed to influence the resources that flow through the social networks (see 4).

Redundancy concerns the relationship between a person's contacts. A network is strongly redundant to the extent that the focal person's (for example the entrepreneur's) contacts are connected to each other. The concept is closely related to density. Density is found by comparing the total number of actual ties to the number of ties if everyone in the network is connected to everyone else. More advanced measures also consider the strength of ties (Aldrich and Zimmer 1986). Redundancy for the focal person's (ego's) network is calculated by comparing the number of ties with the number of persons within the network.

Second, the network can be described according to the relationships between two nodes, *the dyads*. The lines in figure 2.1 illustrate the relationships. Examples of measures describing the relationships are the strength and multiplicity of the relationships. The strength of a relationship depends upon factors such as the degree of friendship and trust, frequency of interaction and time that the relationship has lasted (Granovetter 1973, Aldrich and Zimmer 1986, Krackhardt 1992). In figure 2.1, a thick line illustrates "strong ties" (meaning strong relationships) and a thin line illustrates "weak ties". Multiplicity concerns the number of different relationships between two persons. If two persons are friends, colleagues,

and relatives there are three relationships between them. Multiplicity is drawn in figure 2.1 as two parallel lines.

Third, the social network variables can be related to the individual (the entrepreneurs). In this study the number of relationships (dyads) of the entrepreneur (also referred to as degree centrality or size) is applied in order to describe the entrepreneur (Scott 1991).

In the last few years, it has been widely accepted that social networks are important for entrepreneurial success. In this perspective entrepreneurship is viewed as embedded in networks of continuing social relationships.

> "Within complex networks of relationship, entrepreneurship is facilitated or constrained by linkages between entrepreneurs, resources, and opportunities." (Aldrich and Zimmer 1986)

Johannisson (1988) argues:

> "The network can be used for refining or even defining the venture concepts... and ...by operating the network professionally ... the entrepreneur can acquire financial and material resources...". The network will also "...help to mobilize the various resources needed for action: cognitive resources, emotive resources and self-confidence." (p. 85)

Johannisson (1988) also argues that some companies are established as intermediaries between existing companies and some emerge as "composites consisting of network resources that have become obsolete in their present use". On this basis, Johannisson (1988) proposed that the key to entrepreneurial success has to be found in the ability to develop and maintain a personal network.

Aldrich and Zimmer (1986) seem to regard the social network perspective as an *alternative* to the study of entrepreneurship that makes other perspectives unnecessary. However, one of the reasons for the growing awareness of the social network perspective may be related to the fact that it seems to integrate earlier knowledge of entrepreneurship developed from the traditional psychological and sociological perspectives. Johannisson (1986), who seems to take the latter position, argues that the social network perspective bridges micro and macro, as well as the deterministic and voluntaristic approaches. As will be shown, the social network approach can explain why people in the same cultural context and with the same psychological traits act differently.

The roots of the social network approach can be found in the 1930's. However, as a "distinct style" of research, social network analysis has been developed during the last 20 to 30 years (Scott 1988). One of the first theoretical attempts at using a social network approach in the study of entrepreneurship was made by Aldrich and Zimmer in 1986.

2.4. Social Networks and Resources

In most studies of how social networks affect entrepreneurship it is assumed that social networks are important because they give access to resources that the entrepreneur needs for the start-up process. This point links the network approach to resource dependency theory. The origin of the resource dependency theory may be tied to Thompson (1967) and to Pfeffer and Salancik (1978). Organizations are, as open systems, dependent upon the exchange of resources, both as supplies and as channels for marketing. The basic point in the resource dependency theory is that organizations try to reduce uncertainty, by getting control over important resources (Greve 1995a).

Teece (1986) in his discussion of commercialization of innovations focuses on the importance of complementary assets. The main point in his paper is that a successful commercialization is, in addition to the know-how in question, dependent upon access to several complementary assets. Complementary assets will in an entrepreneurial context be defined as assets or resources that, in addition to the basic idea, are required in order to establish the new organization. Examples of such assets are distribution channels, complementary technologies, etc. Using Teece's (1986) concept, the networks can be viewed as a possible access to complementary resources. However, the social networks can also be the source of the basic idea of the new business or church.

How social networks give access to resources has usually been discussed in studies of the impact of social networks on entrepreneurship. However, the relation to resource dependency theory is rarely considered. During the last few years, a few researchers have started to discuss this relation (for example Foss 1994).

From the resource dependency perspective, an entrepreneur will be successful when he gets access to and use of the resources that are necessary. The resource dependency theory may be viewed as an explanation of why social networks are important for entrepreneurs. The social networks are channels through which the entrepreneur gets access to the necessary resources.

Johannisson (1988) uses the resource dependency theory and network approach, in an entrepreneurial context. According to him, the resource argument says that new businesses have to specialize at the same time as they need to control a variety of resources. From Johannisson's (1988, p. 97) point of view, only a personal network "is powerful and flexible enough to

enable the new entrepreneur to meet such challenges".

In the strategy literature the term *asset* parsimony is frequently used (for example Ansoff 1979). It refers to the effort to acquire the minimum assets at the lowest cost possible, in order to pursue the business goals. For entrepreneurs the network may be an essential element of asset parsimony (Zhao and Aram 1995). The personal network also gives the entrepreneur flexibility (Jarrillo 1989). You do not need to buy the resources and keep them as an ordinary asset in your business. The network is more like a pool of resources you can take advantage of almost whenever you need them.

The focus on social networks and resources when studying entrepreneurship is also important because it "reaches" outside the boundaries of the company's formal relationships. For example, connections to friends that are not directly involved in the business may lead to information and other resources. Through formal organizational channels, access to these resources "might cost more money than the organization could spare" (Dubini and Aldrich 1991, p. 306). Therefore, when relationships are developed outside the firm's boundaries "two major constraints are cut: time and money" (Dubini and Aldrich 1991, p. 306). This is especially of importance for new organizations because they often have little money.

It should be noted that the resource dependency perspective differs from the social network perspective in a significant manner. Johannisson (1986) argues that the social network approach contrasts with the resource dependency perspective. For example the social network approach puts a stronger emphasis on the linkage to environmental elements as reciprocal and dependent upon mutual commitment than is the case for the resource dependency perspective.

2.5. Logic of Explanation and Level of Analysis

The logic of explanation applied in the studies of social networks and entrepreneurship reviewed in this chapter is intentional (Elster 1982) because the phenomenon of entrepreneurship is dependent upon the intention of one or several individuals. However, this does not mean that the desire to start a new organization is explained by a clear goal in the past (as in the goal setting theory, Locke 1978). The entrepreneur has an intention, but does not have all the knowledge of where the next step leads. It is, in a way, a trial-and-error process. Also, a social network approach assumes intentionality because a network is something the prospective entrepreneur to some extent forms and uses or enacts (Weick 1979, Johannisson 1988). Coleman's (1988, p. 95) statement concerning the introduction of the concept of social capital characterizes the assumptions of the social network approach in this study. It is an attempt at "...taking rational action as a starting point but rejecting the extreme individualistic premises that often accompany it."

The network approach is neither a pure individualistic nor a collectivistic approach (see Asley and Van de Ven 1983 and Johannisson 1990). The approach assumes a mutual influence between the entrepreneur (micro level) and the social structure (macro level). Prospective entrepreneurs build ties to different persons and institutions; this again leads to change in the social structure, which again gives the prospective entrepreneur incentives and restrictions for action and development of new ties. According to Hernes' (1976) suggestion, this is a useful approach because it shows how the macro variables affect individual motifs and choices, and how these choices again change the macro level variables.

When we are using a social network approach to understand entrepreneurship, the level of analysis may seem to be quite fuzzy. It is

neither the individual entrepreneur nor the social structure alone. We are studying the effect of the ego-centered network. Therefore, the level of analysis is the role-set of the entrepreneur (Merton 1968). The network is seen from the focal person's (the entrepreneur's) point of view and is limited to the people the focal person has direct ties to (the alters) and the ties between the alters which the entrepreneur has knowledge about. This implies that it is the aggregated impact of the social relationships, in which the entrepreneur is involved, that is in focus. In other words, it is the impact of all the dyads that the entrepreneur is involved in which decides the impact of the social network on the entrepreneurship.

2.6. Social Networks and Entrepreneurship of Businesses

Using a survey of 175 newly formed businesses in Indiana Birley (1985) showed that entrepreneurs used their own informal business and personal networks to establish new firms. This was one of the first empirical studies of social network and entrepreneurship. After this, a series of network studies were carried out.

Aldrich, Rosen, and Woodward (1986) explored in greater detail what kind of network properties or dimensions were crucial for entrepreneurship. They used seven different variables characterizing the network (see table 2.1). Like several researchers after them, Aldrich, Rosen and Woodward (1986) tried to identify differences in the dimensions of social networks in different phases of business development. Their main assumption was that both qualitative and quantitative differences in an entrepreneur's network affect the likelihood of entrepreneurial success. They assumed that the content of the social network (the type and strength of relationships) and of the networking activity (how much time and how many persons the

entrepreneur discusses business with) varies with the business development phase.

The selection of respondents in Aldrich, Rosen and Woodward's (1986) study consisted of 15 persons who were not thinking about starting a business, 22 who were, 19 who were planning to start a business, and 78 who were running a business that they had developed themselves (entrepreneurial businesses). They found some support for their hypotheses. The entrepreneurs that were in the starting phase of the business development had the greatest portion of business connections in their network, they had more weak ties, and more frequent contacts with their business connections, used more time to develop new connections, and they used as much time as the established business owners on maintaining business connections.

In a Swedish study of 269 entrepreneurs (response rate 48%) in two communities, Johannisson and Johnsson (1988) showed that the number of contacts is greater in the later phase of business development than in the early phase. The entrepreneur also uses more time to develop and maintain relationships in the later phase. Also the persons that the entrepreneur has contact with are more likely to be professionals in the later phase of the business development. However, the number of local contacts does not vary between these phases.

Greve and Foss (1990) studied 100 entrepreneurs in different business development phases (34 persons who were motivated for entrepreneurship and who were thinking about it, 22 who were in a planning phase and 44 who were running their own business). They found that entrepreneurs in the later phases (planning and running) tend to have a bigger network and use more time to develop and maintain the network, than those who are in the earlier phases. The greatest difference was found between the entrepreneurs in the planning phase and those who had not yet started the

process.

Gattiker and Greve did two studies (1998 and 1994) with entrepreneurs in different business development phases (motivation, planning and implementation). The data were collected in the USA. (219), Italy (52), Norway (65), Sweden (269), and Japan (142). In the 1998 study, they found that the network size and time spent on networking were greatest in the planning phase and that the network density was at its lowest point during this phase. Their results also indicated that stronger ties and denser networks were more important in the motivation and implementation phases. Greve and Gattiker (1998) assumed that stronger ties and denser networks help the entrepreneur to get access to business clusters.

In the 1994 study, Greve and Gattiker (1994) found that the social network of an entrepreneur is relatively stable. The dependent variable in the study was the number of years that the respondents had known their contact and the density of respondents' network. The entrepreneurs who were interviewed were in different phases of the entrepreneurial process or they were running a business that they had started or taken over. Gattiker and Greve found that the most important relationships concerning advice for establishing and running a firm, were relatively stable and most of them were established a relatively long time before the start of the entrepreneurial process.

Foss (1994) studied persons who had received a license to start cod farming businesses in Norway. Of the 289 persons, 103 did not start their own business, while 186 did. She studied the influence of eight human capital variables, eight network variables, and eight resource variables on the chance of starting a new cod farm business. The results of her study indicate that the network had an important effect on access to resources, and that resources had an important effect on the chance of actually starting as a cod

farmer. She also found that experience from similar technologies had an important effect on the likelihood of start-ups. Similar technologies included two of her eight human capital variables (industrial and technical experience).

Greve (1995b) investigated 106 persons who applied for two courses in entrepreneurship (response rate 55%). The courses were held in Bergen and Trondheim in Norway. The dependent variable was entrepreneurship phases. The results of the study indicated that the size of the network, the time used on developing and maintaining contacts, the number of bridges in the network, and the number of people in the network who are occupationally active or in management positions are greater in the later entrepreneurial phases than in the early phases. He did not find an expected negative relationship between density and entrepreneurial phases. Also expectations of a positive relationship between knowledge about indirect contacts and entrepreneurial phases, and between the number of work-related contacts and entrepreneurial phases was not found.

Zhao and Aram (1995) studied the range and intensity of networking among high-growth and low-growth entrepreneurial ventures in China. The study was done through an intensive study of three high-growth and three low-growth technology-oriented businesses. Range was measured as the number of external relationships to obtain resources, and intensity was measured as the frequency of contacts and the amount of resources obtained from these relationships. Zhao and Aram (1995) found support for their hypothesis. The networking intensity and the range of the network were higher in the high-growth firm than in the low-growth firm. The study also indicated that the importance of the social network did not decrease after the early phases of establishing the firm.

In the next table (2.1) we give an overview of data, dependent and

independent variables, predicted relationships and the test results of the studies above.

Table 2.1: Overview of related studies.

Researcher	Sample[1]	Dependent variables	Independent variables	Prediction	Results
1. Aldrich, Rosen & Woodward (1986)	175 businesses started in St. Joseph County, Indiana 1977 and 1982.	Business development phase. 1. no plans 2. thinking 3. process of starting 4. running	• No. of business relationship • No. of weak ties • time to develop contacts • time to maintain contacts • network size • degree of multiplicity • network age	+[2] + + + + + +	y y y n y y y
2. Aldrich, Rosen & Woodward (1987)	134 members and associates of the Research Triangle Council for entrepreneurship in the USA.	1. Founding (FO) 2. Profit (PR)	 • network size • time developing • time maintaining • No. of contacts per week • degree of density • strength of ties	FO PR + + + + + + + + + + + +	FO PR n n(y)[3] y n(n) n y(n) y n(n) y y(n) n y(n)
3. Johannisson & Johnsson (1988)	269 entrepreneurs in two different Swedish communities	Business development phase: 1. thinking 2. starting process 3. running 4. has taken over a business	• network size • time developing • time maintaining • time travel making contacts • No. of professional members in the network • No. of local members in the network • network members mediated in business connections		Highest in phase 3[4] phase 3 phase 4 phase 3 phase 3 phase 1 phase 3
4. Greve & Foss (1990)	106 Norwegian entrepreneurs in different business development phases. Selected from applicants to courses in establishing firms.	Business development phase. 1. no plans 2. planning 3. running	• network size • hours developing • hours maintaining • low density ties • low density network • indirect ties • ties mediated through work • work related ties • ties to other professionals	+ + + + + + + + +	y y y y n y n n y
5. Greve & Gattiker (1998)	Entrepreneurs in different business development phases. USA (219), Italy (52), Norway (65), Sweden (269)	Business development phase 1. motivated 2. planning 3. implementation	• network size • time used on develop network • degree of density	inv. U-shape[5] inv. U-shape U-shape	y y y
6. Greve & Gattiker (1994)	Entrepreneurs in different business development phases. USA (219), Italy (52), Norway (65), Sweden (269) Japan (142)	1. Time known (T) 2. Density (D)	I. Business development phase 1. Motivated, 2. Planning, 3. Running a new business 4. Running a bus. taken over II. No. years running a business III. Self-employed parents	• T1=T2=T3=T4[6] • T > II • D for phase 3& 4>D for phase 2 • D for phase 4>D for phase 3 • D with III>D without III	y? y n y n
7. Foss (1994)	289 prospective entrepr. that had received license for starting cod farming business 103 didn't start and	1. Network (N) 2. Resources (R) 3. Start-up (SU)	1. Human capital (HC) 2. Network (N) 3. Resources (R)	HC on N: +[7] N on R: + R on SU: + HC on SU: ?	y: 2-7%[8] y: 17-42%[8] y: 36%[9]: y: 12%[9]

	186 started a farm				
8. Greve (1995b)	106 Norwegian entrepreneurs in different business development phases. Selected from applicants for courses in establishing firms.	Entrepreneurial phases: 1. idea development 2. planning 3. established	• network size • time to establish and maintain contacts • density • knowledge about indirect contacts • No. of bridges • No. of work related contacts • No. of people in the network occupationally active or in management positions	+ + - + + + +	y y n n y n y
9. Zhao & Aram (1995)	3 high-growth and 3 low-growth technology-oriented busines. in China	Degree of growth	1.No. of resources provided through network (range) 2. Intensity (frequency of contacts and no. of resources exchanged in each relationship)	• overall range+[9] • range in the develop. phase + • Intensity & growth +	y y y

Notes: y=yes, n=no, +=positive relationship, -=negative relationship, FO=foundings (founded vs. not founded), PR=profit, T=the time the contact is known, D=density, N=network, R=resources, SU=start-up, HC=human capital.

1. *Study number 2, 3, 4, 5, 6 and 8 are drawn from the same database. The data was collected in the USA, Italy, Norway, Sweden and Japan. More information about the database can be found in Greve and Gattiker (1998). The countries that are used in each study are named in column 2. It also has to be mentioned that it is the same data that are used in study number 5 and 6. This is also the case for study number 4 and 8.*
2. *A positive relationship between phase and the number of business relationships should be expected. Phases are numbered from 1 (no plans) to 4 (running a business). The same logic must be applied when the other similar studies are read later in this table.*
3. *Companies in parentheses are older than three years*
4. *This means that the dependent variable (here network size) is highest in this phase.*
5. *An inverted U-shape relationship between the independent (size) and dependent variable (phase) is expected*
6. *Should be read in the following manner: time known (T) is the same in all 4 phases*
7. *Human capital is expected to have a positive impact on the social network. The results of Foss (1994) are further discussed later in 3.9.*
8. *Explained variance*
9. *The range (No. of resources provided through the network) is expected to have a positive impact on growth.*

The table reveals that most of the studies have used business phases as the dependent variable. Except for Foss (1994), the chance of a successful start-up has not been used as a dependent variable in any of the studies. Nor have any of the researchers, except Foss (1994), studied the underlying relationship between social networks and resources. Table 2.1 also shows that the results of the studies are not clear for many of the independent variables. We can also see that there are many different network variables that are used in the studies. This will be further elaborated in the next table.

Table 2.2 shows the variables used to explain entrepreneurial efforts. The studies in table 2.1 where the dependent variable is entrepreneurial phases, founding, or growth are included (only one of the studies uses founding and one uses growth as dependent variables, the rest use phases as the dependent variable). The indipendent variables are in the left column. R1 through R5 shows the results of the studies, column C represents the most likely conclusion to be drawn from the studies, and the last column shows the researcher and the year of the studies. The researchers in the right column are in the same sequence as in column R1 through R6.

Table 2.2.: Variables and results from earlier studies.

	Results of studies							
Independ. variables	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**C[1]**	**Researchers**
Network size (No. of strategic alliances)	+	?	+	+	+	?	+?	**R1:** Aldrich, Rosen & Woodward (1986), **R2:** Aldrich, Rosen & Woodward (1987[2]), **R3:** Johannisson & Johnsson (1988), **R4:** Greve & Foss (1990), **R5:** Greve (1995b) **R6:** Greve & Gattiker (1998)
Network density	+	?	?	?			?	**R1:** Aldrich, Rosen & Woodward (1987), **R2:** Greve & Foss (1990), **R3:** Greve (1995b) **R4:** Greve & Gattiker (1998)
No. of strong ties	+						+	**R1:** Aldrich, Rosen & Woodward (1987)
Frequency of contact	+						+	**R1:** Aldrich, Rosen & Woodward (1987)
Multiplicity of relationships	+						+	**R1:** Aldrich, Rosen & Woodward (1986)
No. of weak ties	+						+	**R1:** Aldrich, Rosen & Woodward (1986)
Range	+						+	**R1:** Zhao & Aram (1995)
Intensity	+						+	**R1:** Zhao & Aram (1995)
Time used to develop relationships	+	+	+	+	+		+	**R1:** Aldrich, Rosen & Woodward (1986), **R2:** Aldrich, Rosen & Woodward (1987*), **R3:** Johannisson & Johnsson (1988), **R4:** Greve & Foss (1990), **R5:** Greve & Gattiker (1998)
Time used to maintain relationships	?	?	?	+			?	**R1:** Aldrich, Rosen & Woodward (1986), **R2:** Aldrich, Rosen & Woodward (1987*), **R3:** Johannisson & Johnsson (1988), **R4:** Greve & Foss (1990)
Time used to establish and maintain contacts	+						+	**R1:** Greve (1995b)
Time used traveling to make contacts	+	+					+	**R1:** Aldrich, Rosen & Woodward (1986), **R2:** Johannisson & Johnsson (1988)
No. of business relationships	+						+	**R1:** Aldrich, Rosen & Woodward (1986)
No. of work related ties	?	?					?	**R1:** Greve & Foss (1990), **R2:** Greve (1995b)
No. of professional relationships	+	+					+	**R1:** Johannisson & Johnsson (1988), **R2:** Greve & Foss (1990),
No. of local relationships	-						-	**R1:** Johannisson & Johnsson (1988)
Relationships mediated in business connections	+	?					?	**R1:** Johannisson & Johnsson (1988), **R2:** Greve & Foss (1990)
No. of persons in the network occupationally active or in management positions	+						+	**R1:** Greve (1995b)
No. of indirect ties	+						+	**R1:** Greve & Foss (1990)
Knowledge about indirect contacts	?						?	**R1:** Greve (1995b)
No. of bridges	+						+	**R1:** Greve (1995b)
Network age	+							**R1:** Aldrich, Rosen & Woodward (1986)

Notes:

1. *The most reasonable conclusion to draw from all the studies*
2. *For Aldrich, Rosen & Woodward (1987) we have used the results concerning founding (see table 2.1)*

The table has its limitations. As mentioned, the dependent variable is not exactly the same in all studies. This fact could be the cause of some of the differences seen in the table. However, since the dependent variables in the studies are very similar the table gives an indication of which variables are

important to focus on in this study.

The table reveals that twenty-two network variables have been tested in the studies. Of these, network size, time to develop relationships, time to maintain relationships and density have been tested three or more times. The other variables have been tested fewer than three times. For several of the independent variables, the results vary from study to study.

As mentioned, it is only Foss (1994) that has studied the relationships between social networks and resources. It is therefore necessary to have a closer look at the results of her study. A central question in her research was what the social network brings to the entrepreneur that is conducive to the start-up. Foss (1994) found that there was a significant relationship between social network and resource variables (see table 3.1 in the appendix). She reports explained variances between 17 and 42 percent for the different variables. All network variables had a positive influence on one or more of the resources. Foss (1994) did not investigate the effect of density or redundancy on resources.

Foss (1994) also studied the effect of resource access on start-up success. She found that production resources and market access had a significant positive effect on start-up. The explained variance of the start-up is reported to be 36 percent. Advice on bureaucracy and labor resources had a significant negative effect on start-up. It is also surprising that affective resources and advice on accounting and technology did not have a significant impact on success (see table 3.2 in appendix 3).

2.7. Discussion - Business Entrepreneurship Studies

First, the literature presented in the last sub-chapter shows that there are still problems related to the assessment of the causal direction between social networks and the establishment of new organizations. The most frequently used technique for causal assessment is, as shown in table 2.1, to compare entrepreneurs in different development phases (Aldrich, Rosen and Woodward 1986, Johannisson and Johnsson 1988, Greve and Foss 1990, Greve and Gattiker 1994 and 1998). As discussed earlier this strategy is reasonable in early phases of the research process. One way to increase reliability of the causal assessment is to compare successful with non-successful entrepreneurs. Foss (1994) has tried this within the cod farming industry by using persons who all had an idea of developing a cod farm business. We are trying the same approach using entrepreneurs in different sectors of industry.

Second, some studies of entrepreneurship have focused on other aspects of entrepreneurship than the birth of a new organization. Zhao and Aram (1995) for example studied growth. These studies are important and can be used as a theoretical base for studying the establishment of a new organization. However, we cannot be sure that the conclusions drawn from these studies are valid for the process of creating a new organization.

Third, as shown in table 2.1, many different network variables have been tested. Only a few of them have been tested in more than one or two studies. The results of the tests done in more than one or two studies are not clear. Except for Foss (1994), none of the studies have tested the effects of social networks on the chance of successful entrepreneurship by comparing successful and non-successful entrepreneurs.

Fourth, none of the studies, except Foss (1994), have tested the relationship between social networks and resources, and between resources and start-ups. In most of the studies, resources underly the causal arguments. The argument is usually that social networks are important for the creation of a new organization because they give access to resources. However, in the empirical test it is only the relationship between social network properties and entrepreneurship that is considered.

Fifth, Foss (1994), who is the only one that used resources as an intervening variable, did so within a narrow sector of industry (start-up of cod-farming businesses). Also the review shows that none of the studies have tried to compare the direct path between network and entrepreneurship with the path through resources.

Sixth, many of the reviewed studies are drawn from the same database. This is described in the first footnote to table 2.1. Finally, few researchers have looked into the question of when the relationships were developed. The only researchers we have found that have discussed this are Greve and Gattiker (1994), who found that relationships are stable, and Aldrich, Rosen and Woodward (1986), who found a positive relationship between network age and entrepreneurial success. Therefore, it appears that the questions concerning whether the relationships are developed before or during the entrepreneurial process need to be addressed.

2.8. Social Network and Church Entrepreneurship

In the area of volunteer organizations, there has, as far as we know, not been any major empirical studies using a network approach. However, there have been a few "case-oriented studies" of church creations, especially in the

USA. Though the theoretical basis for these studies has sometimes not been clear, some of the findings can be helpful. Therefore, we will give a brief review of some of the results that have relevance for a network perspective.

Chaney (1982) points out that there are usually several volunteers involved in the development process of a new church. Frequently, the need for contacts in the local community is also noted (Chareonwongsak 1990, Kendall 1990, Byerly 1991). The argument for this is usually that it establishes "bridges" (or point of contacts) to future members of the churches (converts). As assumed in most of the business studies (table 2.1), these arguments seem to imply that it is an advantage to have many relationships also in a church creation context. Since these relationships are assumed to be bridges of relationships, it is also plausible to argue that weak ties are sufficient.

Focus on the ability of the entrepreneur varies. Wagner (1990) underscores the importance of the traits and the ability of the entrepreneur. Chaney (1982), on the other hand, focuses more on the importance of teamwork. For example, he argues that lay people with full or part-time jobs can be the main entrepreneurs of new churches. Nevertheless, both authors stress the importance of a high density social network around the entrepreneur in the development process. The network will promote success because it gives the entrepreneur social support.

Several other authors underscore the importance of using teams in the development of new churches (Sawatsky, 1985, Greenway 1987, Fritz 1988, Allen 1988, Seale 1989, Branner 1990). This argument is related to the need for social support. However, it is also assumed that teams increase the variety of resources available for the entrepreneurship.

The arguments concerning teams have much in common with arguments in

the business entrepreneurship studies. A team can be viewed as strong ties and high density among a certain number of people. Such relationships are, as shown above, also viewed as being important for motivation and social support in the business context.

Several authors (Chaney 1982, Wagner 1990, Schmidt 1991 and Patterson 1992) argue that a church creating effort, backed by an existing church, will have a higher chance of success, compared to one without such a relationship. For example Chaney (1982) reports that many start-up churches and their entrepreneurs have had strong ties and have been heavily supported by other churches (with different kinds of resources). The argument for this thesis rests on better access to necessary resources (Chaney 1982, Wagner 1990, Schmidt 1991 and Patterson 1992 p. D-76). In the network language, this could imply that the network inside a church has the resource heterogeneity necessary for the building of a new church. The reason that an existing church has an advantage in the development of a new church most probably also can be related to other network properties such as high density and centralization.

Patterson (1992) suggests that churches which are themselves newly established have a disposition to create new churches. His explanation of this seems to be that the high density social network in these churches produces a culture that promotes entrepreneurship (Patterson 1992, p. D-76). This view has much in common with Johannisson (1984) and Bart's (1972) emphasis on the importance of the local business climate for enterprise development.

2.9. Discussion - Business and Church Entrepreneurship

There are major differences between the studies done within the business entrepreneurship context and within the church entrepreneurship context. The studies that relate to church entrepreneurship tend to be based upon case studies. The more formalized social network studies of entrepreneurship have so far all focused on business entrepreneurs. Churches are voluntary organizations and they seem to offer a good opportunity for increasing the generality of the use of network theory on entrepreneurship.

The goal of testing the social network perspective in a church entrepreneurship context raises an important question. Can the social network perspective and the studies of business entrepreneurship be used as a basis for studies of church creation? For the following reasons we believe that the answer to this is affirmative.

First, the social network approach does not presuppose a business context. There do not seem to be any arguments within the social network perspective that imply that it should not be used outside the business context. Second, the case studies reviewed in the previous sub-chapter have a way of reasoning that is similar to the business studies. As pointed out for example, it seems to be argued in both the business context and church context that the number of weak ties has a positive effect on entrepreneurial success. As in the business entrepreneurship context, this point seems to be based on how these kinds of ties give access to the necessary variety of resources. We therefore will conclude that the social network approach and the business entrepreneurship studies provide a good basis for studying church entrepreneurship.

2.10. Summary and Study Positioning

Earlier studies of entrepreneurship have focused on personal traits, culture and norms. In the studies of personal traits, it has been difficult to single out the traits that are important for the entrepreneur and to decide the causal direction between traits and entrepreneurship. The cultural and norm approach tends to be deterministic and over-socialized and does not explain why different people in the same group act differently. In economic theory it is the profitability and the risk involved that are usually considered. The few economists who have studied the social influence seem to have represented them in an over-socialized manner.

Partly as a reaction to the personal trait, culture and norm, and the economic perspectives, the social network approach has developed as a method of studying entrepreneurship. Social networks can be defined as a pattern of lasting social relationships between people, and they are important because they are assumed to give access to resources needed for the entrepreneurship. The social network perspective has, as mentioned, partly developed as a reaction to earlier theories of entrepreneurship but may also be viewed as integrative to these theories. The social network perspective fills the holes in the knowledge in earlier theories. For example it may be used to explain why people in the same culture and with the same personal traits act differently.

The literature review in the last sub-chapters shows that there are several areas where it is necessary to do further research. First, as discussed in 2.6, in most research of how social networks influence entrepreneurship the methodology has been to compare entrepreneurs in different development phases. This is a reasonable strategy in early phases of the research process. In this study we will compare successful with non-successful entrepreneurs.

Hopefully, this will increase the reliability of the causal assessment concerning the effects of social network on start-up.

Second, the social network approach has been used to study entrepreneurship in business organizations. However, as discussed in 2.8, there has not been any systematic attempt to use the same approach in another organizational context. In order to increase the generality of the network approach we will compare business organizations with volunteer organizations.

Third, as discussed in 2.6 many different network variables have been tested but only a few of them have been tested in more than one or two studies. For some of the variables, the tests done in more than one study are not clear. As noted above in this sub-chapter the dependent variable in most tests on the effect of the social network variables on entrepreneurship has been entrepreneurial phases. It is therefore necessary to extend the testing of which network properties are important for the *start-up* of new organizations.

Fourth, even though the importance of social network has most often been related to resource access, except for one study, resources have not been used as an intervening variable. Therefore, in this study resources will be used as an intervening variable between network and start-up. Also the path from social networks through resources to start-up will be compared to the direct link between social networks and start-up. As far as we know, this comparison has not been made before.

As mentioned in 2.6, few researchers have looked into the question of when the relationships were developed. The only researchers we have found that have discussed stability and network age are Greve and Gattiker (1994), Aldrich, Rosen & Woodward (1986). Therefore the questions concerning

whether the relationships are developed before or during the entrepreneurial process need to be addressed.

CHAPTER 3: THEORY, HYPOTHESES AND MODEL

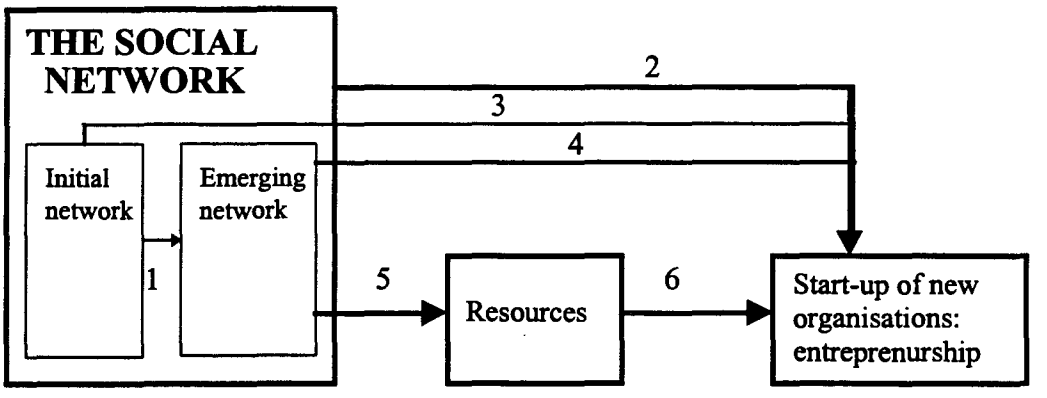
3.1. Introduction

The literature review in the last chapter shows that it is important a) to increase the generality of the network approach, b) to increase the reliability of the causal assessment of the relationship between social networks and start-up, c) to extend the testing of which social network properties are important for the start-up, d) to use resources as a intervening variable between network and start-up, e) to compare the path described in d) with the direct link between network and start-up, and f) to address the question of how important it is when relationships are developed. The aim of this chapter is to use and develop the theoretical perspective described in chapter one and develop hypotheses in order to fill the gaps in knowledge described above.

This chapter is organized in the following manner: first, the basic structure of the model of this study is presented. Then the theory and hypotheses concerning the different relationships in the model are developed. As a result of the theory and hypotheses development, the model is explored of detail in the end of this chapter.

In chapter one the basic structure of the model was drawn. However, the theoretical arguments for the structure of the model have not been given yet. These arguments will follow as a conclusion of the discussion of the theory and hypotheses. In the development of theory and hypotheses in the following sub-chapters, the model will be divided into six parts or relationships as shown in figure 3.1:

Figure 3.1: The model



The theoretical discussion and the related hypotheses are organized in accordance with the numbers shown in figure 3.1. This means that first the effect of the initial social network on the development of the social network is discussed in 3.3. Second, the effect of the whole social network on start-up is considered. Third, the effect of the initial network on start-up is explored and fourth, the effect of the emerging network on start-up is discussed. Fifth, the effect of the social network is discussed and finally, the effect of resource access on start-up of a new organization is explored.

Before the theory and hypothesis are developed, the key concepts used in the discussion will be defined. Operationalizations will be developed in the method chapter (4).

3.2. Theoretical Definitions

The independent variable in this study is the ego-centered network of the entrepreneur relevant for the entrepreneurship. The social networks are defined as lasting social relationships between people. The social network in focus here is ego-centered because we investigate the social network around the entrepreneur seen from his or her point of view (Greve and Gattiker

1994).

The ego-centered social networks are divided into three categories:

- the social networks developed before and during the entrepreneurial process (the whole network)
- the social networks developed before or early in the entrepreneurial process (initial network)
- the social networks developed during the entrepreneurial process (emerging network)

The reason for making this division is discussed in 3.5.

As mentioned above, this study focuses on the ego-centered network. When studying the ego-centered network we can focus on the focal person (the entrepreneur), the individual dyads and the whole ego-centered network. Using this classification, the social network developed before and during the entrepreneurial process is studied by means of the following:

The focal person:	- the number of relationships
The dyads:	- the number of strong and weak relationships
	- the multiplicity of the relationships
The ego-centered network:	- the redundancy of the social network

The network developed before or early in the entrepreneurial process (the initial network and the network developed during the entrepreneurial process, the emerging network) is studied by means of the following:

The focal person:	- the number of relationships
The dyads:	- the number of strong and weak relationships

The reason for not studying redundancy and multiplicity of the initial network and the emerging network is a practical one. A questionnaire that would have made it possible to measure redundancy and multiplicity for separate parts of the social networks would have been much more complicated than the one we used.

Based on the discussion above it is necessary to define the following concepts: the number of relationships, strength of relationships, multiplicity, and redundancy. Before we define these concepts it is necessary to point out that several of them are related. A closer discussion of this point will be given later in this chapter.

The number of contacts/relationships is a relatively uncomplicated concept. It refers to the number of contacts within a social network. In this study it is limited to the number of persons in the entrepreneur's ego-centered network relevant to the entrepreneurship and directly related to the entrepreneur. The strength of a relationship is more complicated to define. According to Granovetter (1973, p. 1361) strength depends upon the "amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie". Based on a discussion of this and other definitions, Krackhardt (1992) defines strength (he calls it philos) by the frequency of interaction, degree of affection, and the time that the relationship has lasted. The more interaction, affection and time, the stronger the relationship. This definition seems to include the essence of strength and is applied in this study.

Multiplicity of a relationship may be viewed as a separate concept. However, it is also possible to regard it as an aspect of strength. Multiplicity concerns the number of relationships or affiliations between the focal person and the other persons. The type of relationships can for example be divided into friend, family, relative, colleague, and former teacher. If a relationship

consists of more than one of these relationships, for example colleagues and friends, the relationships are considered to be multiplex.

Redundancy and density are closely related. They both concern the relationship between the focal person's contacts. Density measures how closely knit a social network is (Greve 1993). Density is found by comparing the total number of ties present with the potential number that would occur if everyone in the network were connected to everyone else[4].

$$\frac{t}{(n(n-1)/2} = \frac{2t}{n(n-1)}$$

According to Burt (1992), "contacts are redundant to the extent that they lead to the same people, and so provide the same information benefits." Redundancy is network density scaled by n-1, where n is the number of contacts in ego's network. Redundancy is analytically defined as 2t/n, where t is the number of ties in the network and n is the number of contacts (Borgatti 1997). In other words redundancy compares the number of ties in the network (multiplied by two) with the number of contacts (persons/nodes) within the network of the focal person. This means that density and redundancy measure about the same. The difference is only related to how n is treated in the denominator (n vs. n(n-1)). It is therefore not necessary to apply both of the concepts in the study. Redundancy and density will both measure information redundancy and density in social networks. In this study we will apply redundancy.

An assumption in this study is that an entrepreneur needs various resources in order to create a new organization. Therefore, resources are introduced as an intervening variable between the social network and start-

[4] More advanced measures of density also consider the strength of ties (Aldrich and Zimmer 1986).

up success (cf. figure 3.1). In earlier studies, resources have been divided into several categories. Foss (1989) divides the resources into affective resources (social support or critique) and business relevant information. For example in Granovetter's (1973) and Burt's (1982) writings, information is treated as one category. Kanter (1983) and Foss (1994) also use this category. However, they have also made a distinction between "affective resources", and "material resources". This categorization of resources (information, affective and material resources) seems to be well accepted and will be used in this study.

Affective resources are resources that give mental stimulation or social support (positive or negative) to the entrepreneur in the effort of creating a new organization. Information resources are the information the entrepreneur needs for the entrepreneurship (examples are advice and expertise). Material resources are resources that includes a physical or material aspect (examples are money and practical help).

The concept of resources has a meaning that is quite similar to Teece's (1986) concept of complementary assets. The main point for him is that a successful commercialization is, in addition to the know-how in question, dependent upon access to several complementary assets. These will in an entrepreneurial context be defined as assets or resources that, in addition to the basic idea, are required in order to establish the new organization. Examples of such assets are distribution web, complementary technologies, etc. Using Teece's (1986) concept, the social network can be viewed as sources and channels of complementary resources.

It is also possible to distinguish between the number of resources and the range of resources. The range of resources, which is defined as the number of different resources received by the entrepreneur, will usually be different from the total number of resources. The total number of resources will most

often be greater than the range of resources because the entrepreneur can receive more than one resource from each type of resources.

The dependent variable in this study is the creation or start-up of new organizations - businesses and churches.

Table 3.1 gives an overview of the variables in this study and their theoretical definitions.

Table 3.1: Variables and definitions

Concepts	Definitions
1. Independent variable: 1.1. Ego-centered network	The structure of social relationships between people and the focal person (the entrepreneur) seen from his or her point of view
1.11. Number of contacts	The number of persons relevant to the entrepreneurship and directly related to the entrepreneur, within the respondent's ego-centered network (degree centrality).
1.12. The strength of ties	Frequency of interaction, degree of affection, and the time the relationships have lasted.
1.13. Multiplicity	A multiple relationship is a relationship with more than one affiliation (eg family, friend, and colleague).
1.14. Redundancy	Contacts are redundant to the extent that they lead to the same people, and so provide the same information benefits
2. Intervening variable: 2.1. The number of resources	The number of resources related to the entrepreneurship the entrepreneur receives.
2.11. The number of information resources	The number of information resources the entrepreneur receives from his or her contacts.
2.12. The number of affective resources	The number of affective resources (mental stimulation/social support) the entrepreneur receives from his or her contacts.
2.13. The number of material resources	The number of material resources that include a physical or a material aspect the entrepreneur receives from his or her contacts
2.14. The range of resources	The number of different resources the entrepreneur receives from his or her contacts
3. Dependent variable: Entrepreneurial success	The establishment/creation of a new organization (business or church)

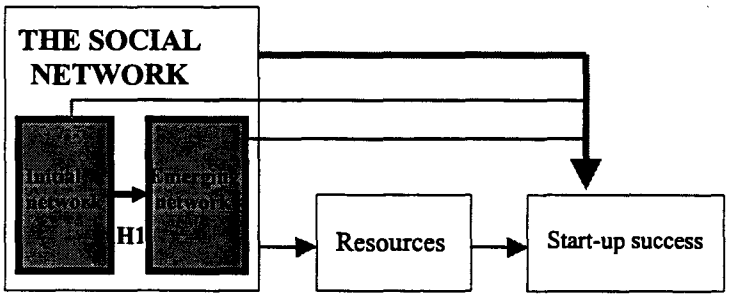
Variables numbered 1.11 to 1.15 are properties of the egocentric network. These properties are referred to as social network properties or

characteristics. The variables numbered 2.11 to 2.13 are different types of resources used in the theory development.

3.3. Initial Network and Network Development

One argument that seems to underlie much of the social network literature is that the initial network influences the later development of the entrepreneur's network during the entrepreneurial process. This issue is the focus in this sub-chapter. The part of the model that concerns this issue is illustrated by the gray boxes and the black arrow in figure 3.2:

Figure 3.2: Initial and emerging network



Greve and Gattiker (1994) are among those who argue that the social network developed before the entrepreneurial process, the initial network, influences the development of the social network during the entrepreneurial process, the emerging network. They argue that ties are often developed long before the entrepreneurial process. Entrepreneurs without such relationships may have a hard time creating them. Therefore, the existing network will probably have an impact on the further development of the network.

Johannisson's (1988) idea of the entrepreneur as a "networking man" also seems to imply that the entrepreneur constantly uses existing relationships

to develop new relationships. In other words, the initial network will condition the development of the network during the entrepreneurial process. The basic argument for this is that an entrepreneur's contacts will introduce him or her to other people, or give information about other people that he or she can contact directly later.

H1a: The higher the total number of initial ties (strong and weak), the higher the number of emerging weak ties.

Weak ties will probably only give access to short sequences of information. If so, it is necessary to develop some of the weak ties into stronger relationships. Stronger relationships may make it easier to gain access to a greater variety of resources, such as social support, practical help, financial support etc. The strong tie arguments are further developed in 3.4. In relation to hypothesis H1b below, the important point is that the initial network will probably influence the development of strong ties.

It usually takes time to develop strong relationships (Greve and Gattiker 1994). There might therefore often be too little time to develop strong ties during the entrepreneurial process to persons that the entrepreneur did not know before the entrepreneurship started. It is probably also difficult to know which relationships the entrepreneur should develop into strong relationships during the entrepreneurship. Therefore, an entrepreneur with many weak relationships before or early in the entrepreneurial process will probably use these in order to develop stronger relationships during the entrepreneurial process than entrepreneurs with fewer weak relationships.

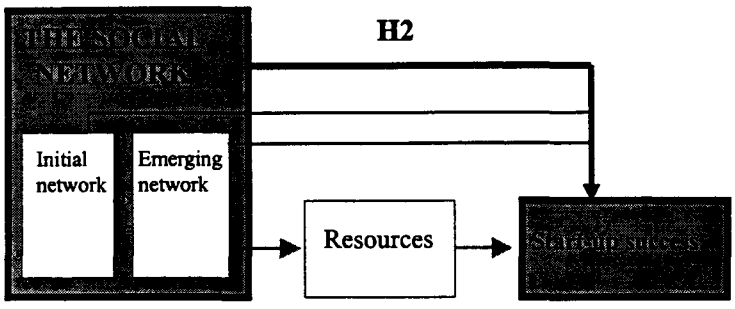
H1b: The higher the total number of weak initial ties, the higher the total number of emerging strong ties.

3.4. The Effect of the Social Network on Start-up

3.4.1. Introduction

The second set of hypotheses relates to the direct relationship between network properties and entrepreneurial success. This is illustrated by the gray boxes and the black arrow in figure 3.3:

Figure 3.3: Social network and start-up



As pointed out, most studies have focused on this relationship. As shown in the model, we will investigate both the direct relationship between the social network and start-up and the relationship between the social network and start-up using resources as an intervening variable. The arguments for doing this are based on two points.

First, there are probably some resources that are important, but not included in the pool of resources that we investigate in this study. In other words, there is uncertainty with respect to what kinds of resources lie between the social network and the entrepreneurship. Therefore, it is difficult to identify all important resources and treat them as intermediate variables.

Second, some "resources" would be hard to measure through a questionnaire like the one used in this study, or they may be regarded as tacit to the network. For example, relationships could be important because they

legitimize the entrepreneurial effort. This phenomenon especially has been a concern in the institutional theory.

Scott (1991, p. 169), partly based on Wuthnow et. al. (1984, p. 50), points out that: "legitimization concerns the problem of explaining or justifying the social order in such a way as to make institutional arrangements subjectively plausible". March and Olsen (1989, p. 22) argues that action often is "...based more on identifying the normatively appropriate behavior than on calculating the return expected from alternative choices." Aldrich and Fiol (1994) and DiMaggio (1992), bring the legitimacy argument into the entrepreneurial context. They assume that entrepreneurs seek legitimacy through those involved in the start-up. Nohria (1992, p. 242) argues that legitimacy is especially important for entrepreneurs: "Faced with the liability of newness, a new venture must garner institutional support and legitimacy." Johannisson (1986 and 1988) says that social networks are necessary in order to develop and facilitate the need for recognition from the marketplace, the authorities and various interest groups. Aldrich, Rosen and Woodward (1986), and later Greve (1995b), argue that the entrepreneur goes through a process of developing relationships to other businesses. Through this process, the entrepreneur learns how the new business should be created in order to be accepted. In other words, he or she will receive the legitimacy that is necessary. Finally, several other researchers have stressed that social networks will help the entrepreneur to gain credibility in the environment (Zhao and Aram1995, Ostgaard and Birly, 1996, and Zimmerman 1997).

These arguments seem to imply that legitimacy is assumed to be important for entrepreneurship. However, as mentioned above, it is probably hard to measure and separate legitimacy from the network itself. Also, there might be other resources than legitimacy that are important, but unknown or hard to measure. It is therefore necessary to investigate both the indirect and direct

path between social networks and entrepreneurship.

3.4.2. Network and Start-up, Hypothesis Set H2

Some of the literature is not very specific concerning the kind of social network characteristics that influence entrepreneurship. One example is Reese (1992). He argues that raising the number of contacts creates an advantage in the entrepreneurial process because it raises the probability that a specific resource can be reached. Boissevain (1974) argues that the number of relationships, total or partial, is the most important network property. However, many researchers also stress that the strength of the ties is very important.

Strength is important because it is assumed to influence what kind of resources a person gains access to. Granovetter (1973) argues that it is the number of weak ties that are important. The weak tie argument is usually referred to as crucial because weak ties are assumed to give access to a variety of information resources (Granovetter 1973). Cooper et.al. (1995, p. 108) argue that the process of venture formation might "be viewed as a process of learning, of overcoming the liabilities of newness through information acquisition".

Some of the information resources may, as discussed in the last sub-chapter, be unknown and it is therefore important to study the direct link between weak ties and entrepreneurial success. It is also possible that weak ties could provide the entrepreneur with other resources than information.

In order to find out whether a new business relationship should be established, it is not unusual to ask people in other established business relationships for information about the possible new relationship. They might know something about the business that the established business is

considering cooperateing with. Ties to many people will probably help the entrepreneur in this situation. The established business that the entrepreneur wants to cooperate with will more likely receive information about the entrepreneur if he or she has many relationships. Even if the entrepreneur has only a weak relationship to the persons that are contacted, it will probably be better than no contact. In this way, the weak ties may support the entrepreneur with legitimacy. The same line of arguments could probably be used with other resources.

The importance of weak ties is stressed in much of the social network literature. However, social network researchers (Krackhardt 1992) also recognize the importance of strong ties. Certain resources are probably easier to acquire through strong ties. Johannisson (1988) focuses upon this when he argues that both weak and strong ties are important for the entrepreneurial success:

> "The entrepreneur is autonomous *and* externally controlled. In a population context Aldrich and Zimmer (1986) use network terminology to describe entrepreneurs as basically re-active economic actors. Our argument is that the entrepreneur, using his network, can operate re-actively and pro-actively at one and the same time." This means that the network must be able to channel both information and influence, i.e. it must include both weak and *strong* ties. (Johannisson 1988)

The same argument can also be found in other studies. Dubini and Aldrich (1991, p. 308) point out that it is "the relative balance of weak to strong ties that is crucial".

As argued in the case of weak ties, some of these resources may be unknown and it is therefore important to investigate the direct link between strong ties and entrepreneurial success. Zhao and Aram's (1995) study indicated that

intensity, measured as the frequency of contact, has a positive effect on growth in new technology companies. This might be used as an indication of a direct link between strong ties and entrepreneurship. Based on these arguments, we can formulate the following hypothesis:

H2a: The higher the number of weak and strong initial and emerging ties, the higher the success of organization start-ups.

Some researchers have argued that the entrepreneur needs both strong and weak ties (eg Johannisson 1988). The arguments in this research seem to imply that the effect is not just additive. The combination of weak and strong ties seem to add something to the entrepreneurial process that goes beyond what the sum of the two types of ties adds. Johannisson (1988) expresses this when he points out that the network "must" include both weak and strong ties. In order to investigate this we will check for a possible interaction effect between weak and strong ties in the analysis of the hypothesis.

As discussed, some researchers have argued that diversity is important because it gives the entrepreneur access to a variety of resources. This is the base for the weak tie argument proposed by Granovetter (1973) and further developed by Burt (1992). For Burt the degree of *redundancy* is the important indicator of diversity. From his point of view strength of the tie is a correlate, not a cause. "Contacts are redundant to the extent that they lead to the same people, and so provide the same information benefits"(Burt 1992 s. 17). A non-redundant network is assumed to give access to a diverse set of information from independent sources. This line of argument may be extended also to include other resources than information.

It is also reasonable to assume that high redundancy might create advantages for the entrepreneur. Aldrich and Zimmer (1986) argue that conditions that raise the group boundaries and identity will help people to

form new social ties and action sets and "increase the likelihood of entrepreneurial attempts and raise the probability for success" (p. 16). This might seem to contradict the arguments given above. However, Burt (1992) touches on this point when he discusses the importance of structural autonomy. He argues that entrepreneurs have structural autonomy if they are free of structural holes at their own end and rich in structural holes at the other end. In other words, Burt assumes that social networks should include both redundant and non-redundant relationships.

From this perspective, favorable social networks will include different segments with different characteristics. For example, the entrepreneur may have a small circle of friends, who know each other well, and a wider circle of more diverse contacts. The close set of friends will give the entrepreneur the affective resources that trigger action. The diverse set of friends will, on the other hand, ensure that the entrepreneur gets access to the necessary variety of resources[5].

These arguments (the need for weak and strong ties, high and low redundancy) apparently make it difficult to formulate a hypothesis concerning the relationship between redundancy and entrepreneurial success for whole networks. However, the number of weak ties, which Burt (1992) assumes to be positively correlated with non-redundancy, are probably higher than the number of strong ties because it is time-consuming to develop and

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[5] Brunsson (1985) argues that too much *pro* and *contra* information gives too much remonstrance and may counteract action. However, it is reasonable to assume that a dense network (action formation set) can compensate for the uncertainty developed from much *pre* and *contra* information provided through a diverse set of social ties. This argument can be derived both from a rational and an "irrational" point of view. If the entrepreneur operates inside a close web of friends, together they will have a higher capability to receive and interpret information than if the entrepreneur did not have this web. From the "irrational" point of view, such a web can be viewed as compensation for diversity in information by, as Johannisson (1988) points out, justifying choices already made by the entrepreneur. Most probably, both of these mechanisms operate in a real life situation.

maintain strong ties. Considering this, many weak and non-redundant relationships will probably outweigh the strong and redundant relationships. This means that we should expect a positive relationship between low redundancy, and entrepreneurial success.

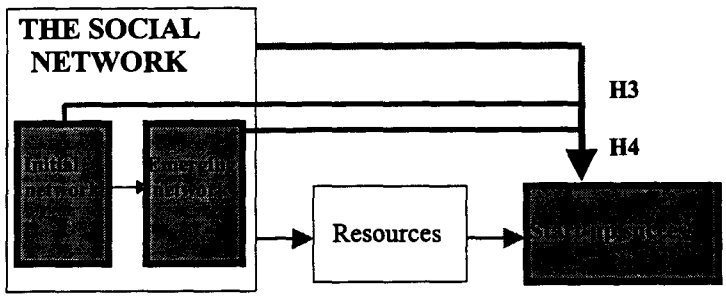
H2b: The lower the redundancy in the initial and emerging network, the higher the success of organization start-ups.

Some researchers seem to indicate that there is a positive correlation between high density and many strong ties (Foss 1989). Since redundancy is closely related to density, the same argument may also be valid for the relationship between redundancy and strong ties. Even though we think this argument is possible, we do not think that it is a necessity. It is reasonable to think that an entrepreneur may have strong ties to persons that do not know each other. However, that is not a necessary assumption for the differences proposed in this sub-chapter. As mentioned, one possibility is that the number of weak ties and the low redundancy within the same segment of ties outweigh the number of strong ties and the high redundancy within the same segment of ties.

3.5. The Effect of the Initial and Emerging Network on Start-up Success

In the development of the hypotheses H3 and H4 in this sub-chapter we will make a distinction between the social network developed before or early in the entrepreneurial process (the initial network) and the networking done during the entrepreneurial process (the emerging network).

Figure 3.4: Initial and emerging network on start-up



There are several reasons for making this distinction. If the network developed during the entrepreneurial process (the emerging network) is more important than the network developed before or early in the entrepreneurial process (the initial network), it will be easier for an entrepreneur with a good idea to learn how to develop an efficient network. What the prospective entrepreneur has done before is impossible to change. If the social network developed a long time before, as indicated by Greve and Gattiker (1994), is very important, then it will probably be harder for an entrepreneur with an idea, but without necessary relationships, to develop an efficient social network. At least it will take more time to do it.

Hypothesis H3 concerns the importance of the initial network. We assume that the initial network is important for two different reasons. First, it probably provides a basis for developing new contacts. The hypothesis set H3 concerns how the initial network affects the development of new network properties. However, if the initial network sets the premises for the further development of the network, and if the network is an important direct explanation for entrepreneurship, the initial network will probably explain much of the variance of the dependent variable.

Second, because relationships are stable and usually last for a relatively long period of time (Greve and Gattiker 1994), and because it takes time to develop

new relationships, the characteristics of the initial network will probably have substantial impact on entrepreneurial success. Farmer and MacMillan (1976), who stress the importance of nurturing relationships with suppliers over a long time period, indicate this.

As explained in 3.2, the questionnaire applied in this study does not make it possible to investigate the significance of redundancy and multiplicity in separate parts of social networks such as the initial network. Therefore, the network variables we have in the initial network are the size of the network, the number of weak ties and the number of strong ties.

We are not aware of any studies in which the social network is divided into an initial and an emerging network. Therefore, the hypotheses will be relatively speculative. However, the arguments concerning the initial network will probably follow the same line as for the whole network. It is reasonable to assume that the number of weak ties developed before the entrepreneurial process gives an important basis for seeking new and useful relationships during the process. Also, if it takes time to develop and nurture useful relationships, the strong ties developed before the entrepreneurial process will be of particular importance. It is therefore reasonable to assume that a rising number of weak and strong ties in the initial network will be an advantage in the entrepreneurial process.

H3: The higher the number of weak and strong ties in the initial network, the higher the success of organization start-ups.

The concept of the entrepreneur as a "networking man" (Johannisson 1988) might imply that the networking activity done during the entrepreneurial process has its own independent effect on the chance of entrepreneurial success. It would therefore be of great interest to see how much effect the networking activity during the entrepreneurial period has on

entrepreneurship. Yet since no one has tested the relationship between the network developed during the entrepreneurial process and entrepreneurial success, the hypothesis is tentative. However, in order to explore this relationship we will again assume that there is a positive relationship between the social network variables and start-up success.

H4a: The higher the number of weak and strong ties in the emerging network, the higher the success of organization start-ups.

The expected networking capability of a successful entrepreneur discussed above could be a result of better efficiency in creating and maintaining ties. However, the successful entrepreneur is expected to develop and maintain both more weak and more strong ties. For example, Dubini and Aldrich (1991, p. 310) argue that effective entrepreneurs "are more likely than others to systematically plan and monitor network activities". This is probably a time consuming activity. Therefore, it is reasonable to assume that the successful entrepreneurs usually spend more time on the development and maintenance of ties than the non-successful ones. As shown in the literature review, this assumption is in line with the results from earlier studies. The results of these studies support the assumption of a positive relationship between time and development. However, for maintenance the results vary.

The need for ties to a large number of people and the effort of developing strong ties also makes it reasonable to assume that the successful entrepreneur discusses issues concerning the entrepreneurship more often with other people than the non-successful ones do. This leads to the following hypothesis.

H4b: The more time spent on the development and maintenance of relationships and the more frequently the entrepreneur discusses with other people issues concerning the start-up, the higher the success of

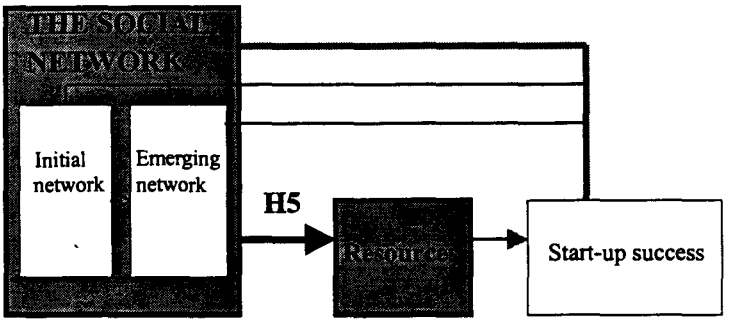
organization start-ups.

3.6. The Effect of Social Network on Resource Access

3.6.1. Introduction

The focus in this sub-chapter is the relationship between social networks and resources. The gray boxes and the black arrow in figure 3.5 below illustrate this:

Figure 3.5: Social network and resources



In 2.6 we pointed out that most studies did not include resources as an intervening variable. Nevertheless, the discussions in these studies assume that social networks are important for entrepreneurship because they give access to resources. The arguments concern both how social networks give access to resources and how this affects the chance of entrepreneurial success. However, the lack of an intervening variable in the earlier studies makes it hard to separate the arguments concerning the relationship between social networks and access to resources from the discussion of resource access and the chance of a successful entrepreneurship. This will be shown in the following discussion.

The type of resources that are needed for entrepreneurship is poorly discussed in the literature (Jenssen 1992). Examples that are considered are capital, information, expertise, social support, customer, suppliers, etc. (Greve and Foss 1990). Foss (1994) used the following resource variables: encouragement to start a business, advice on handling bureaucracy, advice on accounting, advice on technology, financing, production resources, labor, and access to market.

In this study we have to consider the kind of resources that are appropriate to include in both the business and the church context. For the business entrepreneurs, we have used a modification of the resource category found in Greve and Foss (1990) and in Foss (1994). We have chosen to include information, expertise, motivation, money, and connections to potential customers, to suppliers, to advisers and to financial sources. We have also included the range of resources and an open resource category. For the church entrepreneurs some resources that do not seem to be relevant (customers, suppliers) were excluded and connections with potential members, singers and musicians and practical help (labor) were added.

3.6.2. Network and Resources, Hypothesis Set H5

As mentioned in the discussion of hypothesis set H2 (3.4), access to information is usually considered to be important for entrepreneurs. The social network is regarded by many as the most important source of information. Especially the weak ties are supposed to be of critical value for access to information (Granovetter 1973, Aldrich and Zimmer 1986, Cooper et al 1995). If you have a strong relationship to a person, you may probably know his friends, and both parts in the dyad will know much of what the other part knows. Therefore, the flow of information between two persons may probably decline with the strength of the relationship. This implies that a network consisting of strong ties will usually be very conformed

(Dubini and Aldrich 1991).

The weak tie argument indicates that information more often goes through weak than through strong ties (Granovetter 1973). However, Burt's (1992) discussion of Granovetter's thoughts might indicate that it is the type of information that goes through the weak ties that is of importance. Weak ties do not necessarily give more information but they give information of higher value, that is, they give non-redundant information. On the other hand many researchers with reference to Granovetter (1973) seem to indicate that information in general (not only more valuable information) flows through weak ties more often than through strong ties. For example Greve and Gattiker (1994 p. 6) state that information is largely obtained through weak ties. We have chosen to go for the last assumption because it will put the apparent disagreement to the test. If information does not flow through the weak ties more often than through strong ties and if weak ties are important for entrepreneurship, it is probably the value (eg the diversity) of the information that is important.

H5a: The entrepreneur's weak ties more often give access to information resources than the strong ties do.

Although several researchers assert that weak ties are important for receiving the necessary information, as mentioned in the discussion of hypothesis set H2, many have also pointed out that different types of network properties facilitate access to other needed resources (Aldrich and Zimmer 1986, Johannisson 1988, Dubini and Aldrich 1991). For example it is assumed that a network consisting of strong ties gives the mental and social support that is necessary to promote entrepreneurial action (Johannisson 1988). Multiplicity might be viewed as an aspect of strength and it is therefore reasonable to assume that increasing multiplicity also facilitates action.

In the more general network theories, the importance of social networks for generating collective action seems to have been widely accepted. Marwell, Oliver and Prahl (1988) found that high density is beneficial for collective action. Aldrich and Zimmer (1986) draw this point into the entrepreneurial discussion. They argue that increased density (and therefore also increased redundancy) increases the entrepreneur's chance of entrepreneurial action. In the same way Johannisson (1988) points out that:

> "these networks will help to mobilize the various resources needed for action: cognitive resources, emotive resources, and self-confidence."...and..."support the selection and retention sub-processes by justifying choices made by the entrepreneur".

Based on this we may assume that there is a positive effect of strength, multiplicity, and redundancy on action. However, the entrepreneur also needs other resources such as capital and practical help. It will probably not be easy to get such resources through weak and non-redundant ties. In other words, it is reasonable to expect that strong ties, multiplex ties and a redundant network all increase the chance of receiving affective and material resources. According to this, we can formulate the following hypothesis.

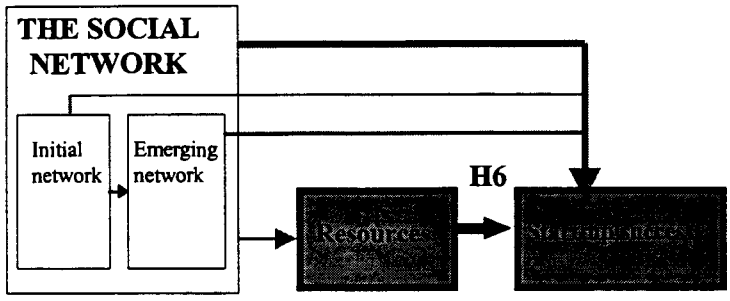
H5b: Strong, multiplex ties and redundant networks more often give access to affective and material resources than weak, simple ties and low redundancy do.

The argument that strength, multiplicity and redundancy are important for access to affective and material resources implies that there might be an interaction effect of these variables on entrepreneurship. For example the strength of the dyads and the network redundancy together may interact positively on access to affective and material resources. In other words, the

entrepreneur is assumed to receive an extra effect of the fact that he or she has close friends that also know each other. Since multiplicity might be viewed as a measure of strength there might also be such an extra effect between multiplicity and redundancy. In the testing of hypothesis set H5 we will investigate the possibility of these interaction effects.

3.7. The Effect of Resources on Start-up Success

Figure 3.6: Resources and start-up



First, in the literature review (2.6) and in 3.5, we pointed out that most studies did not use resources as an intervening variable. However, the arguments concern both how social networks give access to resources and how this affects the chance of start-up success. Most of the arguments stated above can therefore be used when arguing for a relationship between resources and success. The weak tie arguments show this. A social network consisting of weak ties is assumed to give access to a more diverse and non-redundant set of information and knowledge based resources. Access to these resources is thought to be necessary for a successful entrepreneurship (Aldrich and Zimmer 1986, Burt 1992).

Second, research indicates that both weak and strong ties are important for the start-up (Dubini and Aldrich 1991, Burt 1982, Johannisson 1988, Aldrich and Zimmer 1986). How weak and strong ties actually works together is not

shown. One possibility is that there are no effects of weak or strong ties on start-up when they are tested separately. However, this conclusion does not seem to be a fair interpretation of the arguments reviewed in 2.6. At least it seems to be assumed in the literature that the effect of weak ties has its own independent effect on the start-up. We will assume that this is true also for strong ties. The argument that weak and strong ties are important because they give access to different kind of resources implies that access to information and to other resources (affective/material) separately have an effect on the chance for start-up success. We can formulate the following hypothesis:

H6a: The higher the number of accessible sources of information, and affective and material resources, the higher the success of organization start-ups.

The weak tie argument is based on the assumption that diversity gives advantages in the entrepreneurial process. It gives the entrepreneur information on the same issues from different angles. It also gives the entrepreneur access to the variety of information that the complex process of starting a new organization probably requires. This is supposed to give the entrepreneur a necessary basis for making a sound judgment. This line of argument can probably also be extended to other resources. If so, we can generally assume that a variety of resources have a positive effect on entrepreneurship. This might be the underlying assumption in Reese (1992). He argues that the entrepreneur needs a large network because it increases the chance of gaining access to the *specific* resources needed for the entrepreneurship. However, a large network does not necessarily imply a diverse set of resources. We will argue that it is probably the number of different resources (or range of resources) that is important for entrepreneurship.

H6c: The wider the range of accessible resources, the higher the success of

organization start-ups.

3.8. Summary of the Hypotheses

Table 3.2 shows the relationships proposed in the hypotheses H1 through H4:

Table 3.2: Summary of hypothesis set one, two, three and four

Hypotheses	Number of weak emerging ties	Number of strong emerging ties
H1a: No. of initial ties	+	
H1b: No. of initial weak ties		+
	Start- up success	
H2a: Total no. of weak and strong ties		+
H2b: Redundancy		-
H3: Total no. of initial weak and strong ties		+
H4a: Total no. of emerging weak and strong ties		+
H4b: Time and frequency of discussing with others		+

In the hypothesis set H1 the initial network is assumed to have an influence on the development of new ties during the entrepreneurial process. Hypotheses set H2 through H4 assumed that the whole network (H2), the initial network (H3) and the network developed during the entrepreneurial process (H4) have a positive impact on start-up success (see the model presented in 3.1).

Table 3.3 below shows a summary of the first set of hypotheses, which concerns the relationship between network and resource access:

Table 3.3: Summary of hypothesis set five and six

Hypotheses	Info-resources	Affective/material resources
H5a: weak ties	++	+
H5b: strong and multiple ties and redundant networks	+	++
	Start- up success	
H6a: information, affective and material resources		+
H6b: range of resources		+

In hypothesis H5a weak ties are hypothesized as having a stronger positive relationship to information than to affective and material resources. Strong and multiple ties and redundant networks are hypothesized (H5b) as having a stronger positive relationship with access to affective and material resources than to information resources.

In hypothesis H6 we have assumed a positive relationship between access to information and start-up success and between affective/material resources and start-up success. Also, the number of different resources (range) is assumed to have a positive effect on start-up (H6b).

3.9. The Model

The social network theory and earlier empirical studies do not necessarily lead to one specific causal model. Nevertheless, there are clear similarities between several of the reviewed researchers. Aldrich and Zimmer (1986), Johannisson (1988), Foss (1989), Greve and Foss (1990), and Foss (1994) seem to argue for a model with the same basic structure. In their argumentation, network is viewed as the main set of explanatory variables (the independent variable), resources as an intervening variable and start-up as the dependent variable. However, except for Foss (1994) they have not used resources as an intervening variable in their studies. Foss (1994) argues that a too structuralistic stream of research may be the reason for

the model applied in earlier research:

> "The pure network perspective explains entrepreneurship as a result of entrepreneurs being embedded in a favorable structural environment, where the social network increases the flow of information, trust, exchange of service, i.e. resources needed for starting a firm. This is a structuralistic approach where the explanation for starting a firm is connected to the environment rather than to the individual" (Foss 1994, p. 2).

We are not certain whether the network approach (pure or not), as Foss (1994) argues, is connected to the environment rather than the individual. From our point of view, the advantage of the social network approach is that it combines the importance of both the environment and the individual. The social network is both a result of factors that the individual controls and of factors that are determined by his or her environment. However, we agree with Foss (1994) that there has been too little focus on how social networks and entrepreneurship actually relate. This might be caused by a too one-sided focus on the structure of the social network.

Foss (1994) shows that the resource variable is important for the understanding of the social network's impact on entrepreneurship. It increases the explained variance of success considerably. Therefore, this variable is applied as an intervening variable between the social network and start-up success also in this study. This is reflected in the structure of our hypotheses. Hypothesis set H5 concerns the relationship between the network and the resources and hypothesis set H6 concerns the relationship between resources and start-up.

As the hypotheses and the arguments in 3.4 indicate, the model that goes from network through resources to entrepreneurship is not sufficient to

describe the relationships between social network and entrepreneurship. In the discussion of institutional theory, we argued that important resources might be hard to identify, as for example legitimacy. Legitimacy may not be viewed as an ordinary resource. It might be more accurate to regard this resource as a property of the social network. There may also be other resources that are hard to identify. These points make it necessary to have a direct link between the social network and the dependent variable. This is also reflected in our hypotheses. Hypothesis set H2, H3 and H4 reflect the direct effect between social networks and start-up success.

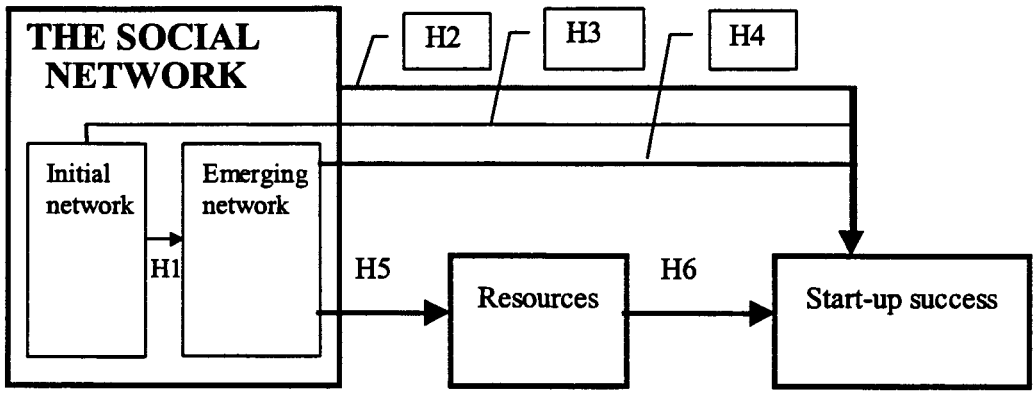
As argued in 3.5, the concept of the entrepreneur as a "networking man", implies that there may be a causal connection between the development of relationships during the entrepreneurial process (the emerging network) and the chance of success. In hypothesis set H4, we therefore assumed that development of social networks during the entrepreneurial process would promote start-up success.

The initial network partly conditions the further development of the network during the entrepreneurial process. In terms of a model, this gives us a link, as proposed in the first hypothesis set (H1), between the initial network and the emerging network. Also, some researchers have argued that it often takes a long time to develop relationships (Greve and Gattiker 1994). This may, as argued in 3.5, imply that the network developed before the entrepreneurial process (the initial network) may have properties that have a direct effect on entrepreneurship. This is reflected in the hypothesis H3, which implies a direct relationship between the initial network and start-up success.

These arguments and the structure of our hypotheses give this model structure: First, the initial network influences the development of the network during the entrepreneurial process (H1). Second, there is a direct

causal link between the social network and start-up. In order to study this link, the social network is divided into a relationship between: a) the whole network and start-up (H2), b) the initial network and start-up (H3), and the emerging network and start-up (H4). Third, the network determines the access to needed resources (H5) and, dependent upon the access to resources, the start-up is successful or unsuccessful (H6). The model is illustrated in figure 3.7:

Figure 3.7: Model.



In sub-chapters 1.1. and 2.6, we saw that Foss (1994) argues that both social networks and resources could be treated as intervening variables. Human capital (qualities of the individual) such as education and work experience, she argues, would determine the social network. The results of her study, however, indicate that the human capital variables might have a minor impact on the social network. She reports that they explain two to seven percent of the variation of the social network variables (p. 234). Partly based on her results, we decided not to use human capital as an independent variable.

Foss (1994) found a direct relationship between human capital and start-up success. Most of the research done earlier indicates that human capital is not positively related to venture success (Foss 1994). A closer look at Foss'

results shows that experience, which involves similar technologies, had an important effect on start-up. "Similar technologies" included two of her eight human capital variables (industrial and technical experience). The other six variables had no effect or a negative effect on start-up. The total effects of the human capital variable (positive and negative effects) increased the explained variance in the chance of start-up success by 12 percent (p. 212).

Because we have another set of human capital variables in this study, it may not be possible to fully compare her results in our study. However, we have data on work experience and we will investigate whether these or other human capital variables have an important effect on the start-up success.

CHAPTER 4: METHOD AND DESCRIPTIVE STATISTICS

4.1. Introduction

The purpose of this chapter is to present the methods applied in order to do the empirical tests of the hypotheses developed in the previous chapter. First we will discuss the framework of the design of this study. In this discussion a critical issue raised in the review of earlier studies will be addressed: how it is possible in the study of the effect of social networks on entrepreneurship to design an investigation that gives a better basis for drawing reliable conclusions.

The second purpose of this chapter is to discuss the method of data collection. Third, the variables used in this study will be operationalized. Definitions of variables have already been given in 3.2. In order to make the empirical testing possible, the definitions are made more precise and they are operationalized in this chapter. Fourth, the response rate and key characteristics of the entrepreneurs are discussed and finally, the quality of the data is evaluated and the method used to test the hypotheses is described.

4.2. An overview of the design

This study consists of a survey in which 194 persons who wanted to start a new organization have been interviewed. About half of the respondents wanted to start a new business and half of them wanted to start a new church (more details in 4.8) The interviews were done by a combination of mail and phone. The questionnaires were sent to the entrepreneurs prior to

the phone interview. This was done in order to make the interview more effective. In order to be well prepared for the phone interview, the entrepreneurs were asked to consider one question concerning who their social network consisted of before the main phone interview was done.

The hypotheses formulated in 3 are causal. According to Cook and Campbell (1979), a classical experiment provides the best basis for drawing causal conclusions. It gives control through randomization and controlled situations, the possibility of manipulation through control of the treatment, and the possibility of comparison through control groups and randomization (Pedersen 1989). Modifications of a classical experiment will in general reduce the validity of the results. A survey such as the one applied in this study may be viewed as a strong modification of the classical experiment. These modifications represent major threats to the validity. However, some of the threats can be reduced by relatively simple adjustments of the design. The threats and the compensations for these are discussed in the following sub-chapters.

4.3. Design and validity

According to Cook and Campbell (1979), it is useful to distinguish between four types of validity. First, the question for the statistical conclusion validity is to what degree the observed relationships are significant from a statistical point of view. Second, internal validity concerns whether there is a causal relationship between the two variables that co-vary and in what direction the relationship goes. Third, construct validity means that we have a satisfactory correspondence between the observed and theoretical interpretation of the variables (Troye 1985). The fourth type of validity, external validity, concerns the possibility of generalizing the results.

Though we have to deal with several problems related to the statistical, construct and external validity, the major problem in this study is related to internal validity. The design must make it possible to rule out explanations other than the network properties and resources. According to Cook and Campbell (1979), this is the essence of internal validity. However, these authors (ibid.) stress that this criterion also implies that it is necessary to design a study that makes it possible to assess the causal direction.

We can already conclude that it is impossible to design a reasonable classical experiment to answer our research questions. We have to give up several of the requirements for a classical experiment. It would not be possible to manipulate the treatment and to select respondents, time and situations at random. It would also be too time-consuming to follow the respondents through the whole entrepreneurial process. These fundamental problems are probably major reasons for the lack of reliable causal conclusions in earlier studies. These problems also imply that no single study will give a final answer. The important point is that in every new study we try to add to the knowledge gained through earlier studies.

In the classical experiment, the most important factor to control for third-variables is randomization (Pedersen 1989). In this study, it has been be difficult to draw a fully random selection of all business start-ups in Norway. However, a group of consultants has compiled a regional database of entrepreneurs that have received advice. By drawing from this database, a limited randomization has been applied. For church entrepreneurs, randomization is easier because of the limited population. The strategy of selection will be discussed in detail in 4.6.

The usual means to compensate for lack of full randomization has been applied. We have checked for competing explanations by measuring the potential threats to validity and compared the different groups of

respondents (Cook and Campbell 1979). Such threats are differences between the entrepreneurs in education, age, family situation, experience, and so on. Threats can also be related to contextual factors such as demography and socio-economic characteristics in the area where the entrepreneurial efforts were made. Most of these factors have been possible to measure through the questionnaire or through secondary statistics.

To assess the causal direction, Pedersen (1989) stressed that it is important to have the possibility to manipulate the treatment. In this study this is not possible because we do not know when and how the dependent variable (the treatment) was "introduced". This makes it hard to assess the causal direction. However, as Cook and Campbell (1979) argue, lack of pre-test does not necessarily imply that we cannot obtain any information about the situation before (and during) the entrepreneurial process. Cook and Campbell's (1979) argument is also valid when we lack information about how the network developed. Most likely it is possible for the respondents to retrieve some of the necessary information about the situation before and during the entrepreneurial process. Some of this information can also be found in letter archives and other written materials that the entrepreneur has produced. However, the exact timing of different events may be difficult to retrieve and it is therefore possible to have only a rough division of entrepreneurial phases. Our modification of the Wilken (1979) and Garnes' (1982) classification discussed in 4.4, which only include two entrepreneurial phases, is such a classification.

To make the necessary contrast we have interviewed both successful and non-successful entrepreneurs. If the social network is important for a successful entrepreneurship, we have obtained significant differences in the network properties between these groups.

In this study it has been necessary to give up a pre-test. It has had to be a "post-test-only-design". The problem with such a design is that any

differences between the groups can be attributed either to treatment effect or to other selection differences between the groups. To a certain degree, this problem can also be reduced. First, retrospective questions about the situation before the entrepreneurial process should give some valuable information. Second, measuring background variables (e.g. age, gender, and education) and contextual factors (demography and socio-economic factors) help to rule out possible explanations other than network properties. In addition, in this study, as opposed to many other studies, it has been relatively easy to assess the value of the dependent variable "before and after" the "introduction" of the treatment.

One strength in this study is that it has been done in the natural environment of the entrepreneur. This usually increases the external validity of the study (Cook and Campbell 1979). Also, there has not been any problem with communication between the persons in the groups of entrepreneurs that have been studied.

4.4. Entrepreneurship Process and Design

Aldrich and Zimmer (1986) argue that in the study of entrepreneurship one has to explore the entrepreneurial process. They do not discuss this issue in detail. A possible interpretation is that they regard themselves as being in the early phase of the research process of entrepreneurship. However, according to their critique of earlier studies as "snapshots", they probably think that these studies are too poorly carried through in order to draw causal conclusions.

For three reasons, we do not think that a process approach would have been useful for this study. First, an intensive study design, or in other words, a study that is less standardized, informal, interactive and open for speculation is regarded as an effective method of investigating the causal

processes in one or a few cases, and of understanding the phenomenon in depth (Sayer 1985 and Repstad 1987). While this is a useful approach, the goals of this study go beyond the understanding of a few cases. We want to draw conclusions that have some general value.

Second, it is hard to distinguish between the kind of network properties and resources that are needed in the different phases. For example, it is reasonable to assume that both weak and strong ties are necessary during the whole process of entrepreneurship. Also, the borders between the entrepreneurial phases are fuzzy. For instance, towards the end of the entrepreneurial process idea development, planning and establishment will most probably go on at the same time. Third, the relatively long time it takes to develop strong ties indicates that it is hard to relate entrepreneurial phases to the different social ties. In sum, we therefore argue that the division of phases would not help much in the causal assessment.

However, the use of a separation between entrepreneurship phases is needed for other reasons. To answer my hypothesis concerning the initial network and the emerging network, it is necessary to distinguish between before and after the starting point of the entrepreneurship. This is sometimes hard to do. Did the entrepreneurship start when the idea came into the entrepreneur's mind, when the planning started or when the establishment of the new organization began? Because the basic idea may have been developed several years before the creation of the organization, we have chosen the beginning of the formal planning as the starting point of the entrepreneurship.

It is also necessary to know when the non-successful entrepreneur left the entrepreneurial process. In addition to distinguishing between before and during the entrepreneurial process, we think that it is possible for the

entrepreneur to distinguish between the phase when only the planning was done and the phase of establishment of the new organization (where probably both establishment and planning are done). We have therefore used before the planning, the planning, and the establishment of the new organizations as phases in this study. This is a modification of Wilken (1979) and Garnes (1982). As briefly mentioned in 1.1 they divide the entrepreneurial process into three phases: (1) the idea phase, (2) the seed (or planning) phase, and (3) the business establishment phase. In the first phase the idea is developed. In the second, the entrepreneur gathers information that is needed in order to obtain the necessary resources. In the last phase, the establishment of the new organization is carried through.

4.5. Summary of the Study Design

This study is a quasi-experiment. It has been done in a natural setting, the variables are measured after the effects of the dependent variables have occurred and the study lacks a regular control group. In order to reduce the corresponding threats to identifying causal relationships, several compensating strategies has been applied. The following table 4.1 shows the framework of the research design and the compensations that this design makes necessary.

Table 4.1: Framework of the research design and the compensations that this design makes necessary.

Design features	Problems the design cause	▪ Compensation for the problems
Lack of full randomization	It may be hard to rule out competing explanations.	▪ Using randomization in a limited sense (described in 4.6) ▪ Measuring the possible threats and comparing the different groups of respondents.
Natural setting (treatment out of control)	The problem is when and how the dependent variable was "introduced". This makes it hard to assess the causal direction.	▪ Retrospective questions based on a classification of entrepreneurial phases
Post-test only	The problem with the post-test only is that any differences between the groups can be attributed either to treatment effect or to other selection differences between the groups.	▪ Retrospective questions about the situation before. ▪ Measuring possible threats (background variables and contextual factors). ▪ It is also relatively easy to assess the value of the dependent variable in this study.
Lack of control group	Makes it hard to draw conclusion about the effect of the dependent variable.	▪ Comparison between successful and non-successful entrepreneurs

The conditions for drawing a causal conclusion have not been met and it has, as in most studies, not been possible to draw fully reliable causal conclusions. However, especially the use of entrepreneurs with different degrees of start-up success is assumed to have made the conclusions more reliable than in earlier studies where entrepreneurial phases most often are used as the dependent variable (see 2.6). The reason for this is that the use of the social network approach in the field of entrepreneurship seeks to predict factors that increase the chance for a prospective entrepreneur with an idea to succeed. Start-up success, therefore, is possibly the best measure of the dependent variable.

4.6. Data Collection

As Burt (1983) points out, in any study a compromise is made between the extreme case study describing one unit of analysis in great detail, and a comparative analysis of many units in relatively little detail. Also in this study it is necessary to make this compromise. The aim is to arrive at some general conclusions about social network properties and the creation of new organizations. This aim sets some requirements for representative data. However, it is not possible to make a fully random selection of respondents and situations. For example there exists no list (or anything like it) of the population. Nevertheless, we have tried to design a data-selection procedure that gives a limited degree of randomization and a certain level of control over the possible threats of the selection.

The business entrepreneurs were selected randomly from a group of entrepreneurs that had made contact with a center for entrepreneurial training (EVA-center) in the city of Kristiansand in Norway. The entrepreneurs all had a desire to start a new business and had sought advice from the center on how to go about it. We tried to interview 50 entrepreneurs who had started their own business, and 50 who had tried but failed. All the business entrepreneurs were from the counties of Aust- and Vest-Agder.

Jenssen (1994) found 138 cases where persons had tried to establish new churches in Norway since 1981. 128 of the churches had been established when the interviews were done. This is probably close to being the whole population of new churches outside the state church in Norway. 10 persons had tried to start a new church but had failed or given up the effort. Of the 138 cases we selected all those that had tried to start a new church but had

failed and we also selected, at random, 100 churches among those that had started.

In mail survey studies, a common problem is the low response rate. Use of the phone usually raises the response rate, but demands a relatively simple questionnaire. The third possibility is personal interviews. However, the problem with personal interviews is that they are time consuming and therefore set too low a limit on how many respondents can be interviewed. We chose a combination of mail and phone interviews. The respondent received the questionnaire by mail but the interviews were done by phone. This made it possible for the respondents to read through the questionnaire and answer one key question before the main interviews were done by phone. It also gave the respondents the possibility to see the questionnaire during the interview. This made it possible both to have a relative complex questionnaire and to get a high response rate.

The method used to get information about the persons in the respondents network is a critical issue because it determines what kind of people are included in the network, and therefore the operational definition of the network. A frequently used strategy is to ask about the names of the people in the respondents' network and then ask them to describe these people and how they are related (McCallistar and Fischer 1983). However, there are several problem with this method. First, according to McCallistar and Fischer (1983), the respondents tend to choose certain sectors of networks at the expense of the rest. Second, people tend to interpret terms such as "best friends" in different ways. For example some will include relatives in this term and other will not. Third, forgetfulness can reduce the respondents' ability to recall the people in their network. Finally, the respondents may exaggerate the number of acquaintances to avoid seeming unpopular.

No network investigation based on interviews will be immune from such

problems, but they can be reduced. In this study the content of the relationships that we are interested in getting knowledge about is explicitly specified as the relationships that concern the creation of the new organization. This specification has reduced the numbers of relationships significantly. However, the relationships concerning the creation of the new organization can be in different sectors of the entrepreneurs' network. It can be in the professional sector, it can be to relatives, friends and so on. Therefore, to help in recalling relationships, a variety of sectors and institutions where the entrepreneurs may have relationships were named.

Finally, to reduce the problem with forgetfulness it is necessary that the interviews do not take place too long after the entrepreneurial effort. On the other hand, to be sure that the development of the new organization is a success variables such as time of existence and the size of the organizations have to be considered.

When one asks a person questions about his or her former actions, rationalization after the fact (March 1978) is always a threat to the validity of the answers. However, in this study, most of the questions are so factual that this threat is assumed to be a minor problem.

One problem when one wants to ask entrepreneurs about their social networks could be to pick the right persons (the entrepreneurs). If there are identifiable entrepreneurs as in many businesses, and as much of the entrepreneurial literature presupposes, it should be easy to pick the right persons. However, in some cases there might be more than one person involved in the start-up. Therefore, in such situations it might be difficult to select the right person for the interview. In order to deal with this problem, we have chosen the person that was the formal leader when the new organization was developed.

4.7. Definitions and Operationalizations

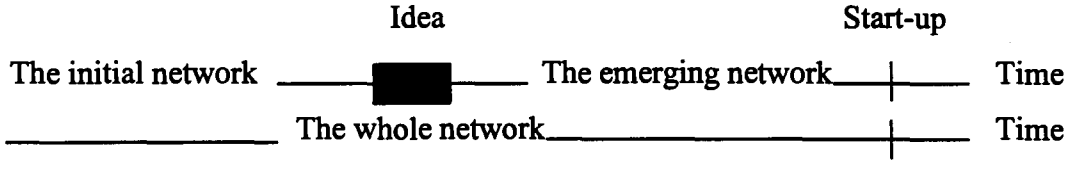
4.7.1. Introduction

The construct validity concerns the correspondence between the observed variables and the theoretical interpretation of the variables (Troye 1985). To attain a high degree of construct validity, it is crucial to give a precise definition of the theoretical constructs, their relationships and the empirical measures of the constructs. In the discussion of theory, the putative causal relationships were discussed and definitions of the theoretical constructs were given. In this sub-chapter, we will go a step further in the process of defining and operationalizing. Before doing that it is necessary to comment on an issue concerning how the initial, emerging, and the whole network relate to each other.

4.7.2. How the Initial, Emerging and Whole Network Relates

Social networks were in 3.2 divided into three categories: the whole network, the initial network and the emerging network. It is necessary to mention that there might be a small overlap between the initial and the emerging network. The relationship between the initial, the emerging and the whole network is illustrated in figure 4.1:

Figure 4.1: The relationship between the whole, the initial, and the emerging network.



The horizontal lines are the time, and the direction of time goes from left to right. The whole network includes both the initial and the emerging

network. The identification of where the initial network ends and where the emerging network begins may be a little fuzzy. The gray box in figure 4.1 illustrates this. The reason for this fuzziness is that it may be hard to identify exactly when the idea of creating a new organization was conceived. It is almost impossible to avoid this problem. However, the problem is probably relatively small and not a major threat to validity.

4.7.3. Operationalizations of the Independent Variable

The independent variables are the ego-centered social networks of the entrepreneur. This variable was defined in 3.2 as lasting social relationships between people surrounding the focal person (the entrepreneur) seen from his or her point of view.

The number of contacts (degree centrality) was defined in 3.2 as the number of persons relevant to the entrepreneurship and directly related to the entrepreneur, within the respondent's ego-centered network (degree centrality). This variable was measured by asking the respondents to name the persons with whom ideas, plans and problems concerning the entrepreneurship were discussed, and from whom they received practical or financial support, information, knowledge, and/or other help or support. The respondents were asked to include family members in the list of names (question p. 1).

The strength of a relationship is, as discussed in 3.2, defined by the frequency of interaction, degree of affection, and the time that the relationship has lasted. The more interaction, affection and time, the stronger the relationship. There are several ways to measure this concept. One way is to measure the degree of friendship. According to Krackhardt (1992), "the face validity of the idea that friends are people who like each other, have known each other for a reasonable time, and frequently interact

with each other is at least minimally defensible." In this study we have asked the entrepreneur to decide whether the contact is (1) loose acquaintance, (2) acquaintance, (3) friend or (4) close friend before and after the effort to start a new organization (question 12 column M and N). This measure is supplemented by asking the entrepreneur about the degree of trust he or she had to his contacts ((1) little trust, (2) trust, and (3) strong trust- question 12 column K and L). For the whole network, the prospective entrepreneurs have also estimated the *time used for maintaining* and on *developing* the social network (questions 21/24). This measure is only gathered as an estimate for the whole network and cannot be used for segments of the social networks.

Multiplicity is defined as the number of relationships or affiliations between the focal person and his contacts. If a relationship consists of more than one affiliation it is considered to be multiple. Multiplicity was measured by asking the respondents how many of the following affiliations they had to the individual contacts: (1) family, (2) relative, (3) friend (4) present or former colleagues, (5) former teachers, and (6) open category (question 12, column H and I). The level of multiplicity was then calculated as the proportion of the focal person's ties with all other persons, N-1, in the network that are multiplex across K levels. Multiplicity can be measured analytically as (see Knoke and Kuklinski (1982)):

$$M_i' = \frac{\sum_{j=1}^{N} \sum_{k=1}^{K} Z_{ijk}(m)}{N-1}$$

where the $Z_{ijk}(m)$ is 1 if person i has the requisite number of links with person j across K networks, and is 0 otherwise.

Density measures how closely knit a social network is (Greve 1993). It is

measured by comparing the total number of ties present to the maximum number that would occur if everyone in the network were connected to everyone else[6](question 12 column O/P). For an ego-centered network it is common to exclude the direct ties from the focal person (ego) when calculating t. The formula for density is given in 3.2.

Contacts are redundant to the extent that they lead to the same people, and therefore provide the same information benefits. Redundancy is network density scaled by n-1, where n is the number of contacts in the focal person's network. Redundancy is measured by comparing the number of ties (multiplied by two) with the number of persons (nodes) within the social network of the focal person (question 12 O/P). It is analytically found by using the following equation: 2t/n, where t is the number of ties and n is the number of contacts (Borgatti 1997).

4.7.4. Operationalizations of the Intervening Variable, Resource Access.

The intervening variable in this study is the resources the entrepreneur receives in the process of starting a new organization. Resources are divided into affective resources, information resources, material resources, and the range of resources. Affective resources comprise mental stimulation or social support, information resources the information the entrepreneurs receives, material resources resources that include a physical or a material aspect, and the range of resources the number of different resources the entrepreneurs receive from their contacts.

The literature on this field gives some suggestions about the

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[6] More advanced measures of density also consider the strength of ties (Aldrich and Zimmer 1986).

operationalizations of information resources, affective resources, and material resources. We have tried to include the most common categories. To enable comparisons, we have tried to use the same categories for both business and church entrepreneurs. However, in order to use relevant categories, it was necessary to drop two of the resources used for business entrepreneurs in the questionnaire for church entrepreneurs. We also had to add two new resources for church entrepreneurs.

For the business entrepreneurs, we have chosen to include (question 12, column J):

- Number of information resources:
  - experts
  - connections to potential customers
  - connections to suppliers
  - connections to advisers
  - connections to financial resources
  - information sources
- Number of affective resources:
  - motivation sources
- Number of material resources:
  - money sources
- Range of resources (number of different resources)
- Open category

The questions concerning connections to potential customers, suppliers, advisers and financial resources, are information resources because they refer to information that led to a connection. Information resources do not refer to the actual resources (e.g. money or customers). For example connection to financial resources refers to the information that leads to a connection to a financial source (an investor, bank, broker etc.).

For church entrepreneurs the literature gives relatively little guidance about what resources are important for developing new churches. However, from the discussion above (2.8) we can see that social support (Wagner 1991), motivation (eg Greenway 1987), practical help, musicians, (see eg Greenway 1987 and Patterson 1992), money (eg Patterson 1992), are mentioned in the literature. However, the literature does not say much about the need for information/ knowledge except that knowledge (and trust) in the area where potential new members live is important (Sawatsky 1985). Nevertheless, as argued in 3, we think that information resources is one of the most important categories of resources in the entrepreneurial process or access to such resources.

In order to make the resource variable for business and church entrepreneurs as similar as possible, we also included connection (access) to potential members (for business entrepreneurs the term customer were used) and to financial resources. These variables might also be relevant for church entrepreneurs. We have amitted access to advisers and to suppliers because there does not exist any profession that gives advice to church entrepreneurs in Norway. The variable experts (see the list of variables given above) is therefore sufficient for these entrepreneurs. Access to suppliers does not seem to be relevant for church entrepreneurs.

On this basis, we have chosen to divide resources for church entrepreneurs into (question 12, column I):

- Number of information resources:
  - experts
  - connections to potential members
  - connections to financial sources
  - information sources

- Number of affective resources:
  - motivation sources
- Number of material resources:
  - money sources
  - singers and musicians
  - practical help sources
- Range of resources (number of different resources)
- Open category

It is also necessary to underscore that the network can be viewed as both a creator of resources and as an instrument for transferring resources. Some resources might just be transferred between two contacts. This is the case when money is transferred from one person to another. On the other hand, for example, the sum of a number of relationships that the entrepreneur perceives as positive might create motivation.

4.7.5. Operationalizations of the Dependent Variable

The dependent variable in this study is the creation of new organizations - businesses and churches. This can be measured in different ways. We have collected data for two measures. First, we have gathered information on the degree of success such as total revenues (question 18 for business entrepreneurs and question 19 and 20 for church entrepreneurs). Second, entrepreneurs that started a church or a business can be compared with entrepreneurs that tried, but gave up (question 19 for business entrepreneurs and question 22 for church entrepreneurs). A business is considered to be created when it is formally established and has its own revenues.

Persons that try to establish a church rarely give up the development before the church is considered established. However, the established church may

only consist of a handfull of people gathering in a private home. Therefore, it is difficult to use established vs. not established as a measure of the dependent variable for churches. However, as for businesses we have selected indicators of success (total revenues and number of members at the time the church was considered as established as an independent congregation, etc.).

In order to compare business and church entrepreneurs we have used the level of total revenues since we have this measure for both groups. The other measure has been applied in order to investigate the stability of the results across different measures of success.

Some may argue that contextual factors, like the number of inhabitants in the city or village where the church was established, affects the size of a new church. In order to check for this the relationship between the size of the new churches and the number of people in the cities where they were established has been explored.

Total revenues used in the analysis are the average of the years 1992 and 1993. For some of the new organizations we did not receive revenue data for both years and we had to use revenues for only one of the two years. Since the establishment of the new businesses and churches did not happen in the same year, the time between establishment and the measure of revenues varies. For most businesses this time span is relatively small (see table 4.3 in this chapter). However, for churches the time between establishment and the measure of revenues is longer and more varied. Therefore, this time span has been used as a control variable for church entrepreneurs. This is also necessary because of the problem of forgetfulness (see 4.6). Finally, in order to check the stability of the results for church entrepreneurs the numbers of members *at the time* the church was considered to be started has also been applied in the testing of the hypotheses.

4.7.6. Summary of the Operationalizations

Table 4.2 gives an overview of the variables. The table includes concepts, definitions and operationalizations:

Table 4.2: Variables, definitions, and operationalizations.

Concept	Definitions (from 3.2)	Operationalizations	Question
A. Independent variable: **1.** Ego-centered network	The structure of social relationships among people and the focal person (the entrepreneur) seen from his or her point of view	**1.1.** Number of contacts **1.2.** Strength of ties **1.3.** Multiplicity **1.4.** Density of the network **1.5.** Redundancy of the network	
1.1. Number of contacts	Number of persons relevant to the entrepreneurship and directly related to the entrepreneur, within the respondent's ego-centered network (degree centrality).	The respondents named the persons with whom ideas, plans and problems concerning the entrepreneurship were discussed, from whom they received practical or financial support, information, knowledge, and/or other help or support	Page one
1.2. The strength of ties	Frequency of interaction, degree of affection, and the time the relationships have lasted.	For the individual contacts: • degree of friendship (1 to 4) • degree of trust (1 to 3) For the whole network only: • time used to maintain relationships	12 column M/N 21/24
1.3. Multiplicity	A multiple relationship is a relationship with more than one affiliation (eg family, friend, colleague).	The proportion of the focal person's (ego's) ties with all other persons, N-1, in the network that are multiplex across K levels	12 column H/I
1.4. Redundancy	Contacts are redundant to the extent that they lead to the same people, and so provide the same information benefits	Comparing the total number of ties (t) present to the total number of person (n) in the social network (formula: 2t/n)	12 column O/P
B. Intervening variable: **2.** The number of resources	The number of resources related to the entrepreneurship the entrepreneur receives.	*The number of:* **2.1.** Information resources **2.2.** Affective resources **2.3.** Material resources **2.4.** Range of resources	12, column J/I
2.1. The number of information resources	The number of information resources the entrepreneur receives from his contacts.	*Number of information resources:* *For business entrepreneurs:* expertise, connection to potential customers, to suppliers, to advisers, to information, and to financial sources *For church entrepreneurs:* expertise,	12, column J/I

		connection to potential members, information, and to financial sources	
2.2. The number of affective resources	The number of affective resources (mental stimulation/social support) the entrepreneur receives from his or her contacts.	*Number of affective resources:* *For business and church entrepreneurs:* motivation	12, column J/I
2.3. The number of material resources	The number of material resources that include a physical or a material aspect the entrepreneur receives from his contacts	*Number of material resources:* *For business entrepreneurs:* money *For church entrepreneurs:* money, singers and musicians, and practical help	12, column J/I
2.4. Range of resources	The number of different resources the entrepreneur receives	The number of different resources	12, column J/I
C. Dependent variable: Establishment of a new organization	The establishment/creation of a new organization (business or church)	1) Degree of success: - businesses/churches: total revenues - churches: No. of members at start-up time. 2. (Started vs. not started)	18/20 15 19/22

Variables numbered 1.1 to 1.4 are properties of the ego-centered network. These properties are referred to as network properties. Variables numbered 2.1 to 2.4. are groups of resources.

In order to collect the data, a random selection of respondents was used. The business entrepreneurs were randomly selected from a center for entrepreneurial training (EVA-Center) in Kristiansand. The church entrepreneurs were selected from a list made of churches that had tried to start and of churches that actually were started in Norway.

In order to obtain information about the respondents' ties, the content of the relationships that we wanted to get information about was defined. In order to reduce the problem of forgetfulness the entrepreneurs were given a variety of sectors to "pick" relationships from, and also, the time-span between the entrepreneurship and the interview was made as short as possible (the time-span is shown in 4.8 table 4.3).

The interviews were done by phone, but the entrepreneurs had the

questionnaire available before the interviews took place.

4.8. Response rate

As mentioned in the previous sub-chapters, the business entrepreneurs were selected from a center for entrepreneurial training in Kristiansand. The goal was to interview about 50 entrepreneurs that had started a new business and 50 that had tried to do the same but failed. We got response from 59 of the first category and 41 of the second. To achieve this it was necessary to call up 87 that had started and 68 that had given up. The response rate was 67.8 and 60.3 percent respectively. For both groups together the response rate was 64.5 percent. The entrepreneurs were selected at random from a list of entrepreneurs that had started a new business and a list of those that had tried to do the same, but had failed or given up.

As metioned in 4.6, we selected 100 persons that had started a new church. Of these we interviewed 85. This gives a response rate of 85.0 percent. We also interviewed with 9 of the 10 that had failed or given up (90 percent). This gives a response rate of 85.5 percent for all church entrepreneurs.

The business entrepreneurs all live in the counties of Vest-Agder and Aust-Agder. In order to find enough church entrepreneurs we had to search through the whole country. We therefore have church respondents from most counties in Norway.

Table 4.3 shows the average year of start-up for the businesses and churches that were established, and the average year when the effort of starting new businesses or churches was given up. The table also shows the standard deviation, the minimum and maximum of this variable.

Table 4.3: Year of start-up for entrepreneurs' (v16x)

Types of entrepreneurs	Mean	St. Dev.	Min.	Max.	N
Business entrepreneurs (V16V22)	-92.3	1.28	-85	-94	90
Church entrepreneurs (V16V22)	-88.9	3.32	-81	-94	93
All (V16V22)	-90.6	3.05	-81	-94	183

On average the churches were started earlier than the businesses. The starting points are also more spread in time for the church than for business entrepreneurs. This means that the time between the actual entrepreneurial process and the interview was longer for the church entrepreneurs. This could indicate that forgetfulness is a bigger problem for the church entrepreneurs. While testing the data, it is therefore important to investigate whether the span of time between the interview and the entrepreneurship has had an influence on the answers (see 4.7).

4.9. Characteristics of the Entrepreneurs

In this sub-chapter an overview of the characteristics of the respondents is given. Table 4.4 shows the educational background of the entrepreneurs.

Table 4.4: Educational background for entrepreneurs (percent)

	Types of education				
Types of entrepreneurs	Elementary School	High School	College/ university	Other education	Total
Business entrepreneurs	17.0	41.0	30.0	12.0	100
Church entrepreneurs	18.1	25.5	51.1	5.3	100
All entrepreneurs	17.5	33.5	40.2	8.8	100

Most of the business entrepreneurs have high school (41%) or higher education (31%). For the church entrepreneurs 25.5 percent have high school and 51.1 percent have higher education. The differences between business and church entrepreneurs are minor. However, there is a higher

percentage of church entrepreneurs with higher education (51.1%) than of business entrepreneurs (30%).

Table 4.5 below shows the work experience for the entrepreneurs

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Table 4.5: Work experience of entrepreneurs (percent)

	Work experience								
Categories of entrepreneurs	1 Stud-ent	2 Un-empl-oyed	3,4 Private employ-ment	5,6 Public employ-ment	7 Ran his own business	8 Pastor in a church he or she started	9 Pastor in a church he or she did not start	10/8 Other	Total
Business entrepre.	23	9	42	12	7			7	100
Church entrepre.	6.4	5.3	12.8	22.3	13.8	8.5	18.1	12.8	100
All entrepreneurs	14.	7.2	27.8	17	10.3	4.1	8.8	9.8	100

Of the business entrepreneurs 23 percent were students before they tried to start a new business, 9 percent were unemployed, 42 percent were in private employment, 12 percent were employed by the states or the counties, 7 percent ran their own business and 7 percent were in the "other" category.

The church entrepreneurs have a more varied background than the business entrepreneurs do. 6.4 percent were students, 5.3 percent were unemployed, 12.8 percent were privately employed, 22.3 percent were employed by the states or the counties, 13.8 percent ran their own business, 8.5 percent were pastors in another church they had started, 18.1 percent were pastors in a church they had not started, and 12.8 percent are in the "other" category.

Table 4.6 below shows the age distribution of the entrepreneurs.

Table 4.6: The age of the entrepreneurs

Entrepreneurs	Mean	St.Dev.	Min.	Max.	N
Business entrepreneurs (ALDER1)	39.21	11.08	17	67	97
Church entrepreneurs (ALDER1)	43.02	9.09	25	68	94
All entrepreneurs (ALDER1)	41.08	10.30	17	68	191

The average age of the entrepreneur is 41.1 years. The business entrepreneurs are on average almost 3.8 years younger than the church entrepreneurs are. The business entrepreneurs also vary more in age than the church entrepreneurs do (st.dev. 11.1 vs 9.1).

Table 4.7: The gender of the entrepreneurs. (V04, question. 2)

Types of entrepreneurs	Men	Women	Total
Business entrepreneurs (N=100)	77.0	23.0	100
Church entrepreneurs (N=94)	98.9	1.1	100
All entrepreneurs (N=194)	87.6	12.4	100

Of the business entrepreneurs, 77 were men and 23 were women. Of the church entrepreneurs, only one was a woman.

Table 4.8: Membership in voluntary associations (V10A, question 8).

Types of entrepreneurs	Yes	%	No	%
Business entrepreneurs	59	59.0	41	41.0
Church entrepreneurs	89	94.7	5	5.3
All entrepreneurs	148	76.3	46	23.7

Of the business entrepreneurs, 59 percent had been involved in a voluntary association before trying to start a new business. Of the church entrepreneurs, 94.7 percent had been involved in a voluntary association before trying to start a new church.

To sum-up: There are some differences between business and church entrepreneurs. It is necessary to be aware of these differences while testing

the hypotheses. On average, the business entrepreneurs had a little less education and less varied work experience than the church entrepreneurs did. The average age of the entrepreneurs was 41.1 year and the business entrepreneurs were on average almost 3 years younger than the church entrepreneurs were. There were fewer women than men among the entrepreneurs and there were also fewer women among the church entrepreneurs than among business entrepreneurs. Finally, table 4.3 shows that the churches were on average established a few years before the businesses and the year of establishment was more spread out in time than the businesses were.

4.10. Outliers

Z score is used to identify outliers. The threshold value of standard scores depends upon the size of the sample. Hair et.al. (1995) recommend that the Z score be set from 3 to 4 when the sample consists of over 80 observations. Since this sample consists of more than 80 observations, we have investigated all Z scores over 4. For these observations we checked whether outliers were caused by a typing error or if they represented the value given by the respondents. If a typing error caused the outliers we corrected the value. However, in accordance with Hair et.al. (1995, p. 60) we retained the values unless they were truly "aberrant and not representative of any observation in the population". The analysis of the data quality indicated that the problem of outliers was minor, and just a few values had to be corrected.

4.11. Normality and Transformations

The statistical methods applied in this study assume a normal distribution of the data. With too high skewness or kurtosis it is necessary to transform the

data to approximate a normal distribution. For most of the variables the data in this study were not normally distributed. The original variables were often in the lower end of the distribution, and too peaked. Therefore we had to transform most of the variables and use their natural logarithm. This gave much better distribution properties.

4.12. Multicollinearity

If the independent variables are too highly correlated, they violate the assumptions of the statistical methods used. There are many methods for assessing multicollinearity. The most common are the tolerance/variance inflation factor (VIF) and the condition index (CI). In this study we have combined these two methods. We have used the most common threshold values according to Hair et al. (1995) when inspecting the multicollinearity. As cutoff threshold Hair et al (1995) suggest a tolerance value of 0.10, which corresponds to VIF values over 10. For the CI measure the most common inspection threshold is above 30. If the value is over 30 we may have collinearity problems. If values over the threshold are found, the proportion of variance of the coefficients has to be analyzed. We have a collinearity problem if the condition index accounts for a substantial proportion of variance (0.9 or above) for two ore more variables (Hair et.al. 1995).

This inspection has been done for all regressions in this report. In a few cases we found VIF values over 10 or CI values over 30. However, there was none of the variables where the condition index counted for a variance of 0.9 or above for two ore more cases.

4.13. On the Testing of Hypotheses

The hypotheses and the model in this study have a causal logic. Therefore,

we need methods that are able to predict the value of the dependent variable from the values of the independent variable. The social network properties and resource variables are all interval-scaled variables. The same applies to the dependent variable, start-up success. Therefore, we have used the linear regression (OLS) which minimizes the sum of the squared vertical distances from the observed data points to the regression line. Factor analysis has been used to explore the factor structure of the resource variables.

4.14. Summary

This study is a survey in which 100 persons who had tried to start a new business, and 94 persons who had tried to start a new church were interviewed. The interviews were done by a combination of mail and phone. The questions raised in this study are causal because we are interested to know how differences in the social network cause different degrees of entrepreneurial success. A survey such as the one applied in this study makes it difficult to draw certain causal conclusions. However, several adjustments of the survey design have been made in order to draw reliable conclusions. Table 4.1 shows these adjustments.

The operationalizations given in this chapter are necessary in order to test the hypotheses and raise the construct validity of the study. Table 4.2 displays a summary of definitions and operationalizations. In the analysis of the data quality the outliers have been investigated and the variables have been checked for multicollinearity. None of these problems seem to have caused any difficulty. Also the distribution properties of the data have been tested. In order to attain approximate normally distributed variables we had to transform most of the variables by their natural logarithms.

The response rate was 65 percent for business entrepreneurs and 85.5 percent for church entrepreneurs. The selection procedure seems to have given an acceptable selection of respondents.

CHAPTER 5: TESTS OF THE HYPOTHESES

5.1. Introduction

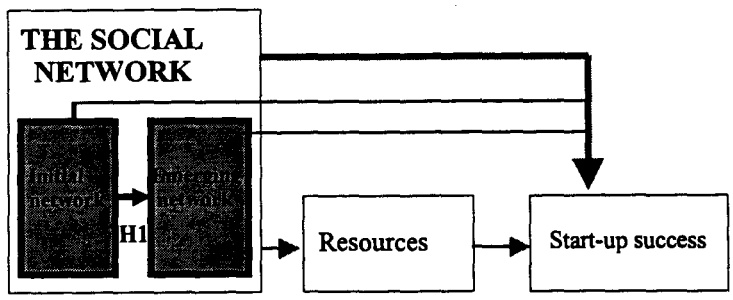
The aim of this chapter is to test the hypotheses formulated in 3. The chapter is divided into sub-chapters according to the six sets of hypotheses. In the next sub-chapter the development of network is analyzed (H1). Then, the effect of the whole social network on start-up success is investigated (H2). Third, the effect of the initial (H3) and emerging (H4) network on start-up success is studied. Fourth, the effect of the social network on resource access is analyzed (H5) and fifth, the effect of resource access on start-up success is evaluated (H6). At the end of the chapter the whole model presented in 3 is tested and evaluated.

5.2. The Development of Relationships, H1

5.2.1. Introduction

In this sub-chapter the hypotheses concerning the initial network's effect on the further development of the social networks are tested. This is illustrated in figure 5.1. The arrow between the two gray boxes marks the relationships that are studied in this sub-chapter.

Figure 5.1: The relationship under investigation in 5.2.



5.2.2. The Development of Weak Ties, H1a

The development of both weak ties (H1a) and strong ties (H1b) has been studied. The strength of ties can be measured in more than one way. As discussed in 4.7, the degree of friendship has been used as the main measure of strength in this study. However, in later sub-chapters of this chapter we will also look at the effect of other measures of strength (multiplicity and trust).

The hypothesis H1a states that *the higher the total number of initial ties (strong and weak), the higher the number of weak ties developed during the entrepreneurial process.* In other words hypothesis H1a deals with the effect of the number of ties developed before the entrepreneurial process (initial network) on the development of new weak ties during the entrepreneurial process (emerging network). H1a is tested in table 5.1:

Table 5.1: The effect of the number of initial ties on the number of emerging weak ties (H1a).

	Dependent variable: Number of emerging weak ties (LFORPSUM).			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variable	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of initial ties (LV35).	-0.0113	0.913	0.0297	0.777
	Adj. R Sq.: -0.010 Signif. F: 0.913 N = 97		Adj. R Sq.: -0.010 Signif. F: 0.777 N = 93	

The result is not significant for either business (p=0.913) or church entrepreneurs (p=0.777) and we cannot reject the null-hypothesis. This implies that there may not be a positive relationship between the number of ties before the entrepreneurial process starts and the number of new weak relationships developed during the entrepreneurial process.

The reason for these results may be related to the fact that the regression analysis was done for all respondents (successful and non-successful). It is reasonable to argue that entrepreneurs who use the initial network in order to develop new weak ties gain an advantage. The results might therefore be different if we look only at the successful entrepreneurs. This is done in table 5.2.

For church entrepreneurs those with revenues that are lower than the median (NOK 234 000) have been excluded. This has been done in order to exclude the least successful entrepreneurs. For business entrepreneurs only the entrepreneurs that succeeded in starting a new business are included in the regression.

Table 5.2: The effect of the number of initial ties on the number of emerging weak ties for entrepreneurs with start-up success (H1a).

	Dependent variable: Number of emerging weak ties (LFORPSUM).			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of initial ties (LV35).	-0.041	0.754	0.168	0.288
	Adj. R Sq.: -0.016 Signif. F: 0.754 N=58		Adj. R. Sq.: 0.004 Signif. F: 0.288 N=42	

The results are not significant (p=0.754 and 0.288) and different from the results found for all business and church entrepreneurs. Therefore, we cannot reject the null-hypothesis.

One reasonable argument is that persons who had several relationships before the entrepreneurial process do not have to develop new weak relationships, and that persons with few relationships before the entrepreneurial process do have to make more than the other entrepreneurs in order to succeed. If this had been a valid argument we should have found that entrepreneurs with few contacts in the initial network developed more during the entrepreneurial process than the other entrepreneurs did. However, the results do not show a significant negative relationship between the size of the initial network and the size of the emerging network for all entrepreneurs (successful and non-successful, table 5.1) or for the most successful entrepreneurs (table 5.2). This means that those with few contacts before the entrepreneurial process do not develop more during the entrepreneurial process than the other entrepreneurs do.

The results of the testing of this hypothesis may be consistent with Greve and Gattiker (1994). They found that relationships are very stable, and that it takes much time to develop new ties. The results may also challenge the thought of the entrepreneur as a «networking man» (Johannisson 1988). This

will be further discussed in 6 (Discussion and Conclusions).

5.2.3. The Development of Strong Ties, H1b

Hypothesis H1b also concerns the relationship between the initial network and the further development of the network. It is about how weak ties develop into strong ties during the entrepreneurial process. H1b hypothesize that *the higher the total number of weak initial ties, the higher the total number of emerging strong ties.*

Table 5.3 shows the results from regression analysis of the effect of the number of initial weak ties on the number of emerging strong ties.

Table 5.3: The effect of initial weak ties on the emerging strong ties (H1b).

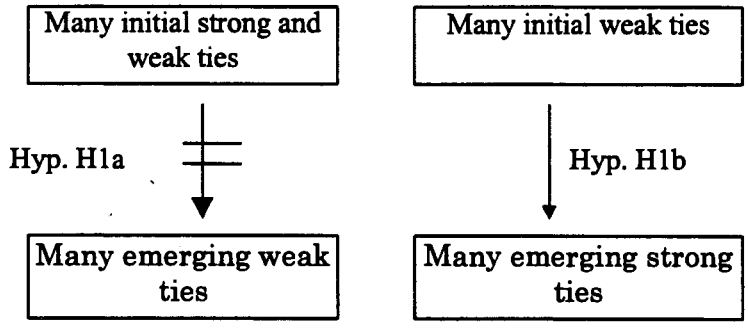
	Dependent variable: number of emerging strong ties (LFORXSUM)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
No. of initial weak ties (LFORF13X)	0.419	0.000	0.616	0.000
	Adj. R Sq.: 0.168 Signif. F: 0.000 N=100		Adj. R Sq.: 0.373 Signif. F: 0.000 N=94	

The null-hypothesis can be rejected (p=0.000) and the direction of the relationship is consistent with hypothesis H1b for both groups of entrepreneurs (the beta-values are positive). A high number of weak ties before or early in the entrepreneurial process give, as assumed, more strong ties developed during the entrepreneurial process than few weak ties developed before or early in the entrepreneurial process do.

5.2.4. Conclusion, H1

First, the results seem to imply that the initial social network is important for the development of the network during the entrepreneurial process both for business and church entrepreneurs. This conclusion is drawn from the fact that the initial network probably is important as a pool of acquaintances. The entrepreneur can use the pool and develop the relationships he or she wants into stronger relationships. This supports hypothesis H1b. However, the expected positive relationship between the total number of initial ties and the number of emerging weak ties, H1a, was not found. The results was the same for both business and church entrepreneurs and for the least and most successful entrepreneurs and they are summarized in figure 5.2:

Figure 5.2: Summary of results related to hypothesis set H1.



The results of the test of H1a might be related to the assumption that those with many initial relationships do not need to develop many new relationships during the entrepreneurial process. However, entrepreneurs with many initial relationships do not develop fewer relationships than the other entrepreneurs. The results of testing hypotesis H1a might also be consistent with those who argue that the relationships are relatively stable and that it takes time to develop relationships.

One reservation must be added concerning hypothesis H1b. The results show that those with many weak ties develop more strong ties during the

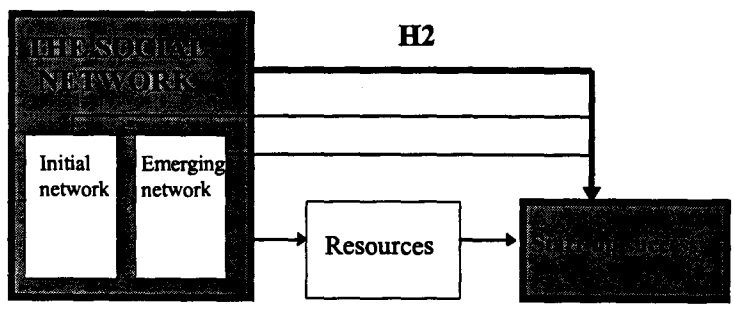
entrepreneurial process than the rest of the entrepreneurs. However, the results do not show how many of the individual weak ties are developed into strong ties during the entrepreneurial process.

5.3. Social Networks and Start-up Success, H2

5.3.1. Introduction

In this sub-chapter the effect of the social networks on start-up success is investigated. The social network may be developed before the entrepreneurial process started (initial network) and/or during the entrepreneurial process (emerging network). The parts of the model that are studied in this sub-chapter are illustrated by the gray boxes in figure 5.3:

Figure 5.3: The relationship under investigation in 5.3:



5.3.2. Data Analysis, H2a - H2c

H2a hypothesizes that *the higher the total number of weak and strong initial and emerging ties, the higher the success of organization start-ups.* Table 5.4 below shows the results of testing this hypothesis.

Table 5.4: The effect of weak and strong ties on start-up success for the business and church entrepreneurs (H2a).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneur**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of weak ties (LFORE14X)	0.338	0.001	0.035	0.753
Number of strong ties (LFORE14Y)	0.216	0.024	0.035	0.753
Years since start-up (LV16V22X)	-	-	-0.216	0.059
	Adj. R Sq.: 0.167 **Signif. F: 0.000** **N = 98**		**Adj. R Sq.: 0.012** **Signif. F: 0.271** **N = 84**	

For business entrepreneurs the model in table 5.4 is significant at an acceptable level and the null-hypothesis can be rejected ($p<0.000$). Also, both the independent variables have a positive impact on start-up success. These results support hypothesis H2a. The model explains 16.7 percent of the variance of the dependent variable. It is not possible to decide exactly what is a high and what is a low value of adjusted R square. However, in general terms one can say that the higher the R square is, «the greater the explanatory power of the regression equation, and....the better the prediction of the criterion variable» (Hair et. al. 1992, p. 20).

The beta coefficient (standardized regression coefficient) allows for a direct comparison of the explanatory power of the dependent variables. However, the beta coefficient has to be «interpreted in the context of the other variables in the equation». It does not «in any absolute sense» say anything about the effect of the independent variable (Hair et. al. 1992, p. 47). Based on this we can conclude that the most important variable in the model in table 5.4 is the number of weak ties (beta-value =0.338, p=0.001). Also the number of strong ties is significant at an acceptable level (beta-value =0.216, p=0.024).

In order to investigate the necessity of the separation between weak and

strong ties, the previous test (table 5.4) was also done with the total number of ties as the dependent variable (without the separation between the number of strong and the number of weak ties). This test also came out significant and positive (p=0.001). However, the explained variance was only 10.6 percent (N=96).

The model in table 5.4 for *church entrepreneurs* is not significant and the null-hypothesis cannot be rejected (p= 0.271). As discussed in 4.8, the time since establishment is longer and more varied for church entrepreneurs than for business entrepreneurs. Time since establishment is therefore used in the regression shown in table 5.4 as a control variable. This variable is close to be significant at a 5 percent level (p=0.059). However, when the regression was done with this variable alone it explained only 4 percent of the variance of the dependent variable.

A regression was also done for the newest cases (all the cases newer than the median of the year of start-up, 1989 and later) without getting any support. The test was then done for all churches started in 1990 and later, and in 1991 and later, without getting any support. The same regressions as above were also done with the number of members at start-up time as the measure of start-up success. However, this did not change the results. None of the variables were significant and the model was not supported at an acceptable level of significance. When only churches started in 1990 and later were included in the sample, the model was significant at 9.3 percent level (adj. R sq.=0.063).

As for business entrepreneurs, the relationship between the total number of ties (weak and strong) and start-up success was also tested. This relationship came out as significant (p=0.068) when the number of members at start-up time was applied as the success variable but the explained variance was only 2.5 percent. The explained variance increased when the test was run for the

newest cases. For churches created in 1989 and later the explained variance was 6.9 percent (p=0.031, N=54) and for churches created in 1991 and later the explained variance was 12.0 percent (p=0.027, N=33).

In 3.4 we indicated that there might be a positive interaction effect between strong and weak ties on start-up success. However, the analysis did not show any sign of interaction effects on an acceptable level for business or church entrepreneurs (see table 3.3 in appendix 3).

We also carried out a regression with multiplicity, which may be viewed as an indicator of strength, as the dependent variable. However, multiplicity did not have a significant impact on start-up success for business entrepreneurs (Adj.R.sq.=-0.008, sign.=0.596) or for church entrepreneurs (Adj.R.sq.=-0.004, sign.=0.400).

H2b hypothesizes that *the lower the redundancy in the initial and emerging network the higher the success of organization start-ups*. As discussed in 4.7, contacts are redundant to the extent that they lead to the same information benefits. Table 5.5 shows the results of testing this hypothesis:

Table 5.5: The effect of redundancy on start-up success for the business and church entrepreneurs (H2b).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneur**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
Redundancy (LREDUNDN)	0.055	0.596	0.113	0.315
Years since start-up (LV16V22X)	-	-	-0.242	0.033
	Adj. R Sq. -0.008		**Adj. R Sq. 0.037**	
	Signif. F: 0.596		**Signif. F: 0.087**	
	N = 94		**N = 81**	

For business entrepreneurs the model in table 5.5 is not significant and the null-hypothesis can be rejected (p=0.596). Neither does the model imply that

there is any effect of redundancy on start-up success for church entrepreneurs. However, years since start up is significant (p=0.033) and the model in table 5.5 is significant at an 8.7 percent level. The effect of redundancy was also tested for churches created in 1989 and later, 1990 and later, and 1991 and later, for both revenues and the number of members at start-up time. However, none of the tests gave a significant result.

5.3.3. Conclusion, H2

For business entrepreneurs the social network has a significant direct impact on start-up success. Both the number of weak and number of strong ties have a significant impact on start-up success. This supports hypothesis H2a. For church entrepreneurs the hypothesis recieves less support. Only when churches created in 1990 and later were included in the sample and the number of members at start-up time was used as the dependent variable, did hypothesis H2a got some support. When the number of ties was applied as the dependent variable (without the separation between weak and strong ties) the explained variance scored a little higher. The higher explained variance for newer churches than for all churches might imply that forgetfulness could be a problem.

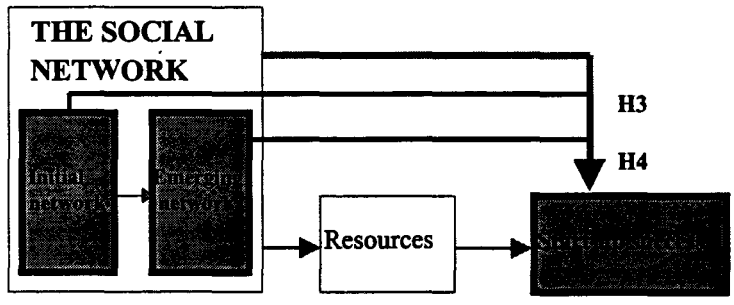
The network redundancy does not have any significant impact on start-up success for business or church entrepreneurs. This does not support H2b and is an important observation that may challenge Burt's (1992) emphasis on the importance of redundancy for entrepreneurship. This issue will be further discussed in 6 (Discussion and Conclusions)

5.4. Initial and Emerging Network on Start-up Success, H3-H4

5.4.1. Introduction

In this sub-chapter the social network developed before and early in the entrepreneurial process (the initial network) and the social network developed during the entrepreneurial process (the emerging network) are separated. The goal is to investigate whether both the initial (H3) and the emerging social network (H4) have a direct effect on start-up success. The gray boxes in figure 5.4 below illustrate the relationships that are studied in this sub-chapter.

Figure 5.4: The relationship under investigation in 5.4.



Due to the design of the questionnaire used in this study, it is not possible, as explained in 3.2, to use all social network variables that were used when the relationship between the whole network and start-up success was tested. The social network variables that can be applied in tests of separate parts of the network (in the initial and/or in the emerging network) are the total number of ties, the number of weak ties, and the number of strong ties.

5.4.2. Initial Network on Start-up Success, H3

The relationship between the social network developed before or early in the

entrepreneurial process, the initial network, and start-up success (H3) is tested for business and church entrepreneurs in table 5.6. H3 is formulated like this: *the higher the number of weak and strong ties in the initial network, the higher the success of organization start-ups.*

Table 5.6: The effect of the initial network (weak and strong ties) on start-up success for business and church entrepreneurs (H3).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of initial weak ties (LFORF13X)	0.478	0.000	-0.031	0.775
Number of initial strong ties (LFORF13Y)	-0.070	0.448	0.059	0.594
Years since start-up (LV16V22X)	-	-	-0.220	0.049
	Adj. R Sq.: 0.206 **Signif. F: 0.000** **N=98**		**Adj. R Sq.: 0.013** **Signif. F: 0.256** **N=84**	

For business entrepreneurs, the model in table 5.6 is significant and we can reject the null-hypothesis (p=0.000). It explains 20.6 percent of the variance but it is only the number of initial weak ties that is significant at an acceptable level (beta-value =0.478, p=0.000). The number of initial strong ties is not significant (beta-value =-0.070, p=0.448).

For church entrepreneurs, the model in table 5.6 is not significant and the null-hypothesis cannot be rejected (p=0.141). This does not support hypothesis H3. The only significant variable is the control variable «year since start-up». When the regression was done with this variable alone it explained less than 5 percent of the variance of the dependent variable. The regression was also done for churches newer than the median of the year of start-up (1989 and later), for churches created in 1990 and later, and for churches created in 1991 and later. However, the model did not get any support when that was done either. Then the regression was done with the number of members at start-up time as the measure of start-up success. The model was

significant (p=0.045) but did not explain more than 5.5 percent. The significant variables were the number of initial strong ties (beta = 0.252, p=0.017) and the years since start-up (beta =-0.207, p=0.049). The explained variance increased to 10 percent when churches created before 1989 were excluded (p=0.039). The significant variable was now the number of initial strong ties (beta = 0.338, p=0.015). For business entrepreneurs the results indicated that the number of initial weak ties was the most important variable. This difference will be further discussed in 6 (Discussion and Conclusions).

5.4.3. The Emerging Network and Start-up Success, H4

The relationship between the ties developed during the entrepreneurial process, the emerging network, and start-up success (H4a) is tested in table 5.7 below. H4a hypothesizes *that the higher the number of weak and strong ties in the emerging network the higher the success of organization start-ups.*

Table 5.7: The effect of the emerging network (weak and strong ties) on start-up success for business and church entrepreneurs (H4).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of emerging weak ties (LFORPSUM)	0.190	0.048	0.089	0.432
Number of emerging strong ties (LFORXSUM)	0.346	0.000	0.013	0.914
Years since start-up (LV16V22X)	-	-	-0.207	0.067
	Adj. R Sq.: 0.163		**Adj. R Sq.: 0.018**	
	Signif. F: 0.000		**Signif. F: 0.219**	
	N=98		**N = 84**	

For business entrepreneurs the model in table 5.7 is significant and we can reject the null-hypothesis (p=0.000). The explained variance is 16.3 percent. Both the numbers of emerging weak ties (beta-value = 0.190, p=0.048) and

emerging strong ties (beta-value = 0.346, p=0.000) are significant at an acceptable level. These results suggest that the explanatory power of the initial social network is moderately stronger than for the emerging social network.

There is also another interesting observation from the testing of hypotheses H3 and H4 for business entrepreneurs that has to be mentioned. For the initial network it is only the initial weak ties that are important for the start-up success for business entrepreneurs. For the emerging network both weak and strong ties are important. However, the beta-value indicates that it is the emerging strong ties that are most important for start-up success.

For church entrepreneurs the model tested in the previous table is not significant and the null-hypothesis cannot be rejected (p=0.120). The control variable years since start-up, is close to being significant at a 5 percent level. When the regression was done with this variable alone, it explained less than 5 percent of the variance of the dependent variable. The regression was also done for churches newer than the median of the year of start-up (1989), for churches created in 1990 and later, and for churches created in 1991 and later. However, the model did not receive any significant support when that was done. Neither did the model get significant support when the regression was done with the number of members at start-up time as the measure of start-up success. This test was done for the same groups of cases as applied in the tests with revenues as the dependent variable.

5.4.4. Time Used on Relationships, H4b

Hypothesis H4b assumes that the time used on developing and maintaining relationships has a positive effect on start-up success. H4b is formulated like this: *the more time spent on the development and maintenance of ties and the more frequently the entrepreneur discusses with other people issues concerning*

the start-up, the higher the success of organization start-ups. Table 5.8 shows the results of the regression testing H4b for business and church entrepreneurs.

***Table 5.8: The effect of time used to develop and maintain relationships* (H4b).**

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
Time develop. contacts (LV33A)	0.115	0.287	-0.058	0.611
Time maintain. contacts (LV33B)	0.165	0.127	-0.014	0.901
Years since start-up (LV16V22X)	-	-	-.0210	0.059
	Adj. R Sq.: 0.034 **Signif. F: 0.074** **N = 97**		**Adj. R Sq.: 0.013** **Signif. F: 0.262** **N = 83**	

The model in table 5.8 is significant at 7.4 percent level for business entrepreneurs. However, it does not explain much of the variance of the dependent variable (3.4 percent). Neither of the two variables are individually significant at a 5 or 10 percent level but the time used to maintain contacts is close to being significant at a 10 percent level (p=0.127).

For church entrepreneurs the model in table 5.8 is not significant. None of the variables is significant but years since start-up is close to being significant at a 5 percent level. When the regression was done with this variable alone it explained, as mentioned in the previous sub-chapters, less than 5 percent of the variance of the dependent variable. Again a regression was done for the churches created in 1989 and later, with cases newer than 1990, and with cases newer that 1991, without significant support. Also, the model did not get significant support when the regression was tested with the number of members at start-up time as the measure of start-up success. This was done for all churches and for churches created in 1989 and later, 1990 and later, and with churches created in 1991 and later.

In most studies there has been found a positive effect of the time used on developing new relationships (see 2.6). For the time used on maintaining new relationships the results vary. Some researchers have found a positive effect of this variable, while others have not. As discussed in 2.6, in most of the earlier studies the dependent variable has been entrepreneurial stages. The difference between the results in this and earlier studies might be related to the use of another dependent variable in this study (start-up success). If so, the results in this study imply that the time spent on development and maintenance for persons with a desire to start a new organization does not affect the start-up success.

5.4.5. Conclusion, H3 and H4

First, for business entrepreneurs, there is a significant, positive relationship between the initial network and start-up success. The explained variance of the dependent variable is 20.6 percent. This result supports hypothesis H3. The important variable is the number of weak ties.

Second, there is also a significant, positive relationship between the emerging network and start-up success for business entrepreneurs. This supports hypothesis H4a. Third, the results indicate that the power of explanation is moderately stronger for the model using the initial network as the dependent variable than it is for the model using the emerging network as the dependent variable (20.6 vs. 16.3 percent). Fourth, the testing of hypothesis H3 and H4a indicates that it is the number of weak ties that is the most important variable in the initial network and that the number of strong ties is the most important variable in the emerging network. These results strengthen the conclusion drawn on the basis of the testing of hypothesis H1b. The initial weak ties give an important pool of relationships. The entrepreneur can use the pool and develop the relationships he or she wants into stronger

relationships. These findings may be of importance for our understanding of the entrepreneur as «a networking man». Therefore, this issue will be discussed in more detail in 6 (Discussion and Conclusions).

For church entrepreneurs hypothesis set H3 got some support when tested with churches created after 1989. The model explained up to 10 percent of the variance. Hypothesis set H4a did not get any significant support. This might indicate that it is the initial network that is most important for start-up success for churches. Also, and different from the business entrepreneurs, the testing of hypothesis H3 indicates that it is the strong ties in the initial network that are most important for start-up success for church entrepreneurs.

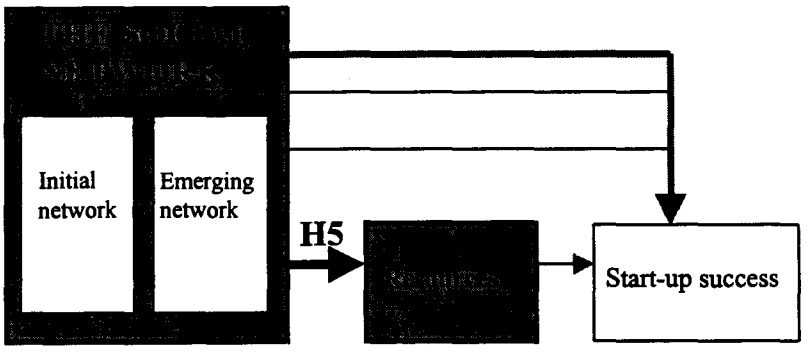
Both for business and church entrepreneurs, there is little or no support for the expected positive relationship between time used on developing and maintaining the social network and start-up success. This does not support hypothesis H4b and the results may indicate that the successful entrepreneurs are more effective in the development and maintenance of their social network.

5.5. Social Network and Resources, H5

5.5.1. Introduction

In this sub-chapter the hypotheses concerning the relationship between the social network and the entrepreneurs' access to resources are tested. This is illustrated in figure 5.5. The *relationship* between the dark gray boxes is under investigation in this sub-chapter.

Figure 5.5: The relationship under investigation in 5.5:



The whole network is defined as the network developed before and during the entrepreneurial process (initial and emerging social network).

As argued in 3.2, there are theoretical reasons for making a separation between *information, material and affective resources.* A factor analysis was done in order to test whether this is the case in this study. The analysis is shown in table 5.9:

Table 5.9: Factor analysis of resources that are assumed to influence the creation of new businesses and new churches.

Business entrepreneurs* N=100			**Church entrepreneurs* N=91**		
	Factor 1	**Factor 2**		**Factor 1**	**Factor 2**
1. Motivation sources (LMOTI9A)	0.375	0.557	1. Motivation sources (LMOTI9A)	0.804	0.069
2. Information sources (LINFO9B)	0.033	0.890	2. Information sources (LINFO9B)	0.570	0.185
3. Experts (LEKSP9C)	0.761	0.204	3. Experts (LEKSP9C)	0.689	0.192
4. Money sources (LPENG09D)	0.778	-0.094	4. Money sources (LPENG09D)	0.316	0.601
5. Connections to customers (LKUND9E)	0.612	0.373	5. Connections to members (LKUND9E)	0.349	0.594
6. Connections to suppliers (LLEVE9F)	0.168	0.597	6. Connections to financial sources (LFINA9H)	0.576	0.053
7. Connections to advisers (LRADG9G)	0.695	0.371	7. Singers and musicians (LSANG9J)	-0.148	0.878
8. Connections to financial sources (LFINA9H)	0.732	0.296	8. Practical help sources (LHJELP9K)	0.609	0.501

**Principal Component, varimax rotation*

Based on Kanter's (1983) division of resources it is reasonable to assume that the factor analysis would separate between information resources (variables 2, 3, 5, 6, 7, 8), affective resources (variable 1) and material resources (variable 4). However, the factor analysis shown in table 5.9 does not fully show such a factor structure. This indicates that the current distinctions used in social network studies might be inadequate. At least the data in this study seem to indicate another conceptual structure. Also, the factor analysis reveals differences between business and church entrepreneurs.

In order to solve the problem concerning the conceptual structure of the resources the following strategy seems reasonable for business entrepreneurs: of the variables that from a theoretical point of view (Kanter 1983) can be categorized as information resources, variables 3, 5, 7, and 8 have a relatively high factor loading with factor one (over 0.61). Adding together these variables in factor one and testing reliability gives alpha 0.8. Based on these results we have chosen to use variables 3, 5, 7, and 8 as a variable called information resources in the data analysis. Variables 2 and 6 were also defined as information variables but did not load with factor 1. These variables will be excluded in the further data analysis. Before this decision was made the importance of the two variables for start-up success was investigated. However, they did not have a significant impact on start-up success for business (adj. R sq.= -0.002, sign.= 0.661) or church entrepreneurs (adj. R sq.= -0.010, sign.= 0.661). Concerning variable 2, information sources, these results may seem surprising. Most likely, the question is badly formulated, though it may also be the case that all salient information is captured by the more specific information variables (variables 3, 5, 7 and 8)

Variable 1, which is motivation (an affective resource), and variable 4, which is a material resource, are used in the hypothesis testing as separate

variables.

Also for church entrepreneurs the factor analysis does not fully show the structure expected from Kanter's (1983) arguments. The factor structure for church entrepreneurs is in addition a little different from the factor structure for business entrepreneurs. This may be partly caused by the differences of resource items for the two samples.

For church entrepreneurs, all the information variables (2, 3, 5, and 6) have a factor loading with factor one that are above 0.3. Factor loadings from 0.3 and above are suggested by Hair et. al (1992) to be significant. If we test the internal consistency by the alpha coefficient, we get 0.58 as the alpha value. This is a relatively low value but Carmines and Zeller (1979) argue that alpha values down to 0.5- 0.6 for a limited number of variables (2-4) can be accepted, at least in the early phase of the concept development. For material resources, all variables (4, 7 and 8) load with more than 0.5 with factor two and the alpha value for these variables is 0.61. From the same line of arguments as for the information variables, we have accepted this value. This means that in the analysis of the hypothesis for church entrepreneurs we have used 2, 3, 5, and 6 as a variable for information resources and variable 4, 7, and 8 as an indicator of material resources and variable 1 (motivation) as an indicator of affective resources.

This sub-chapter is organized in the following way: first the differences between weak and strong ties on access to resources are discussed. Thereafter the effects of multiplicity, redundancy, and trust are tested.

5.5.2. Weak Ties and Information Access, H5a

Hypothesis H5a concerns the effect of weak ties on access to information resources. The hypothesis is formulated in the following way: *the weak ties*

of the entrepreneurs more often give access to information resources than strong ties do. This hypothesis is tested in table 5.10.

Table 5.10: The effect of weak and strong ties on access to information resources (H5a).

	Dependent variable: Information resources (LNINFOBU/CH)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
No. of weak ties (LFORE14X)	0.519	0.000	0.398	0.000
No. of strong ties (LFORE14Y	0.379	0.000	0.443	0.000
	Adj. R Sq.: 0.476 Signif. F: 0.000 N = 100		Adj. R Sq.: 0.373 Signif. F: 0.000 N = 94	

For business entrepreneurs table 5.10 shows that the beta-value is higher for the relationship between weak ties and information resources than between strong ties and information resources (beta =0.519 vs. 0.379). We know that the beta-value in regressions allows for a direct comparison between the independent variables as to their relative explanatory power (Hair et.al. 1992). This means that the explanatory power of weak ties on access to information resources is probably stronger than the explanatory power of strong ties on access to information resources. In other words weak ties seem to give better access to information resources than strong ties do. This is consistent with hypothesis H5a. However, the regression confirms that both weak and strong ties give access to information resources at a significant level ($p<0.000$ for both relationships).

For church entrepreneurs the relationship between strong ties and information resources is stronger than the relationship between weak ties and information resources is. However, the difference is very small (beta = 0.443 vs. 0.398). This result is not as expected in hypothesis H5a. Also, the regression indicates that information resources go through both strong and weak ties at a significant level.

In sum, hypothesis H5a seems to be supported by the results of the regression for business entrepreneurs but not for church entrepreneurs. However, it has to be noted that a closer look at the regression results indicates a relatively large overlap between the confidence intervals (significance = 0.95) for both business (0.493-0.883 and 0.309-0.700) and church entrepreneurs (0.280-0.672 and 0.386-0.840). Therefore, the results may only be viewed as an *indication* of how strength of ties and information resources relates.

If the results are accurate, they indicate that there are differences between business and church entrepreneurs concerning how weak and strong ties facilitate access to information resources. We did not find the expected differences between weak and strong ties for church entrepreneurs, and strong ties might be more important for these entrepreneurs than for business entrepreneurs when the need for information resources is considered. However, also for the business entrepreneurs information seems to go through both weak and strong ties at a fairly high rate. In other words, the differences are not as great as some of the social network theorists seem to assume. In the following section (5.5.3) it is also checked whether these results are the same when only the most successful entrepreneurs are considered.

5.5.3. Weak Ties and Information for Entrepreneurs with Success

The general argument proposed in hypothesis H5a is that information flows through weak ties with higher frequency than through strong ties because both ends of a strong relationship will more often know what the other knows. The flow of information is therefore assumed to decline with the growth of strength in ties. On the other hand it could be argued that it is not the amount of information that declines, but the value of the information. Burt (1992) seems to argue that the value of information depends upon the

degree of redundancy in the social network. He assumes that lower redundancy in social networks increases the chance of entrepreneurial success because it gives access to more valuable (non-redundant) information. Burt (1992) also assumes that weak ties and redundancy are positively correlated. This may imply that entrepreneurs with start-up success get more valuable (non-redundant) information than non-successful entrepreneurs do. If this line of argument is true, the successful entrepreneurs will more often receive information through weak than through strong ties.

In table 5.11 below this argument is tested. For church entrepreneurs cases with revenues that are lower than the median are excluded. This has been done in order to exclude the least successful entrepreneurs. For business entrepreneurs only the entrepreneurs who created new businesses (successful entrepreneurs) are included in the analysis.

Table 5.11: The effect of weak and strong ties on access to information resources for the most successful entrepreneurs (H5a).

	Dependent variable: information resources			
	Successful business entrepreneurs (infobu)		**Successful church entrepreneurs (infoch)**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
No. of weak ties (LFORE14X)	0.539	0.000	0.401	0.001
No. of strong ties (LFORE14Y	0.425	0.000	0.565	0.000
	Adj. R Sq.: 0.550 **Signif. F: 0.000** **N = 59**		**Adj. R Sq.: 0.506** **Signif. F: 0.000** **N = 42**	

These results do not change the main picture of the results found in table 5.10 above. However, the difference between the beta-values for the most successful church entrepreneurs is now larger than it was for all church entrepreneurs. This seems to strengthen the conclusion drawn from the analysis of all church entrepreneurs. Strong ties are probably more

important for access to information resources for church entrepreneurs than they are for business entrepreneurs. However, as for the regression results shown in table 5.10, it has to be mentioned that there is a relatively large overlap between the confidence intervals in the regression shown in table 5.11 where the relationship between weak ties and strong ties on access to information resources is examined. For business entrepreneurs the confidence intervals are 0.435-0.871 and 0.285-0.705. For church entrepreneurs they are 0.218-0.767 and 0.453-1.046 (significance: 0.95 percent).

From the results discussed in this and the previous section (5.5.3 and 5.5.2) two conclusions may be drawn. First, the results indicate that strong ties are more important for access to information than weak ties for church entrepreneurs. This result is not expected and there is no obvious reason for it. It might be related to a lower need for diverse (non-redundant) information for church entrepreneurs. A further discussion of this point is given in 6 (Discussion and Conclusions).

Second, the relatively high and significant flow of information through strong ties raises doubt about the assumption that the entrepreneurs primarily rely on weak ties for access to information (see for example Granovetter 1973 and later Greve and Gattiker 1994). Also, and what may be more important, it raises doubt about Burt's (1992) argument that information received through weak ties (and non-redundant ties) is of more value for start-up success than information received through strong ties. This is a tentative conclusion that is based on two of the results in the analysis. First, as stressed above, information resources flow through both weak and strong ties at a fairly high rate. Second, weak ties do not seem to be more important for access to information resources for the most successful entrepreneurs. However, it is necessary to underscore that this study does not give enough evidence to draw a final conclusion. A further

discussion of this issue based on other results in this study and other studies is given in 6 (Discussion and Conclusions).

5.5.4. Tie Strength, Multiplicity, Redundancy and Resource Access, H5b

Hypothesis H5b concerns the effects of strength, multiplicity and redundancy on access to other resources. H5b hypothesizes that *strong, multiplex ties and high redundancy networks more often give access to affective and material resources than weak, simple ties and low redundancy do.* In other words, *H5b* assumes that *affective and material resources* more often go through strong and multiple ties and high redundancy networks than through weak and simple ties and low redundancy networks. Hypothesis H5b is tested in table 5.12 and 5.13. In the first table (5.12) the hypothesis is tested with affective resources as the dependent variable. In the next table (5.13) the hypothesis is tested with material resources as the dependent variable.

***Table 5.12: The effects of strong vs. weak ties, multiplicity and redundancy on access to affective resources for business and church entrepreneurs* (H5b).**

	Business entrepreneurs		**Church entrepreneurs**	
	Dependent variable: affective resources (LMOTI09A)			
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
No. of weak ties (LFORE14X)	0.038	0.688	0.400	0.000
No. of strong ties (LFORE14Y)	0.406	0.000	0.572	0.000
Multiplicity (LMULTIPL)	0.064	0.493	0.087	0.281
Redundancy (LREDUNDN)	0.185	0.056	-0.074	0.538
	Adj. R Sq.: 0.223		**Adj. R Sq.: 0.438**	
	Signif. F: 0.000		**Signif. F: 0.000**	
	N = 96		**N = 91**	

As expected, the beta-value in table 5.12 is higher for the relationship between affective resources and strong ties than it is for weak ties. This is the

case for both business (beta-value = 0.406 vs. 0.038) and church entrepreneurs (beta-value = 0.572 vs. 0.400). It indicates that affective resources more often go through strong ties than through weak ties for both business and church entrepreneurs. This is as expected in hypothesis H5b. The difference between weak and strong ties is lower for church than business entrepreneurs. Also, there is a relatively large overlap between the confidence intervals for church entrepreneurs (0.178-0.463 and 0.328-0.734) and a minor overlap for business entrepreneurs (-0.145-0.219 and 0.213-0.573).

For business entrepreneurs, redundancy is close to having the expected significant positive effect at a 5 percent level on accesses to affective resources (beta= 0.185 and p=0.056). However, multiplicity does not have a significant effect on accesses to affective resources. For church entrepreneurs redundancy or multiplicity does not have any significant impact on access to affective resources.

One interesting observation must be made. When the model was tested with redundancy alone there was a positive significant effect on access to affective resources both for business entrepreneurs (adj. R sq. = 0.087, p=0.002, N=98) and for church entrepreneurs (adj. R sq. = 0.205, p=0.000, N=93). This means that the other variables in table 5.12 pick up the effect of redundancy on access to affective resources.

In table 5.13 hypothesis H5b is tested with material resources as the dependent variable.

Table 5.13. The effects of strong vs. weak ties, multiplicity and redundancy on access to material resources for business and church entrepreneurs (H5b).

	Business entrepreneurs		**Church entrepreneurs**	
	Material resources (LPENG09D)		**Material resources (LNMATRCH)**	
Independent variables	**Beta**	**Sig T**	**Beta**	**Sig T**
No. of weak ties (LFORE14X)	0.260	0.010	0.176	0.061
No. of strong ties (LFORE14Y)	0.288	0.004	0.260	0.024
Multiplicity (LMULTIPL)	-0.003	0.972	-0.054	0.518
Redundancy (LREDUNDN)	0.082	0.408	0.367	0.004
	Adj. R Sq.: 0.000		**Adj. R Sq.: 0.400**	
	Signif. F: 0.165		**Signif. F: 0.000**	
	N = 96		**N = 91**	

For business entrepreneurs the beta-value indicates that material resources go through weak and strong ties at about the same rate (beta=0.260 vs. 0.288). This result is not as expected H5b. For church entrepreneurs the beta-value is higher for the relationship between strong ties and material resources (beta-value = 0.260), than the relationship between weak ties and material resources (beta-value = 0.176). This is as expected in hypothesis H5b. However, the relationship between material resources is significant for both strong and weak ties for church entrepreneurs and there is a large overlap between the confidence intervals (-0.009-0.384 and 0.043-0.603).

Redundancy has a significant positive effect on access to material resources for church entrepreneurs. This is not the case for business entrepreneurs. When the model was tested with only redundancy as an independent variable there was a positive significant effect on access to affective resources both for business entrepreneurs (adj. R sq.=0.038, p=0.031, N=98) and for church entrepreneurs (adj. R sq.=0.368, p=0.000, N=93). These results indicate that the other variables in table 5.13 pick up some of the effect of redundancy on access to material resources for business entrepreneurs.

In sum, the results seem to indicate that strong ties are more important for

access to affective and material resources than weak ties. This is as expected in hypothesis H5b. However, for access to material resources for business entrepreneurs the difference between strong and weak ties is small. Multiplicity does not seem to have a significant effect on access to affective or material resources for business or church entrepreneurs. This is not as expected in hypothesis H5b. Redundancy is as expected in hypothesis H5b positively related to affective resources for business entrepreneur and to material resources for church entrepreneurs. However, for access to material resources for business entrepreneurs and for access to affective resources for church entrepreneurs the relationship to redundancy is not as expected in hypothesis H5b.

In 3.6 we indicated that there might be a positive interaction effect between strength/multiplicity and redundancy on access to affective and material resources. However, the analysis did not show any positive interaction effect (see table 3.4 in appendix 3).

5.5.5. Trust and Access to Resources

The strength of ties has up to now been measured as the *level of friendship*. As discussed in 4.7, the entrepreneurs were also asked about the *level of trust* to each of the contacts. However, the relationship between degree of trust and resources is different from the relationship between degree of friendship and resources. It seems to be hard to get access to resources without trust (see table 3.5, appendix 3). In order to be a resource source for the entrepreneur a contact must be trusted. In other words, trust seems to be a condition for access to resources. Trust is therefore very important for resource access. However, trust is probably not a good measure of strength because there are very few important relationships that fall in the lower category, as is the case in this sample of entrepreneurs. This may suggest a general operationalization problem related to the analysis of trust.

5.5.6. Conclusion, H5

Hypothesis H5a seems to be supported by the results for business entrepreneurs. Weak ties more often give access to information resources than strong ties do. For church entrepreneurs information seems to go through weak and strong ties at about the same rate. When the test was done for the most successful church entrepreneurs alone information seemed to go through strong ties more often than through weak ties. This result might be related to a lower need for diverse (non-redundant) information for church entrepreneurs. However, also for the business entrepreneurs information resources seem to go through both weak and strong ties at a fairly high rate. This indicates that the differences are not as large in this sample of entrepreneurs as some of the social network theorists seem to assume. The results of testing hypothesis H5a did not change much when the regressions were done for the most successful entrepreneurs.

In H5b we hypothesized that strong, multiplex ties, and high redundancy networks give better access to affective and material resources than weak, simple ties and low redundancy does. The results indicate that for these resources it is strong ties that are the most important variable. However, for business entrepreneurs redundancy also seems to be positively related to affective resources and for church entrepreneurs redundancy is positively related to material resources. When strong ties were compared to weak ties on access to affective and material resources, strong ties seemed to be more important than weak ties were. However, the entrepreneurs obtain affective and material resources through both strong and weak ties at a fairly high rate.

Strength was also measured by the degree of trust. This variable shows a different relationship to resources than the degree of friendship. Trust seems

to be a necessary condition for access to resources. Also there does not seem to be any major difference in how trust relates to information and other resources. Neither are there major differences between business and church entrepreneurs on how trust relates to resources.

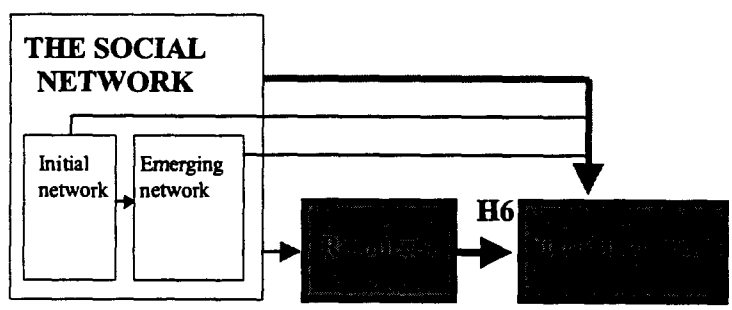
The implications of these results will be further discussed in 6 (Discussion and Implications).

5.6. Resources and Start-up Success, H6

5.6.1. Introduction

In this sub-chapter the relationship between access to resources and start-up success is tested. This is illustrated in figure 5.6. The arrow between the gray boxes shows the relationship under investigation in this sub-chapter:

Figure 5.6: The relationship under investigation in 5.6.



First, the relationship between the individual resources and start-up success is analyzed (H6a) and second, the effect of the range of resources (H6b) is analyzed.

5.6.2. The effect of Information and Other Resources on Start-up Success, H6a

The first hypothesis in hypothesis set H6 concerns the impact of information and other resources on the start-up success. In H6a it was hypothesized that *the higher the number of accessible sources for information, affective and material resources, the higher the success of organization start-ups.* The test results for this hypothesis are shown in table 5.14:

Table 5.14: The effect of resources on start-up success for business entrepreneurs (H6a).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
Information resources (LNINFOBU)	0.333	0.001	0.187	0.168
Affective resources (LMOTI9A)	-0.186	0.031	0.011	0.930
Material resources (LPENG09D)	0.484	0.000	0.002	0.989
Years since start-up (LV16V22X)	-	-	-0.242	0.030
	Adj. R Sq.: 0.414		**Adj. R Sq.: 0.035**	
	Signif. F: 0.000		**Signif. F: 0.148**	
	N = 98		**N = 84**	

For business entrepreneurs the model in table 5.14 is significant and the null-hypothesis can be rejected (p=0.000). The model explains 41.4 percent of the variance of the dependent variable. Also the regression shows that both information resources and material resources have a significant impact on the success variable. This supports hypothesis H6a. However, there is an unexpected negative effect of access to affective resources on start-up success.

For church entrepreneurs the model in table 5.14 is not significant and the null-hypothesis cannot be rejected. The test was also done for churches that are newer then the median (1989 and newer) but the result did not change (adj. R sq. = 0.074, p=0.104, N= 53). Finally, the test was done for churches created in 1990 and later, and for churches created in 1991 and later.

However, these tests did not change the results.

In order to check if the results might be due to the measure of the dependent variable, the same test was done with the number of members at start-up time as the dependent variable. This gave a significant result and the explained variance was 7.0 percent. The following table 5.15 shows this regression.

Table 5.15: The effect of resources on success for church entrepreneurs (H6a).

	Dependent variable: Number of members at start-up time (LV24)	
Independent variables:	**Beta**	**Sig T**
Information resources (LNINFOCH)	0.228	0.070
Affective resources (LMOTI9A)	0.149	0.220
Material resources (LNMATRCH)	-0.042	0.732
Years since start-up (LV16V22X)	-0.161	0.114
	Adj. R Sq.: 0.070 **Signif. F: 0.033** **N = 93**	

The model in table 5.15 is significant and access to information resources is significant at a 7.0 percent level. When the same model was tested with the churches that are newer than the median (1989 and newer) the explained variance increased to 19.1 percent (p=0.005, N=55). This may imply that forgetfulness might have been a problem. The significant variables were now access to information resources (beta=0.385, p=0.020), to affective resources (beta=0.317, p=0.079), and years since start-up (beta=0.268, p=0.045). In other words, hypothesis H6a is support when the number of members at the time the churches were considered as being created is used as the dependent variable. This may indicate that the results are sensitive to how start-up success is measured.

Affective resources do not seem to have a significant positive impact on start-

up success for business entrepreneurs. This is also the case for church entrepreneurs when tested with revenues as the dependent variable. This is unexpected. One possible explanation could be related to the measurement. When the entrepreneurs were interviewed many of them expressed a feeling of struggling against everybody. They had a feeling of being demotivated all the time by criticism. This may have influenced their answers to the question concerning who motivated them.

5.6.3. Range of Resources and Start-up success, H6b

Hypothesis H6b concerns the impact of the *range of resources* on start-up success and is formulated in the following way: *the wider the range of accessible resources, the higher the success of organization start-ups.* This variable is measured as the number of different resources that the entrepreneur gained access to. The results of the regression for business and church entrepreneurs are shown in table 5.16:

Table 5.16: The effect of the range of resources on start-up success (H6b).

	Dependent variable: revenues (LV20.XX)			
	Business entrepreneurs		**Church entrepreneurs**	
Independent variable	**Beta**	**Sig T**	**Beta**	**Sig T**
Range of resources (RANGE)	0.417	0.000	0.067	0.540
	Adj. R Sq.: 0.165 **Signif. F: 0.000** **N = 98**		**Adj. R Sq.: -0.007** **Signif. F: 0.540** **N = 85**	

For business entrepreneurs the null-hypothesis can be rejected (p=0.000). The effect of the *range of resources* is significant (beta-value = 0.417, p=0.000) and the explained variance is 16.5 percent. The *range* does not seem to have a significant impact on the start-up success of church entrepreneurs and the null-hypothesis cannot be rejected (p=0.540). This is also the case when the number of members at start-up time is used as the dependent variable (Adj. R

Sq. =-0.002, p=0.412, N=94). The test for church entrepreneurs was also done with cases that were newer than the median, newer than 1990, 1991 and 1992 but the results did not change.

5.6.4. Conclusion, H6

Hypothesis H6a receives fairly good support when tested for business entrepreneurs. Access to *information resources* and *material resources* had a positive impact on start-up success. Access to affective resources had an unexpected negative effect on start-up success. When revenues was used as the variable for start-up success for church entrepreneurs, the hypothesis H6a did not get any support. When the number of church members at start-up time was used as the dependent variable, the model was supported.

Hypothesis H6b got some support for business entrepreneurs, but not for church entrepreneurs. For business entrepreneurs the *range of resources* had a significant impact on start-up success. For church entrepreneurs range of resources did not have a significant impact on start-up success.

5.7. Testing of the Model for Business Entrepreneurs

For business entrepreneurs, the test results of the individual hypotheses indicate that the overall model is an adequate framework for analyzing the relationships between the social network, resources and start-up success. The initial network influenced the emerging networks and both the initial and emerging network had a positive effect on start-up success. The network also had a positive effect on access to resources and finally, access to resources had a positive effect on start-up success. However, it is necessary to do further tests of how well the whole model fits the data.

First, it is important to check whether the effects of the social network properties on start-up success are confirmed when resources are controlled for and whether the effects of resource access on start-up success are confirmed when the social network properties are controlled for. This is done in table 5.17. Second, we have to investigate how important the emerging network is for start-up success when the indirect effect of the initial network is considered and how important resource access is on start-up success when the indirect effect of the social network is considered. This is done in tables 5.18 and 5.19:

Before presenting the regression a comment concerning exclusion of a few variables has to be made. The sum of initial and emerging weak and strong ties is equal to the total number of weak and strong ties. Also, a model using the total number of weak and strong ties explains less of the variance of start-up success (adj. R sq.=16.7, p=0.000, N=98) than a model using initial and emerging weak and strong ties as independent variables (adj. R sq.=25.8, p=0.000, N=98). Therefore, the total number of weak and strong ties has to be excluded. This is done in all the tests of the model that follow below. Second, the interaction variables did not seem to have any effect on start-up success, and are therefore not included in the following regression.

Table 5.17: The effect of the social network and resources on start-up success for business entrepreneurs.

Independent variables:	Dependent variable: Revenues (LV20.XX)	
	Beta	**Sig T**
Number of initial weak ties (LFORF13X)	0.252	0.005
Number of initial strong ties (LFORF13Y)	-0.115	0.184
Number of emerging weak ties (LFORPSUM)	-0.030	0.728
Number of emerging strong ties (LFORXSUM)	0.098	0.285
Multiplicity (LMULTIPL)	-0.020	0.801
Redundancy (LREDUNDN)	-0.002	0.977
Information resources(LNINFOBU)	0.184	0.187
Material resources (LPENG9D)	0.389	0.000
Affective resources (LMOTI9A)	-0.202	0.037
Range of resources (LRANGE)	0.160	0.256
	Adj. R Sq.: 0.478	
	Signif. F: 0.000	
	N = 94	

First, the model in table 5.17 is significant (p=0.000) and explains 47.8 percent of the variation of start-up success. Second, both resource variables and social network variables have a significant direct effect on the dependent variable. If we analyze the individual social network variables, it is only the number of initial weak ties that are positively related to start-up success at an acceptable level of significance (beta=0.252, p=0.005). This indicates that initial ties are of more importance than the emerging ties, and that weak ties are more important than strong ties.

Of the resource variables, it is only access to material resources that are positively related to start-up success at a significant level (beta=0.389, p=0.000). Affective resources are also related to start-up success at a significant level but the relationship is negative (beta=-0.202, p=0.037).

One point that should be considered when reading the results of the regression for the individual variables is related to the relatively high number of variables (10). Even though it is tested for multicollinearity by using the

procedure described in 4.12, the number of variables might make it hard to separate the individual effects of the different variables. This consideration has also to be applied while analyzing the other regression results shown later in this chapter.

In order to investigate how important the direct effect of social networks are, compared to the resource variables, the model was tested with and without the social network variables. Without the network variables the resource variable explained 40.8 percent of the variance (p=0.000, N=98). When only the social network variable was considered (initial and emerging ties), the explained variance was 25.8 percent (p=0.000, N=98).

We may now conclude that the social networks as well as the resource access have a significant positive effect on start-up success for the business entrepreneurs. What we have not answered yet is a) how important the emerging network is for start-up success when the indirect effect of the initial network is considered and b) how important resource access is on start-up success, when the indirect effect of the social network is considered. This will be investigated by comparing the direct effect with and without the independent variables. This is done in the following two tables (5.18 and 5.19).

Table 5.18 shows how important the emerging network is for start-up success when the indirect effect of the initial network is considered (Foss 1994). Column one shows the emerging network variables (the intervening variables between the initial network and start-up success), column two the effect of these variables on start-up success, and column three the effect of the emerging network controlled for the initial network. Column four is the difference between column three and two. This gives the spurious effects of the emerging network on start-up success. Finally, column five shows the proportion of the total effect of the emerging network that is caused by the

initial network. This column is found by dividing column four by column two.

Table 5.18: Proportion of the effect of the emerging network on start-up success for business entrepreneurs caused by the initial network

1 **Intervening variables:**	2 Total effect	3 Total effect when the initial network is controlled for	4 Spurious effects	5 Proportion of total effect caused by the initial network
Number of emerging weak ties (LFORXSUM)	0.346*** -	0.218**	= 0.128	0.370
Number of emerging strong ties (LFORPSUM)	0.190** -	0.142	= 0.048	0.253

* p<0.1, **p<0.05, ***p<0.01

The table shows that the indirect path from the initial network through the emerging network causes a relatively large part of the effect of the emerging network on start-up success. The initial network causes 37 and 25.3 percent of the effect of the emerging weak and strong ties respectively on start-up success. These results support the model of this study, which describes an indirect effect of the emerging network on start-up success. However, there is still a significant direct effect of the emerging network on start-up success when the initial network is controlled for.

In table 5.19 the indirect effect of the social network through resource access on start-up success is investigated. Column one shows the intervening variables (resource access), column two the effect of these variables on start-up success and column three the effect of resource access controlled for the social network. Column four is the difference between column three and two. This gives the spurious effects of resource access on start-up success. Finally, column five shows the proportion of the total effect of resource access that is caused by the social network. This column is found by dividing column four by column two.

Table 5.19: Proportion of total effect of resources on start-up success for business and church entrepreneurs caused by the initial and emerging network

1 **Intervening variables:**	2 Total effect	3 Total effect when the initial and emerging network are controlled for	4 Spurious effect	5 Proportion of total effect caused by the initial and emerging network
Information resources (LNINFOCH)	0.330** -	0.184	= 0.146	0.442
Material resources (LNMATRCH)	0.483***-	0.389***	= 0.094	0.195
Affective resources (LMOTI9A)	-0.187** -	-0.202**	= 0.015	0.080
Range of resources (LRANGE)	0.005 -	0.160	= -0.11	22

* p<0.1, **p<0.05, ***p<0.01

Table 5.19 shows that the effect of resource access on start-up success is partly caused by the initial and emerging social network. For information resources the network variables count for 44.2 percent of the effect on the social network, for material resources and affective resources this percentage is 19.5 and 8.0. These results support the model, which describes an indirect effect of the social network through resource access on start-up success. However, the table also indicates that there still is a significant direct effect of resource access on start-up success when the social network is controlled for.

In order to sum up we may conclude that the model developed in 3.9 seems to give a fairly good representation of the relationship between the social network and start-up for business entrepreneurs. First, it is reasonable to underscore the fact that both the resources and the social network seem to have a direct effect on entrepreneurship. However, the results also seem to indicate that the most important effect of the social networks is the impact it has on access to resources. Second, as assumed, the results indicate that there is an indirect path from the initial network through the emerging network to

start-up success. Finally, and also as expected, the model indicates that there is an indirect path from the social network through resource access to start-up success.

5.8. Testing of the Model for Church Entrepreneurs

As for business entrepreneurs, the testing of H1b implies that the initial network for church entrepreneurs influences the further development of the social network. Also the testing of hypothesis set H5 indicates that the social network has the expected impact on resource access. For the rest of the hypotheses, there is a significant difference between business and church entrepreneurs.

For church entrepreneurs the hypotheses receive systematically less support than for the business entrepreneurs. The relationship between resources and start-up success (H6) is weak. It is not significant when revenues are used as the success indicator. However, when we used the number of members at start-up time as the dependent variable, the hypothesized relationship receive some support. Also, the results indicate that the social network's effect on start-up success (H2, H3, and H4) is much stronger for businesses than for church entrepreneurs. It was only the initial network that had a relatively weak impact on start-up success. In table 5.20 the effects of the social network and resource variables on start-up success are shown:

Table 5.20: The effect of the social network and the resource variables on start-up success for church entrepreneurs

Independent variables:	Dependent variable: revenues (LV20.XX) Beta	Sig T
Number of initial weak ties (LFORF13X)	-0.212	0.209
Number of initial strong ties (LFORF13Y)	0.016	0.926
Number of emerging weak ties (LFORPSUM)	0.045	0.743
Number of emerging strong ties (LFORXSUM)	0.091	0.574
Multiplicity (LMULTIPL)	0.085	0.480
Redundancy (LREDUNDN)	0.004	0.980
Information resources(LNINFOCH)	0.310	0.116
Material resources (LNMATRCH)	0.065	0.709
Affective resources (LMOTI9A)	-0.034	0.819
Range of resources (LRANGE)	-0.141	0.499
Year of start-up (LV16V22)	-0.330	0.010
	Adj. R Sq.: -0.002	
	Signif. F: 0.446	
	N = 81	

As seen, the model in table 5.20 is not significant. It is only the control variable year of start-up that is significant at an acceptable level. However, as mentioned in the previous sub-chapters, when the model was tested with this variable alone it explained only 4.8 percent of the variance (p=0.026, N=84). Also, the whole model was tested with only churches that were newer than the median of the year of start-up (1989 and later), but the model did not get significant support (adj. R. sq. = -0.037, p=0.610, N=52). Thereafter, the model was tested with only cases that were established in 1990 and later, and in 1991 and later, without finding any significant support for the model. Finally, the model was tested for the same groups with the number of members at start-up time as the success variable. Once again, the model did not get significant support.

Based on these observations we can conclude that the model does not get significant support for church entrepreneurs. What this might be caused by and what it might imply will be discussed in detail in 6 (Discussion and

Conclusions).

5.9. Background, Network and Start-up Success

If the variables related to the quality of the individual entrepreneurs (background or human capital variables) have a significant impact on the social network they might be an important explanatory variable and the social network just an intervening variable. As referred to in 2.6 and 3.9, Foss (1994) found that, in the case of cod farming entrepreneurs, human capital variables had a positive, but not important, impact on the social network variables. They explained from 2 to 7 percent of the variance of the social network variables. She also found that some of the human capital variables had a direct effect on start-up success. These variables explained about 12 percent of the variance of the start-up success. In this study we have investigated the relationships between age, education level, gender, membership in volunteer organizations, and parents' self-employment on the social networks of the entrepreneurs. For church entrepreneurs this was not done for gender and membership in volunteer organizations since only one of the church entrepreneurs was a female and 98 percent of the church entrepreneurs had been members of volunteer organizations. The table that shows the results of these analyses is included in appendix 3 (see tables 3.6 and 3.7).

The analysis confirms Foss' (1994) findings. Human capital variables have an impact on the development of the social networks, but the impact appears to be minor.

The relationship between background variables and start-up success was also analyzed. The results of this analysis are included in appendix 3 (see tables 3.8 and 3.9). Gender might have an effect on start-up success for business

entrepreneurs. Women seem to score more highly on the success variable. However, there were only 22 female respondents in this study. Age and education level have no significant effect on start-up success.

As Foss (1994) concluded, the human capital variables do not seem to undermine the social network as an important explanatory variable for start-up success. This is also in accordance with Foss' (1994) results. The strength of this direct link when the social networks and the resource variables are controlled for, cannot be measured in this study. However, the effect of the human capital variables found indicates that the direct positive effects of these variables on start-up success are not high.

As mentioned in 4.7, it is reasonable to assume that contextual factors such as the number of inhabitants at the location where a church is created influences the start-up success. However, the data in this study do not seem to indicate such an influence (see table 3.10 in appendix 3).

5.10. Summary of results

In order to compare church and business entrepreneurs the summaries of these two samples are integrated. The proposed relationship between the initial network and the emerging network (H1), and the results of testing this relationship are shown in table 5.21:

Table 5.21: Hypothesis set H1, proposal and results for both business and church entrepreneurs.

	Dependent variables			
	Number of emerging weak ties		Number of emerging strong ties	
Independent variables	**Hypotheses**	**Results**	**Hypotheses**	**Results**
H1a: total no. of initial ties	+	0		
H1b: no. of initial weak ties			+	+

+ = positive relationshipship, 0 = no relationship.

The results of testing hypothesis H1a indicate that the number of initial ties (weak and strong) does not seem to have an important impact on the number of weak ties developed during the entrepreneurial process for either business or church entrepreneurs. This result is further discussed in 6 (Discussion and conclusions). However, H1b is confirmed: many weak ties developed before or early in the entrepreneurial process give more strong ties developed during the process than few weak ties developed before or early in the entrepreneurial process. This is the case for both business and church entrepreneurs.

The proposed direct relationship between the social network and start-up success (H2, H3, and H4), and the results of testing this relationship are shown in table 5.22:

Table 5.22: Hypothesis sets H2, H3, and H4, proposal and results for business and church entrepreneurs.

	Dependent variable (start- up)			
	Business entrepreneurs		Church entrepreneurs	
Independent variables	**Hypotheses**	**Results**	**Hypotheses**	**Results**
H2a: total no. of weak ties	+	+	+	0
H2a: total no. of strong ties	+	+	+	0
H2a: high multiplicity	+	0	+	0
H2b: redundancy	-	0	-	0
H3a: No. of initial weak ties	+	+	+	0
H3a: No. of initial strong ties	+	0	+	0 (+?)
H4a: No. of emerging weak ties	+	+	+	0
H4a: No. of emerging strong ties	+	+	+	0
H4b: Time used on development of ties	+	0	+	0
H4b: Time used on maintenance of ties	+	0 (+?)	+	0

+ = positive relationship, - = negative relationship, ? = uncertainty concerning the relationship, 0 = no significant relationship.

The social network has a significant direct impact on start-up success for business entrepreneurs. The significant variables are the total number of weak and strong ties. This supports hypothesis H2a for business entrepreneurs. However, multiplicity, which may be seen as an indication of strength (see 3.2), is not positively related to start-up success as expected. For church entrepreneurs the hypotheses receives less support.

Redundancy does not seem to have the expected negative effect on start-up success for business or church entrepreneurs. This does not support hypothesis H2b and the issue will be further discussed in the next sub-chapter.

The results give partial support to hypothesis H3 for business entrepreneurs. The initial weak ties have a positive influence on the start-up success. Also, the power of explanation of the initial network is stronger than it is for the whole social network. For church entrepreneurs, hypothesis H3 gets less support. The only exception from this is that there might be a positive relationship between the number of initial strong ties and start-up success. When the number of members at start-up time was

used as the measure of start-up success, there was a weak but significant positive relationship between the number of initial strong ties and start-up success.

Hypothesis H4a indicates that the emerging network has a positive effect on start-up success for business entrepreneurs. The numbers of both emerging weak and strong ties has a positive effect on start-up success (the explained variance is 16.3 percent). For the church entrepreneurs there was no positive relationship between the emerging network and start-up success.

The time used for developing and maintaining the social network might have a minor positive effect on start-up success for business entrepreneurs. However, none of the variables were individually significant at an acceptable level. For church entrepreneurs the time used for developing and maintaining the social networks did not seem to have any effect on start-up success.

As discussed in 3.6, it is assumed that strong and weak ties facilitate access to different kinds of resources. Table 5.23 shows the proposal concerning this relationship (H5) and the results of the testing.

Table 5.23: Hypothesis set H5, proposal and results.

	Business entrepreneurs		Church entrepreneurs	
Hypotheses	**Hypotheses**	**Results**	**Hypotheses**	**Results**
H5a: Weak ties more often give access to information resources than strong ties do.	+*	+	+	-
H5b: Strong, multiplex ties and high redundancy networks more often give access to affective and material resources than weak, simple ties and low redundancy do.	+	+(?)**	+	+(?)**

* + = yes, - = no, ? = uncertainty about the results.
** the hypotheses were partly supported

The result of testing hypothesis H5a indicates that information resources more often go through weak than strong ties for business entrepreneurs. This supports the hypothesis. However, the differences between weak and

strong ties are not great. These results did not change substantially when the test was done for the most successful entrepreneurs only. For church entrepreneurs hypothesis H5a is not supported. This may indicate that we cannot assume that the same social network properties are important across different types of organizations. The implications of these results are further discussed in 6 (Discussion and Conclusions).

As expected in hypothesis H5b, strong ties more often give access to affective resources than weak ties do for both business entrepreneurs and church entrepreneurs. Also, high redundancy networks seem to give better access to affective resources for business entrepreneurs and to material resources for church entrepreneurs than low redundancy networks do. The degree of multiplicity does not seem to be important for access to affective and material resources for business or church entrepreneurs.

Based on the results of testing hypothesis set H5, it has to be stressed that most of the resources go through both strong and weak ties at a significant level. The implication of these results is discussed in 6 (Discussion and Conclusions).

Table 5.24 below gives an overview of the results of testing hypothesis set H6. These hypotheses concern the relationship between resource access and start-up success. The left-hand column shows the independent variables and the other columns show the proposed relationship to start-up success and the results of the testing of this relationship. The symbols in parentheses (for church entrepreneurs) give an indication of the results when there is doubt.

Table 5.24: Hypothesis set H6, proposal and results.

	Dependent variable (start-up success)			
	Business entrepreneurs		Church entrepreneurs	
Independent variables	Hypotheses	Results	Hypotheses	Results
H6a: Information resources	+	+	+	0 (+?)
H6a: Affective resources	+	-	+	0 (+?)
H6a: Material resources	+	+	+	0
H6b: range of resources	+	+	+	0

+ = positive relationship, - = negative relationship, ? = uncertainty concerning the relationship, 0 = no relationship, --- the variable is not tested for.

For business entrepreneurs access to information resources and to material resources has a significant positive effect on start-up success. This supports hypothesis H6a for business entrepreneurs. Affective resources have a significant but relatively weak negative effect on start-up success for business entrepreneurs. This was not as expected. For church entrepreneurs hypothesis H6a was not supported when revenues were used as the success variable. However, when the number of members was used as the dependent variable and the hypothesis H6a was tested for churches established in 1989 or later it got some support (see the parentheses in table 5.24). The model was significant (access to information resources was significant at a 2 percent level and access to affective resources was significant at a 7.9 percent level). This might indicate that the model is sensitive to the measure of success and forgetfulness (cannot be seen from table 5.24).

The *range of resources* has a significant impact on start-up success for business entrepreneurs. This is as expected in hypothesis H6b. For church entrepreneurs hypothesis H6b is not supported.

The model underlying this study is supported fairly well for business entrepreneurs. The results shows that both the social network and resource access is important for start-up success. This result is different from Foss (1994) who found no direct effect of the social network on start-up success. However, the results in this study seem to indicate that the most important

effect of the social network is the impact it has on access to resources. Second, the study also indicates that the indirect paths in the model are necessary. There is an indirect path from the initial network through the emerging network to start-up success, and from the social network through resource access to start-up success.

For church entrepreneurs the model gets less support than it does for business entrepreneurs. The relationship between the initial network and the emerging network and between the network and resources is similar to the results for business entrepreneurs. However, the effect of the social network and of resource access on start-up success is much less than it is for business entrepreneurs. When all variables are tested the effect on start-up success is not significant. However, as discussed in the previous sub-chapter (5.8), when the individual hypotheses are tested there is a positive effect of the initial network and of resource access on start-up success. What these results might be caused by and what they might imply will be discussed in detail in 6 (Discussion and Conclusions).

CHAPTER 6: DISCUSSION AND CONCLUSIONS

6.1. Introduction

In this chapter the results are discussed, conclusions are drawn, and recommendations are presented. The chapter is divided into five sections: conclusions and recommendations that have implications for the theory development, recommendations for future research, recommendation for practitioners, a critical evaluation of the method applied in this study, and finally a summary of the most important conclusions.

6.2. Theoretical Conclusions and Recommendations

6.2.1. Overall Conclusions

First, the entrepreneurs' social network is important for the creation of new business ventures (cf. 5). The results of this study confirm indications found in earlier studies. However, except for Foss' (1994) study in the cod farming industry, start-up success has, as far as we know, never before been used as the dependent variable in a study of social networks and entrepreneurship. Earlier studies have used entrepreneurial stages, growth, product development, etc. as the dependent variable. Also, in most of the earlier studies not all of the respondents have had the intention of starting their own organization. If the social network perspective is crucial for our understanding of entrepreneurship it should be possible to use it to explain what factors move entrepreneurs from idea to start-up success. In other

words, the social network perspective should help us to understand what helps a person with an entrepreneurial idea to succeed with the effort of starting a new organization. This study implies that the social network has a direct and indirect (through resources) effect on the degree of start-up success for people with an entrepreneurial idea.

Second, the study also confirms Foss' (1994) results concerning the importance of using resources as an intervening variable between social networks and start-up success (cf. 5.5 and 5.6). Her study in the cod-farming context showed that the explanatory power increased considerably when the resource variable was introduced. Her results are confirmed in a broader context of start-up companies in this study. Social networks are important as channels for resources and the explanatory power of the social network approach increases considerably when resources are introduced as an intervening variable.

Third, also the *direct link* between the social network and start-up success seems to increase the explanatory power of the social network approach. A relationship cannot exist if no information is going through the relationship. Therefore, if it is possible to account for all resources (including all information resources), the direct link might not have been necessary. However, that is difficult to do in an empirical study. Some resources are probably hard to measure. Also some of the resources, for example legitimacy, might be viewed as tacit to the social network. The direct link between social networks and start-up are significant even when resources are controlled for. This is different from Foss' (1994) findings. She found a relatively weak direct relationship between the social network and start-up success.

Fourth, it seems to be important to distinguish between the social network developed before the entrepreneurial process (the initial network), the social

network developed during the entrepreneurial process (the emerging network), and the whole social network for business entrepreneurs. The explanatory power of the social network increased from 17.8 percent to 25.8 percent when that distinction was introduced. Compared with the whole social network, the initial network especially seems to be important for start-up success. The importance of the social network developed before the entrepreneurial process might indicate that it is important for an entrepreneur to be in a context that has valuable resources. This might give some support for the cultural approach to entrepreneurship. However, that is not necessarily the case. The relationships that the entrepreneur has can be outside the imminent environment that he or she is living in.

Fifth, one of the aims of this study was to compare business entrepreneurs with entrepreneurs in one group of volunteer organizations, namely churches. The study shows that we cannot assume that the impact of the social network on the start-up of businesses will be the same in other types of organizations. In general, the hypothesis and the model proposed in this study do not receive the same degree of support from the data for church entrepreneurs (cf. 5).

6.2.2. Differences between Church and Business Entrepreneurs

The general difference between business and church entrepreneurs is, as mentioned in the previous chapter, that the proposed hypotheses and the model as a whole get less support from the latter group of entrepreneurs. The differences are first of all related to how social networks and resource access influence start-up success. Compared to business entrepreneurs the social networks and resource access for church entrepreneurs explain much less of the variance of the dependent variables.

Does the study show why these differences occur? The answer to this

question is no. However, some of the results indicate and reveal some tracks that might be considered and followed up in order to answer the question.

First, the results for church entrepreneurs indicate sensitivity to the measure of success that was applied. When revenues were used as a measure the hypotheses concerning how the social networks and resource access influence success did not get any support. However, when the number of members at start-up time was applied as the measure of start-up success, the hypotheses got a weak but significant support. This observation indicates that the measure of the success variable might be different in different types of organizations. It is therefore very important to find better ways to define the dependent variable when others than business entrepreneurs are integrated in the study of start-ups.

Second, on average the churches in this study are older than the businesses. In order to check for forgetfulness, most of the tests were done for newer groups of churches. Some of these tests gave a higher explained variance than when the tests were done for all churches. This might imply that there has been a problem of forgetfulness. However, the results did not receive the same degree of support when these tests were done, as the tests for business entrepreneurs did.

Third, on average the church entrepreneurs had a higher number of relationships than the business entrepreneurs (8.2 vs. 4.2). This might indicate that the church entrepreneurs do not need more relationships. Instead they need to economize more with the relationships. However, this is a highly speculative suggestion and cannot be backed by any tests in this study.

Fourth, the resources that were used in this study might be inappropriate for church entrepreneurs. Most of the earlier research has been within the

context of business creation. The resource variables found in the literature might therefore be less relevant within the context of church entrepreneurship. If we have focused on a wrong or inadequate set of resources for the creation of churches, the relationship between resources and start-up success will be lower than it would have been if the right resources had been used. The reason for the weak relationship between resources and start-up might therefore have been related to the use of inappropriate church resources. Based on this, we have less reason to believe that the same resources are important across different types of organizations. Also, it is probably necessary to put more effort into the search for relevant resources for the creation of new churches.

Fifth, very much of the discussion concerning social networks is related to the importance of information. For example Cooper et.al. (1995, p. 108) argue that the process of venture formation is a "process of learning, of overcoming the liability of newness through information acquisition." This study shows that information is an important resource category. However, the testing of the relationship between resources and start-up success shows that we should pay as much attention to the acquisition of other resources as we should to the acquisition of information.

As mentioned, the weak relationship found for church entrepreneurs between resources and start-ups might be caused by an inappropriate set of resources. If so, these findings should not have an effect on the direct relationships between social networks and start-up success. However, also the direct relationship between social networks and start-up is weaker for church than for business entrepreneurs. A sixth explanation of the differences between business and church entrepreneurs might therefore be related to the appropriateness of the approach applied in this study. Social networks and resources might not be as good for explaining the start-up of churches as they are for the start-up of businesses. However, such a

conclusion is hard to support with reasonable arguments. Based upon this study alone, it is also far too early to draw a definite conclusion on this point.

A seventh reason for the differences between church and business entrepreneurs might be related to the importance of the social networks of *the* entrepreneurs (as individuals). As argued in 1.2, it is plausible to assume that social networks are more important for the creation of new churches than for the creation of many new businesses. This might be related to the assumed necessity to build "bridges" to *many* people in the church environment (Chareonwongsak 1990, Kendall 1990, Byerly 1991) in order to fulfill the primary purpose - recruitment of converted members. Also, as discussed, the social networks might be of more importance for church entrepreneurs than they are for business entrepreneurs because the ordinary market forces are of less importance for church entrepreneurs. It is therefore reasonable (at least possible) to argue that the social networks of *the entrepreneurs* are insufficient regardless of how good they are. What is important is the social network of an extended number of people involved in the creation of new churches. This might be the reason why the importance of team is stressed in the church establishment literature (Sawatsky, 1985, Greenway 1987, Fritz 1988, Allen 1988, Seale 1989, Branner 1990). In order to investigate this phenomenon it is necessary to explore the social network of more people than for the church entrepreneurs alone. At least it is necessary to investigate the entrepreneurs' indirect contacts.

6.2.3. Network Properties and Resource Access

In general, weak ties seem to give access to information resources more often than other resources, and strong ties more often give access to other resources. This is in accordance with the assumption made in this study. However, the difference is not large. The relatively small difference is

unexpected and seems to be different from the assumptions made in parts of the social network literature. As discussed in relation to hypothesis H5a (cf. 5.5), it is argued that information resources most often go through weak ties (Greve and Gattiker 1994). This study indicates that resources other than information also go through weak ties, and that information resources also go through strong ties at a fairly high rate.

The categorization of resources seems to be more complicated than reflected in the literature. Based on Kanter (1983), we used the three resource categories: informative, affective, and material resources (see 5.5). However, the factor analysis of the resource variables does not reveal such a structure very well (see 5.5). Also the testing of the individual hypotheses concerning what kind of network properties facilitate access to what kinds of resources (hypothesis H5) is only partly supported. For example, the results indicate that both information variables and material resource variables go through both strong and weak ties at a fairly high rate. Also, motivation (the only affective resource in this study) goes through weak and strong ties at a fairly high rate. This indicates that the same resources go through a variety of relationships.

These observations are important because it is an underlying assumption in most of the theory concerning entrepreneurship and social networks that information, and affective and material resources go through social networks very much in dependence on different kinds of network properties. This study indicates that it is necessary to have a closer look at the resource categorization and the relationship between resources categories and social network properties.

6.2.4. The Entrepreneur as a Networking Man

The notion of the entrepreneur as a networking man can be found in several

places in the literature (Johannisson 1988). This term may be understood as a general term indicating that the entrepreneur may possibly develop relationships to more people than others do, or be recommended to do so in order to be effective/have success. Based on this study it might be possible to give a more precise meaning to the notion.

Before discussing this point, a reservation has to be made. Our knowledge in this study is limited to the differences between successful and non-successful entrepreneurs. All of the respondents wanted to start a new organization. Therefore, it is not possible to say anything about how they differ from people that do not think about entrepreneurship.

The overall conclusion is that networking does matter. The building of social networks is important for start-up success. At least, this is true for business entrepreneurs. It is therefore appropriate to characterize the successful entrepreneurs in a general sense as a networking man. However, this does not necessarily imply that the successful entrepreneurs are more active when it comes to building relationships during the entrepreneurial process than the less successful entrepreneurs are.

The testing of the direct relationship between social networks and start-up success (hypotheses H2 through H4, see 5.3-5.4) for business entrepreneurs indicated that properties related to the whole network, the initial network, and the emerging network have an impact on start-up success when tested individually. However, both the whole network and the initial network seem to have a stronger impact on start-up success than the emerging network. When the effect of the initial network and the emerging network were compared in the same regression, it appears that the emerging network has a minor independent effect on entrepreneurship. Considering the *direct link* between social networks and start-up success, these results indicate that it is of less importance whether the entrepreneur develops relationships

during the entrepreneurial process or not. What matters most is the properties of the whole social network and the initial network.

A reasonable assumption might be that the degree of networking during the entrepreneurial process would vary dependent upon the initial network. A prospective entrepreneur without a proper initial network might have to be more a "networking man" during the entrepreneurial process than other prospective entrepreneurs have to be. In other words, a speculative assumption is that it is possible to compensate for an inappropriate initial network. However, because the initial network seems to have a relatively strong direct effect on start-up success, the entrepreneur without these relationships might have to struggle more than the lack of relationships should imply if we just consider the differences between the whole network and the initial network. This point is also indicated by the fact that the effect of the emerging network was weaker than the effect of the initial network when tested separately.

6.2.5. Network Development

The testing of hypothesis H1 indicates that the initial network has an impact on the development of the social network during the entrepreneurial process. The results of hypothesis H1b indicate that a high number of *weak ties* developed before or early in the entrepreneurial process seem to give a higher number of *strong ties* developed during the entrepreneurial process. This indicates that the weak ties in the initial network create a pool of potentially strong relationships. This is the case for both business and church entrepreneurs. However, the results of testing H1a indicates that *the total number of initial ties* does not seem to have an important impact on the *number of weak ties* developed during the entrepreneurial process. This is the case for both non-successful and successful entrepreneurs.

6.2.6. Redundancy and Start-up Success

One of the aims of this study was to extend our knowledge about the kind of social network properties that are important for start-up success. As mentioned in 3.4, Boissevain (1974) found that size (total or partial) is the most important network characteristic. Reese (1992) argues, in an entrepreneurial setting, that the size of the social network (number of ties) is most important because it increases the chance for access to the *specific* resources needed.

Also this study indicates that relatively simple measures of the social network seem to be most promising. For example redundancy and multiplicity seem to be unrelated to start-up success. However, the results indicate that strength is an important variable. Both the number of strong and the number of weak ties seem to have a stronger impact on start-up-success than the simple measure of network size (see 5.3-5.4).

As discussed, Burt (1992) argues that an increasing redundancy in the network will be important for entrepreneurship because it gives access to non-redundant information. A social network is redundant to the extent that the contacts lead back to the same people. In accordance with Burt (1992) and the proposed hypothesis H2c there should be a significant negative relationship between network redundancy and start-up success. The results in this study raise questions about this assumption.

As mentioned in 3.2, redundancy and density measure much of the same. This mean that the expected relationship between density and start-up also should be negative. The effect of density is not tested with start-up success as the dependent variable. However, Greve (1995b) did not find an expected negative relationship between density and start-up phases. This might indicate that our result is accurate: There is not a negative relationship

between redundancy and start-up success. However, one possible line of argument might lead to another conclusion. Low redundancy might provide the entrepreneurs with more varied information and high redundancy might give better access to other resources. If this is true an effective network should include two segments with a different degree of redundancy.

Some researchers have argued that there might be more than one level of a person's social network and the important network properties will be different depending upon the levels that are considered. In their discussion of collective action Oliver and Prahl (1988) suggest this. On the local level, high density (which measures about the same as redundancy, see 3.2) to a limited number of people is assumed to create a social environment that facilitates entrepreneurial action. On the second (system) level, ties to an extended number of people who know each other (high density) are assumed to give access to the necessary set of recourses. On the third level weak ties to a diverse set of persons are assumed to give the needed non-redundant information resources (low density). If a favorable degree of density (and redundancy) is different dependent upon the level of the social network, a measure of density for the whole network will not necessarily give high or low density. That will depend upon how many persons there are involved on each level.

The idea of different network levels can also be found in Burt's (1992) research. He argues that diversity of information is best provided through a low redundancy social network. However, he also argues that the entrepreneurs need to be free of structural holes at their own end. This might imply that there are two segments or levels of the social network that might have different levels of redundancy in order to give advantage in the entrepreneurial process. Based on this, the imminent social network, or in Burt's words, the social network at the entrepreneurs' own end should have high redundancy. In the rest of the social network the redundancy should be

low. If so, the level of redundancy will depend on the number of relationships on each level.

It is reasonable to assume that the number of weak ties will be larger than the imminent network (the network at the entrepreneurs' end). However, when the entrepreneur himself defines the size of the social network (the number of ties), as in this study, the most likely members to forget are probably the entrepreneurs' acquaintances (the weak ties). Therefore, there might be acquaintances that the entrepreneurs might have forgotten to mention. This implies that the number of weak ties might be under-estimated. Burt (1992) assumes that redundancy and weak ties are negatively correlated and that strong ties and redundancy are positively correlated. If so, and if the number of weak ties is underestimated, the expected negative relationship between redundancy and start-up success might have disappeared.

If the results found in this study concerning the relationship between redundancy and start-up success are accurate, it is also thinkable that there might be problems related to the measures proposed by Burt (1992). His arguments about the need for low redundancy seem to be related to the traditional methodological argument that sources need to be independent of each other in order to be reliable. In network language, redundancy is a measure of the cohesion in social networks, not *diversity*. However, the basic point for Burt (1992) seems to be that a low degree of redundancy gives access to a *diverse* set of information resources. This argument is in most cases probably true. However, there might also be other measures that say something about diversity. For example Knudsen (1998a, 1998b) frequently uses the term *variety of experience*. Such diversity might also be obtained through contacts that know each other (high redundancy networks). Therefore, in order to achieve a better understanding of how variety or diversity influences start-up success, our suggestion is to apply more than

redundancy as a measure of variation/diversity in studies of the relationship between social network and entrepreneurship.

6.2.7. Resources Dependency Theory and Social Networks

First, the social network and institutional approaches have made us aware of the importance of resources that are not normally considered within the framework of resource dependency theory. Examples of such resources are motivation and legitimacy. The resource dependency theory usually focuses on resources such as marked contact, production skills, distribution web etc. In this way the social network and institutional perspective might complement the resource dependency theory. Second, and may be more importantly, the social network perspective contributes to the knowledge of how the entrepreneurs get access to resources. According to the resource dependency theory the entrepreneur needs to control a variety of resources. This study shows that the social networks of the entrepreneur are important channels for getting access to resources. The social network gives power and flexibility (Johannisson 1988) and for these reasons enables the entrepreneur to gain access to the needed resources. For example, the social network is often important for the entrepreneur in search of *asset parsimony* (Zhao and Aram 1995). In other words it helps the entrepreneur in the struggle for acquiring resources at the lowest price possible. Through formal organizational channels, access to resources might be more expensive than the entrepreneur could afford (Dubini and Aldrich 1991).

These points show how the social network theory contribute or complete the resource dependency theory by focusing on how acquisition of resources happens. This study has explored the relationships between network and resources. It has increased our knowledge of the kind of network properties that facilitate access to different kinds of resources. However, further research might explore the relationship between the social network approach

and resource dependency theory in more detail. We think that there might be a potential for developing a more complete theory of entrepreneurship based upon the resource dependency and the social network perspectives.

6.3. Recommendation for Future Research

6.3.1. Resources and Ties

In the social network approach there has been a lot of focus on weak ties and how this kind of ties helps entrepreneurs to gain access to information. On the other hand most literature seems to assume that strong ties are important for access to affective and material resources. Generally, this study seems to support these assumptions. However, the difference between the kind of resources that go through different kinds of ties is, as discussed in 5.5 not impressively large. Our suggestion is therefore that future research should explore in more detail the relationship between social network properties and resources access. The relationship between social network properties and resource access might be more complicated than the literature seems to suggest. The importance of the resource variable for start-up success found in this study makes this a suggestion of very high significance.

6.3.2. Social Networks and Resource Dependency Theory

As discussed in 5.5-5.6 this study indicates that it is important to investigate the relationship between the social network approach and the resource dependency theory in order to obtain a better understanding of entrepreneurship. By exploring this relationship in greater detail there might, as mentioned in the previous sub-chapter, be a potential for developing a more complete theory of entrepreneurship.

6.3.3. Different Organizations

The results of this study indicate that there are significant differences between business and church entrepreneurs. Most of the reasons for this are unknown. Considering the importance of the creation of volunteer organizations (the third sector) in our society, it will be important to investigate entrepreneurship for such organizations in future research.

The results of this study give few leads when it comes to the reasons for the differences between the two types of organizations. As shown in the data analysis (cf. 5) the results for church entrepreneurs are sensitive to the variable that was used to measure success. This might be a track to have a closer look at in future research. Also, the discussion of teams and church creation in 2.8 might imply that future research should extend the study of social network properties for church entrepreneurs to more persons than the entrepreneur alone. In other words future studies should also investigate the social network of the indirect contacts of the entrepreneurs. The focus on teams might imply that it is especially important to explore the social network of the persons that work closely together with the entrepreneur.

6.3.4. Measuring Motivation

The analysis of the relationship between resources and start-up success gave an unexpected result for one of the resource variables for both church and business entrepreneurs. There was no positive relationship between the number of motivation sources and start-up success. Also other researchers have not found the expected positive relationship between affective resources and start-up success (Foss 1994).

Considering the importance attributed to affective resources and entrepreneurial success in the literature, this «motivation problem» has to be

addressed. One possible explanation of the result in this study could be related to the measurement. As mentioned in 5.6, in the course of their interviews of the entrepreneurs many of them expressed a feeling of struggling against everybody. They had a feeling of being demotivated all the time. This attitude may have influenced their answering of the question concerning who motivated them.

It is complicated to give a reasonable recommendation for how to handle this issue in future research other than to underscore that it is necessary to carefully develop the measures of affective variables. More precise terms might be an option to investigate more closely.

6.3.5. Two or More Levels in the Networks?

In 6.2, it was concluded that there might be two or more levels within the social network where the degree of redundancy ought to be different in order to facilitate entrepreneurship. As discussed, and contrary to the hypothesis, no significant relationship between redundancy and start-up success was found. Considering these findings, it was suggested that the entrepreneur needs both high and low redundancy relationships in order to get access to a sufficient set of resources. If this is true an effective social network might include two or more segments with a different degree of redundancy. As discussed, some researchers have suggested this. Oliver and Prahl (1988) described more than one network level in the context of collective action and Burt (1992) seems to do the same. If this is true, it will be important in future research to explore this issue.

6.3.6. Redundancy and Diversity

Also, the discussions in 6.2 concerning redundancy and access to a diverse set of information have implications for future research. An assumption found in

much of the social network literature is that the entrepreneur needs a diverse set of information resources. Burt (1992) argues that it is the degree of redundancy that determines the variety of information the entrepreneur will receive. However, the results in this study seem to indicate that Burt's measure of redundancy does not have an important impact on start-up success. Based on this, it might be fruitful in future research to explore the importance of variation or diversity and how this might be measured.

6.4. Implications and Recommendations for Practitioners

The results of this study have some practical implications for entrepreneurs, entrepreneurial advisers, and other practitioners. First, the results imply that in order to succeed in the effort of creating a new business it is important to build relationships to other people. Second, the results of testing the model indicate that much more of the variance of the start-up success is explained when resources are introduced as an intervening variable, than when only the direct relationship between the social network and start-up success is considered. In fact the path between the social networks and start-up through resources is considerably more important than the direct path between the social networks and start-up. This seems to imply that it is most beneficial for the prospective entrepreneur, by a relatively *purposeful search*, to build relationships to people that might have access to resources that the entrepreneur needs during the creation of the new organization.

Generally, the practical implications of this study are not as obvious for church entrepreneurs as for business entrepreneurs. The reason for this is related to the fact that the hypotheses got less support for the church entrepreneurs. However, the development of relationships will also help

church entrepreneurs and the most important implications of this study seem to be relevant for both categories of entrepreneurs.

There are probably some resources that it is hard to identify (eg legitimacy, see 3.4). This may be indicated by the *direct* relationship between social networks and start-up success for business entrepreneurs revealed by the testing of hypotheses set H2 through H4. A possible interpretation of these findings may be that it is impossible to use a fully purposeful search for resources. It may not give the entrepreneur access to resources that are difficult to identify. A too purposeful search is also probably difficult because the testing of hypothesis set H3 indicates that the social network developed before the entrepreneurial process is relatively important. At that time it is hard to know about future needs for resources.

When it comes to the social network properties the results seem to be in line with the theoretical discussion found in the social network literature. It probably will give the entrepreneur an advantage to develop a mixed set of strong and weak relationships. However, the empirical evidence for this, as discussed in 6.2 and in the data analysis (5), is not as strong as expected.

Many entrepreneurs seek information from advisers. These could be publicly paid advisers, consultants and financial institutions. Their expertise might be of vital interest for the entrepreneurs. This and other studies show that the advisers should encurrage the entrepreneurs in the entrepreneurial process to seek relationships with persons that can help them with the development of the ideas. This probably implies more than giving the entrepreneur a list of names. The adviser should also help to build the relationships. Such an effort will most probably increase the chance of start-up success.

The fact that the initial networks seem to have an important impact on

start-up success might have some implications for institutions that promote entrepreneurship, for example for local government officials, business schools or theological seminaries. It is probably important to expose students and others to persons that might have proper resources. Later, when an idea of creating a new organization is conceived, it might be possible to renew the relationships that the students were exposed to.

6.5. Critical Reflections Concerning the Applied Method

In 4 the method is described and justified. After the study has been completed it is necessary to offer some critical reflections concerning the methodological priorities made in the beginning. Some of these reflections are mentioned in the previous sub-chapter. One of these reflections concerns how affective resources were measured in this study (see 4.7). As mentioned in 6.3, we asked directly from whom the prospective entrepreneur received motivation. The problems this measurement caused have implications for future research but it is also an indirect criticism of how we did it in this study. A better exploration of the concept up front would probably have given a better measure of motivation.

Also it was mentioned in the 6.3 that the results for church entrepreneurs might have been sensitive to the measurement of start-up success. Total revenues have measured start-up success for business and church entrepreneurs. The time between start-up and the measurement of revenues varies. This might have been a problem for church entrepreneurs. In order to get enough church entrepreneurs, we had to go further back in time than we wished. In order to reduce this problem the number of members at start-up time was used as supplement to total revenues in some of the tests. Some differences in results were found using these two measures but the

differences were not very large and the main picture of the results was the same. Also the time between the start-up and the interviews was used as a control variable in order to check for forgetfulness etc.

6.6. Summary of the Most Important Conclusions

This study confirms that social networks are important for start-up success. This is especially true for business entrepreneurs. The results confirm indications found in earlier studies. However, in most of these studies entrepreneurial stages and not start-up success have been the dependent variable. Also, in most of these studies not all of the respondents have had the intention of starting their own organization. This study implies that the social network has a direct and indirect (through resources) effect on the degree of start-up success for people who have intended to start a new business.

The results also show that there are differences between business and church entrepreneurs. The model explains much less of the variation of start-up success for church entrepreneurs. This study does not give any clear guidance concerning why the results for business and church entrepreneurs are very different. One explanation for the results relates to the importance of the church entrepreneurs' network. Since recruitment of new members is a major goal for churches, many contacts in the local environment are probably important. Therefore, one assumption might be that the relationships that the entrepreneurs have are far too few if compared to the necessary relationships. In order to get more of the variance of start-up success for church entrepreneurs explained by social networks, it might be necessary to look at the social networks of an extended group of persons that are involved in the start-up effort.

The results of this study imply that resources are an important intervening

variable for business entrepreneurs. They increase the explained variance of start-up success considerably. This point has both theoretical and practical implications. First, it bridges the social network approach and the resources dependency theory and it might be fruitful track to try to use these two perspectives in order to develop an integrated theory of entrepreneurship. The practical implication concerns how entrepreneurs should build social networks. It will be important to focus on the resources needed when they search for new contacts or further develop old contacts.

When it comes to the social network properties, it is the simple measures such as the number of weak and strong ties that explain most of the variance of start-up success. The measure of redundancy does not seem to matter much. Since these results are different from an important part of the social network theory developed during the last few years they should be further studied. The theory suggests that many non-redundant relationships give access to a more varied set of information resources (Burt 1992). This might be true but measures other than redundancy might also influence the variation in resource access. An example of such a measure might be the experience of the contacts (Knudsen 1998a and b). We think this will be a fruitful track to follow up in future research.

Finally, this study implies that it is important to distinguish between initial and emerging social networks. The results indicate that the initial networks are most important for start-up success. This might imply that prospective entrepreneurs, for example business students, should have the opportunity to be exposed to and to develop relationships with future resource sources.

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APPENDIX

Appendix 1. Questionnaire for Business Entrepreneurs

Kristiansand 07.04.94

Til utvalgte
bedriftsetablerere

ANG. SPØRREUNDERSØKELSE

Vi er i ferd med å gjennomføre en større undersøkelse om etablering av nye bedrifter. Undersøkelsen er rettet mot personer som har ledet en slik etableringen, eller et forsøket på en etablering. Spørsmålene vil dreie seg om ditt personlige nettverk.

Alle de opplysninger som du måtte gi vil bli behandlet **konfidensielt**. Ingen vil i ettertid kunne spore opplysningene tilbake til deg. Navnene som framkommer i intervjuet vil selvfølgelig heller ikke kunne identifiseres i rapporter fra undersøkelsen.

Hovedintervjuingen vil skje på **telefon**. Vi vil derfor i løpet av de to til tre neste ukene ringe deg opp. Intervjuingen vil ta ca. 30 minutter. Vi ber deg imidlertid besvare **side 1 før** telefonintervjuet.

Prosjektet vil kunne bidra til økt kunnskap om etableringer av nye bedrifter. Det er derfor av stor betydning at du deltar i denne undersøkelsen.

PS: Det vil være nødvendig for deg å ha **spørreskjemaet tilgjengelig** slik at du kan se de enkelte spørsmålene mens telefonintervjuet pågår. Spørreskjemaet må derfor **ikke returneres!**

Amanuensis
Jan Inge Jenssen

Førsteamanuensis
Arent Greve

Side 1

Besvares **før** telefonintervjuet

Vi vil gjerne ha en del informasjon om ditt personlige nettverk. Vi ønsker derfor at du i tabellen nedenfor fører opp **fornavnet** på de personene som du:

- diskuterte idéer, planer og problemer vedrørende forsøket på å starte egen bedrift,
- som du har fått praktisk eller finansiell støtte fra,
- som du har fått viktig informasjon, kunnskap og/eller
- som du har mottatt annen hjelp eller støtte fra til forsøket på å starte egen bedrift?

Inkluder eventuelt også familiemedlemmer.

Navnene vil bli brukt som grunnlag for telefonintervjuet. Dersom du ikke husker fornavnet, bruk etternavn eller en annen betegnelse som du lett vil gjenkjenne.

Personens nummer	Fornavn:	Personens nummer	Fornavn:
1	.....	11	.....
2	.....	12	.....
3	.....	13	.....
4	.....	14	.....
5	.....	15	.....
6	.....	16	.....
7	.....	17	.....
8	.....	18	.....
9	.....	19	.....
10	.....	20	.....

Personlige opplysninger:

1. Fødselsår:.....
2. Kjønn: 0 mann 1 kvinne (sett ring rundt det som passer)
3. Bosted: postnr.:..... postadresse:.....
4. Sivil status: 0 Enslig 1 Gift/samboende (sett ring rundt det som passer)
5. Utdanning (sett ring rundt det høyeste nivået du har nådd):
   1 Folkeskole, grunnskole el. tilsvarende
   2 Realskole el. ungdomsskole
   3 Gymnas/videregående skole
   4 Høyskole/ universitet, spesifiser:
   .....
   5 Annen utdanning:.....
   .....

6. Drev far noen form for egen virksomhet? 0 ja 1 nei Hvis ja, hva slags?.....

7. Drev mor noen form for egen virksomhet? 0 ja 1 nei Hvis ja, hva slags?.....

8. Har du før eller under arbeidet med å etablere egen bedrift deltatt i foreningsliv (frivillig organisasjon, klubb, menighet e.l.). 0 ja 1 nei
   Hvis ja, hvilke?
   .....
   .....

9. Hva var din hovedbeskjeftigelse før du startet eller forsøkte å starte egen bedrift? Velg av listen under spørsmål 10 og sett ring rundt riktig nummer. Dersom flere enn ett svar passer, sett ring rundt alle som passer.

1 2 3 4 5 6 7 8

10. Hva er din hovedbeskjeftigelse nå?

1 2 3 4 5 6 7 8

Velg av listen under og sett ring rundt det nummeret som passer. Dersom flere enn ett svar passer, sett ring rundt alle som passer.

1 Arbeidsledig
2 Student
3 Privat ansatt heltid (ikke i egen bedrift)
4 Privat ansatt deltid (ikke i egen bedrift)
5 Offentlig ansatt heltid
6 Offentlig ansatt deltid
7 Driver/drev egen bedrift
8 Annet

11. Vi er interessert i få oversikt over hele nettet av personkontakter som du hadde angående forsøket på å etablere egen bedrift. For å få fram dette har vi skilt mellom 3 grupper av kontakter. For hver gruppe ønsker vi at du gir et anslag på antall kontakter før og tidlig i etableringsprosessen, om antallet endret seg under denne prosessen og eventuelt et anslag på hvor stor denne endringen var.

	Antall kontakter før eller tidlig i etabler-ingsprosessen	Endring under etablerings-prosessen:	Hvis endring, gi et anslag på hvor sto denne endringen var:
1. Gruppe 1 (fra side 1)		Økt/Red./ Uendret	
2. Kunder /potensielle kunder som ikke er nevnt i gruppe 1		Økt/Red./ Uendret	
3. Andre		Økt/Red./ Uendret	

Bruk av nettverk

12. Navnene fra side 1 overføres til kolonne A nedenfor!

A Personens fornavn	B Kjønn 0 M 1 K	C Alder	D Yrke	E Når ble du kjent med denne personen? Angi årstall og om mulig måned.	F I hvilken fase av forsøket med å starte opp egen bedrift hadde du mest nytte av denne personen? 1 Under utviklingen av idéen, 2 under planleggingen eller 3 under etableringen av bedriften? Velg ett eller flere alternativ.	G Hvilken holdning hadde denne personen til at du startet egen bedrift? 1 negativ 2 nøytral 3 positiv	H Hvor mange ganger i måneden har du kontakt med denne personen nå?
1	0 1				1 2 3	1 2 3	
2	0 1				1 2 3	1 2 3	
3	0 1				1 2 3	1 2 3	
4	0 1				1 2 3	1 2 3	
5	0 1				1 2 3	1 2 3	
6	0 1				1 2 3	1 2 3	
7	0 1				1 2 3	1 2 3	
8	0 1				1 2 3	1 2 3	
9	0 1				1 2 3	1 2 3	
10	0 1				1 2 3	1 2 3	
11	0 1				1 2 3	1 2 3	
12	0 1				1 2 3	1 2 3	
13	0 1				1 2 3	1 2 3	
14	0 1				1 2 3	1 2 3	
15	0 1				1 2 3	1 2 3	
16	0 1				1 2 3	1 2 3	
17	0 1				1 2 3	1 2 3	
18	0 1				1 2 3	1 2 3	
19	0 1				1 2 3	1 2 3	
20	0 1				1 2 3	1 2 3	

I	J	K	L	M
Hvilke(t) forhold had- de du til denne personen under forsøket med å starte egen bedrift? 1 familie 2 andre slekninger 3 venn 4 nåværende/ tidligere kollega 5 tidligere lærer 6 annet Velg ett eller flere alternativ. Hvis 6 velges, oppgi rela- sjonstypen.	Hvilke ressurser mottok du fra denne personen under forsøket med å starte egen bedrift? 1 motivasjon 2 informasjon 3 ekspertise 4 kapital 5 kontakt til kunder 7 kontakt til leverandører 8 rådgiver/konsulent 9 kontakt til finasiør 10 annet Velg ett eller flere alternativ. Hvis 10 oppgi ressurstypen.	Hvor stor tillit hadde du til denne personen <u>før</u> forsøket med å starte egen bedrift eller <u>tidlig</u> i denne prosessen? 0 ingen kontakt 1 liten tillit 2 tillit 3 stor tillit	Hvor stor tillit hadde du til denne personen på <u>slutten</u> av forsøket med å starte egen bedrift? 1 liten tillit 2 tillit 3 stor tillit	Hvilket forhold hadde du til denne personen <u>før</u> forsøket med å starte egen bedrift eller <u>tidlig</u> i denne prosessen? 0 ingen kontakt 1 løst bekjentskap 2 bekjentskap 3 vennskap 4 nært vennskap 5 annet Hvis 5 velges, før opp relasjonstypen.
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	
		1 2 3 4	1 2 3	

N Hvilket forhold hadde du til denne personen på slutten av forsøket med å starte egen bedrift? 1 løst bekjentskap 2 bekjentskap 3 vennskap 4 nært vennskap 5 annet Hvis 5 velges, før opp relasjonstypen.	O Angi i tabellen nedenfor, så langt du vet, relasjonene mellom personene i ditt nettverk. Dette gjør du ved å føre opp nummeret på de av de øvrige personene i nettverket som vedkommende kjenner (de du har ført opp i kolonne A). Etter hvert av numrene som føres opp, rangeres dessuten fra 1 til 3 hvor godt personene kjenner hverandre. Bruk 1 dersom personene kjenner hverandre litt, 2 dersom personene kjenner hverandre godt og 3 dersom de kjenner hverandre meget godt. **Eksempel**: hvis du i rad 1 fører opp 3(2), 5(1), 6(3), betyr det at personen i rad 1 kjenner personen i rad 3 godt, personen i rad 5 litt og personen i rad 6 meget godt.	P Hvordan møttes dere? Tok du Selv (S) kontakt eller ble den formidlet av en Tredje (T) person.	Q Hvis det er en tredje person i kolonne P og dersom du har oppgitt vedkommende i kolonne A, før opp denne personens fornavn eller nummer i denne kolonnen.
1		S T	
2		S T	
3		S T	
4		S T	
5		S T	
6		S T	
7		S T	
8		S T	
9		S T	
10		S T	
11		S T	
12		S T	
13		S T	
14		S T	
15		S T	
16		S T	
17		S T	
18		S T	
19		S T	
20		S T	

Bedriftens situasjon

Besvares av deg som har startet egen bedrift i dag (spm. 13-18. Dersom du har gitt opp forsøket , gå til spørsmål 19.

13. Hvor mange år har du drevet egen bedrift?.....år

14. Når fikk du idéen til å starte egen bedrift? årstall..... måned.....

15. Når ble bedriften etablert som eget selskap? årstall..... måned.....

16. Hvilken type bedrift driver du nå? (sett ring rundt ett alternativ)

1 personlig eid selskap
2 bedrift som eies av flere partnere med felles ansvar
3 aksjeselskap med begrenset eierskap (familie eller lukket krets)
4 større aksjeselskap med offentlig tegning av aksjer

Lokalisering av bedriften, oppgi postnummer:.....

17. Hva produserer bedriften? (hovedbransje og type varer/tjenester)
.....
.....

18. Vi vil gjerne ha noen nøkkeltall fra driften:

	1992	1993	1994 (forventninger)
Antall ansatte i tillegg til deg selv:	.....	.....	.....
Omsetning i hele 1000 kr.:	.....	.....	.....
Overskudd før årsoppgjørsdisposisjoner:	.....	.....	.....

Om forsøket på å starte en ny bedrift

Besvares av deg som har forsøkt å starte en ny bedrift men har gitt opp (spm. 19-20). For deg som har startet egen bedrift, gå til spørsmål 21.

19. Når ga du opp forsøket med å starte en ny bedrift?
årstall..... måned.....

20. I hvilken fase av etableringen var du da du gav opp? (sett ring rundt ett alternativ)

1 idéstadiet
2 planleggingsfasen
3 etableringsfasen
4 senere

21. Besvar følgende spørsmål. Der hvor du er usikker på svaret, gi anslag!

a) Hvor mye tid brukte du på å **skape/etablere** kontakter med personer som du kunne 1) drøfte forhold vedrørende etableringen samt 2) få hjelp eller støtte fra til etableringen? .....timer pr. måned

b) Hvor mye tid brukte du på å **opprettholde/vedlikeholde** kontakter med personer som du kunne 1) drøfte forhold vedrørende etableringen samt 2) få hjelp eller støtte fra til etableringen? .....timer pr. måned

c) Min nærmeste familie støttet meg aktivt i forsøket på å starte egen bedrift! 0 Ja 1 nei

d) Hvor ofte diskuterte du spørsmål angående forsøket på å starte opp egen bedrift med andre personer (gjennomsnitt)? .....ganger pr. uke

e, f, og g besvares av deg som nå leder en bedrift.

e) Hvor mange kontakter har du nå som er relevant for ditt arbeid med drift og ledelse av bedriften? .....kontakter

f) Hvor ofte diskuterer du nå spørsmål angående drift og ledelse med personer i din bedrift? .....ganger pr. uke

g) Hvor ofte diskuterer du nå spørsmål angående drift og ledelse med personer utenfor din bedrift? .....ganger pr. uke

Appendix 2. Questionnaire for Church Entrepreneurs

Kristiansand 18.03.94

Til utvalgte
menighetsetablerere

ANG. SPØRREUNDERSØKELSE

Vi er i ferd med å gjennomføre en større undersøkelse om etablering av nye menigheter. Undersøkelsen er rettet mot personer som har ledet en slik etableringen, eller et forsøket på en etablering. Spørsmålene vil dreie seg om ditt personlige nettverk.

Alle de opplysninger som du måtte gi vil bli behandlet **konfidensielt**. Ingen vil i ettertid kunne spore opplysningene tilbake til deg. Navnene som framkommer i intervjuet vil selvfølgelig heller ikke kunne identifiseres i rapporter fra undersøkelsen.

Hovedintervjuingen vil skje på **telefon**. Vi vil derfor i løpet av de to til tre neste ukene ringe deg opp. Intervjuingen vil ta ca. 30 minutter. Vi ber deg imidlertid besvare **side 1 før** telefonintervjuet.

Prosjektet vil kunne bidra til økt kunnskap om etableringer av nye menigheter. Det er derfor av stor betydning at du deltar i denne undersøkelsen.

PS: Det vil være nødvendig for deg å ha **spørreskjemaet tilgjengelig** slik at du kan se de enkelte spørsmålene mens telefonintervjuet pågår. Spørreskjemaet må derfor **ikke returneres!**

Amanuensis
Jan Inge Jenssen

Førsteamanuensis
Arent Greve

Side 1

Besvares **før** telefonintervjuet

Vi vil gjerne ha en del informasjon om ditt personlige nettverk. Vi ønsker derfor at du i tabellen nedenfor fører opp **fornavnet** på de personene som du:

- diskuterte idéer, planer og problemer vedrørende forsøket på å starte en ny menighet,
- som du har fått praktisk eller finansiell støtte fra,
- som du har fått viktig informasjon, kunnskap og/eller
- som du har mottatt annen hjelp eller støtte fra vedrørende forsøket på å starte en ny menighet?

Inkluder eventuelt også familiemedlemmer

Navnene vil bli brukt som grunnlag for telefonintervjuet. Dersom du ikke husker fornavnet, bruk etternavn eller en annen betegnelse som du lett vil gjenkjenne.

Personens nummer	Fornavn:	Personens nummer	Fornavn:
1	.....	11	.....
2	.....	12	.....
3	.....	13	.....
4	.....	14	.....
5	.....	15	.....
6	.....	16	.....
7	.....	17	.....
8	.....	18	.....
9	.....	19	.....
10	.....	20	.....

Personlige opplysninger:

1. Fødselsår:.....
2. Kjønn: 0 mann 1 kvinne (sett ring rundt det som passer)
3. Bosted: postnr.:..... postadresse:.....
4. Sivil status: 0 Enslig 1 Gift (sett ring rundt det som passer)
5. Utdanning (sett ring rundt det høyeste nivået du har nådd):
   1 Folkeskole, grunnskole el. tilsvarende
   2 Realskole el. ungdomsskole
   3 Gymnas/videregående skole
   4 Høyskole/ universitet, spesifiser:
   .....
   5 Annen utdanning:.....
   .....
6. Drev far noen form for egen virksomhet? 0 ja 1 nei Hvis ja, hva slags?
   .....
7. Drev mor noen form for egen virksomhet? 0 ja 1 nei Hvis ja, hva slags?
   .....
8. Har du før eller under arbeidet med å etablere en ny menighet deltatt i foreningsliv (annen menighet, frivillig organisasjon, klubb e.l.). 0 ja 1 nei
   Hvis ja, hvilke?
   .....
   .....
9. Hva var din hovedbeskjeftigelse før du startet eller forsøkte å starte en ny menighet?
   Velg av listen under spørsmål 10 og sett ring rundt det riktige nr.
   Dersom flere enn ett svar passer, sett ring rundt alle som passer.

   1 2 3 4 5 6 7 8 9 10

10. Hva er din hovedbeskjeftigelse nå?

    1 2 3 4 5 6 7 8 9 10

    Velg av listen under og sett ring rundt det nummeret som passer.
    Dersom flere enn ett svar passer, sett ring rundt alle som passer.

1 Student
2 Arbeidsledig
3 Privat ansatt heltid (ikke i egen bedrift)
4 Privat ansatt deltid (ikke i egen bedrift)
5 Offentlig ansatt heltid
6 Offentlig ansatt deltid
7 Driver/drev egen bedrift
8 Pastor i en menighet du startet eller bidro til å starte
9 Pastor i en menighet du ikke startet eller bidro til å starte
10 Annet

11. Vi er interessert i få oversikt over hele nettet av personkontakter som du hadde angående forsøket på å etablere en ny menighet. For å få fram dette har vi skilt mellom 3 grupper av kontakter. For hver gruppe ønsker vi at du gir et anslag på antall kontakter før og tidlig i etableringsprosessen, om antallet endret seg under denne prosessen og eventuelt et anslag på hvor stor denne endringen var.

	Antall kontakter før eller tidlig i etabler-ingsprosessen:	Endring under etablerings-prosessen:	Hvis endring, gi et anslag på hvor sto denne endringen var:
1. Gruppe 1 (fra side 1)		Økt/Red./ Uendret	
2. Medlemmer /potensielle medl. som ikke er nevnt i gruppe 1		Økt/Red./ Uendret	
3. Andre		Økt/Red./ Uendret	

Bruk av nettverk

12. Navnene fra side 1 overføres til kolonne A nedenfor!

A Personens fornavn	B Kjønn 0 M 1 K	C Alder	D Yrke	E Når ble du kjent med denne personen? Angi årstall og om mulig måned	F I hvilken fase av forsøket med å starte opp en ny menighet hadde du mest nytte av denne personen? 1 Under utviklingen av idéen, 2 under planleggingen eller 3 under etableringen av menigheten? Velg ett eller flere alternativ.	G Hvilken holdning hadde denne personen til at du bidrog til å starte en ny menighet? 1 negativ 2 nøytral 3 positiv	H Hvilke(n) relasjon hadde du til denne personen under forsøket med å etablere en ny menighet? 1 familie 2 andre slekninger 3 venn 4 nåværende eller tidligere kollega 5 tidligere lærer 6 med i samme gruppe/ forening 7 annet Velg ett eller flere alternativ. Hvis 7 velges, før opp relasjonstypen
1	0 1				1 2 3	1 2 3	
2	0 1				1 2 3	1 2 3	
3	0 1				1 2 3	1 2 3	
4	0 1				1 2 3	1 2 3	
5	0 1				1 2 3	1 2 3	
6	0 1				1 2 3	1 2 3	
7	0 1				1 2 3	1 2 3	
8	0 1				1 2 3	1 2 3	
9	0 1				1 2 3	1 2 3	
10	0 1				1 2 3	1 2 3	
11	0 1				1 2 3	1 2 3	
12	0 1				1 2 3	1 2 3	
13	0 1				1 2 3	1 2 3	
14	0 1				1 2 3	1 2 3	
15	0 1				1 2 3	1 2 3	
16	0 1				1 2 3	1 2 3	
17	0 1				1 2 3	1 2 3	
18	0 1				1 2 3	1 2 3	
19	0 1				1 2 3	1 2 3	
20	0 1				1 2 3	1 2 3	

I Hvilke ressurser mottok du fra denne personen under forsøket med å etablere en ny menighet? 1 motivasjon 2 informasjon 3 ekspertise 4 penger 5 sang/musikk 6 kontakt til nye medlemmer 7 kontakt til finansiør 8 aktiv støtte/hjelp 9 annet Velg ett eller flere alternativ. Hvis 9 oppgi ressurstypen.	J Denne personen: 1 deltar/-tok i menighet-en du bidro til å starte 2 tilhører/-hørte ditt kirkesamfunn 3 er ansatt på ditt kirkesamf. hovedkvarter 4 leder en annen menighet i ditt kirkesamfunn 5 leder en annen menighet utenfor ditt kirkesamfunn 6 arbeider i en tverr-kirkelig organisasjon 7 er lærer ved en bibelskole/teologisk seminar. Velg ett eller flere alternativ.	K Hvor stor tillit hadde du til denne personen før forsøket med å starte en ny menighet eller tidlig i denne prosessen? 0 ingen kontakt 1 liten tillit 2 tillit 3 stor tillit	L Hvor stor tillit hadde du til denne personen på slutten av forsøket med å starte en ny menighet? 1 liten tillit 2 tillit 3 stor tillit	M Hvilket forhold hadde du til denne personen før forsøket med å starte en ny menighet eller tidlig i denne prosessen? 0 ingen kontakt 1 løst bekjentskap 2 bekjentskap 3 vennskap 4 nært vennskap 5 annet Hvis 5 velges, før opp relasjonstypen.
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	
	1 2 3 4 5 6 7	1 2 3 4	1 2 3	

N Hvilket forhold hadde du til de ne personen på slutten av forsøket med å starte en ny menighet? 1 løst bekjentskap 2 bekjentskap 3 vennskap 4 nært vennska 5 annet Hvis 5 velges, fø opp relasjonstypen.	O Hvor mange ganger i måneden har du kontakt med denne personen nå?	P Angi i tabellen nedenfor, så langt du vet, relasjonene mellom personene i ditt nettverk. Dette gjør du ved å føre opp nummeret på de av de øvrige personene i nettverket som vedkommende kjenner (de du har ført opp i kolonne A). Etter hvert av numrene som føres opp, rangeres dessuten fra 1 til 3 hvor godt personene kjenner hverandre. Bruk 1 dersom personene kjenner hverandre litt, 2 dersom personene kjenner hverandre godt og 3 dersom de kjenner hverandre meget godt. **Eksempel**: hvis du i rad 1 fører opp 3(2), 5(1), 6(3), betyr det at personen i rad 1 kjenner personen i rad 3 godt, personen i rad 5 litt og personen i rad 6 meget godt.	Q Hvordan møttes dere? Tok du Selv (S) kontakt eller ble den formidlet av en Tredje (T) person.	R Hvis det er en tredje person i kolonne Q og dersom du har oppgitt vedkommende i kolonne A, før opp denne personens fornavn eller nummer i denne kolonnen.
1			S T	
2			S T	
3			S T	
4			S T	
5			S T	
6			S T	
7			S T	
8			S T	
9			S T	
10			S T	
11			S T	
12			S T	
13			S T	
14			S T	
15			S T	
16			S T	
17			S T	
18			S T	
19			S T	
20			S T	

Menighetens situasjon

Besvares av deg som har startet eller bidratt til å starte en menighet (spm. 13-20). Dersom forsøket er gitt opp gå til spørsmål 21.

13. Når fikk du idéen (eller ble kalt) til å starte en ny menighet?
    årstall..... måned.....

14. Når betraktet du den nye menigheten som etablert som en selvstendig og uavhengig
    menighet? årstall..... måned.....

    Vi er her ikke nødvendigvis ut etter tidspunktet hvor menighet formelt ble etablert.
    Isteden er vi ute etter tidspunktet hvor menigheten kunne betraktes som en selvstendig uavhengig menighet med pastor (eller tilsvarende), styre og regelmessige
    offentlige møter (minst hver 14. dag).

15. Hvor mange medlemmer hadde menigheten da du betraktet den som etablert?.....

16. Hvor mange medlemmer har din menighet nå?.....

17. Hvor mange personer er i gjennomsnitt tilstede i menigheten på den største ukentlige samlingen nå? *Gi et anslag* .....

18. Hvor lenge har du drevet/ledet menigheten?.....år

19. Hvor mange årsverk sysselsetter menigheten nå?.....

20. Hvor store er menighetens inntekter:

	1992	1993	1994 (forventninger)
Gaveinntekter:	Kr.....	Kr.....	Kr.....
Offentlig støtte:	Kr.....	Kr.....	Kr.....
Andre inntekter:	Kr.....	Kr.....	Kr.....

Om forsøket på å starte en ny menighet

Besvares av deg som har forsøkt å starte en ny menighet, men som har gitt opp (spm. 21-23). Dersom du har bidratt til å starte en menighet gå til spørsmål 24.

21. Når fikk du idéen til å starte en ny menighet? årstall.....
måned.....

22. Når ga du opp forsøket med å starte en ny menighet?
årstall..... måned.....

23. Hvor mange personer var i gjennomsnitt tilstede i menigheten på den største ukentlige samlingen:
1) i den beste perioden:.....
2) den siste perioden før forsøket ble gitt opp:.....

24. Besvar følgende spørsmål. Der hvor du er usikker på svaret, gi anslag!

a) Hvor mye tid brukte du på å **skape/etablere** kontakter med personer som du kunne 1) drøfte forhold vedrørende etableringen samt 2) få hjelp eller støtte fra til etableringen? .....timer pr. måned

b) Hvor mye tid brukte du på å **opprettholde/vedlikeholde** kontakter med personer som du kunne 1) drøfte forhold vedrørende etableringen samt 2) få hjelp eller støtte fra til etableringen? .....timer pr. måned

c) Min nærmeste familie støttet meg aktivt i forsøket på å starte en ny menighet! 0 Ja 1 nei

d) Hvor mange forskjellige menigheter besøkte du det siste året før etableringen av den nye menigheten, samt under etableringen? .....menigheter

e) Hvor ofte diskuterte du spørsmål angående forsøket på å starte opp en ny menighet med andre personer (gjennomsnitt)? .....ganger pr. uke

f, g, og h besvares av deg som nå leder en menighet

f) Hvor mange kontakter har du nå som er relevant for ditt arbeid med drift og ledelse av menigheten? .....kontakter

g) Hvor ofte diskuterer du nå spørsmål angående drift og ledelse med personer i din menighet? .....ganger pr. uke

h) Hvor ofte diskuterer du nå spørsmål angående drift og ledelse med personer utenfor din menighet? .....ganger pr. uke

Appendix 3. Tables

Table 3.1, appendix: The effect of network variables on resource access in Foss (1994)

	Dependent variables							
Independent variables	Affec-tive	Advice on bureaucracy	Advice on accounting	Advice on technology	Finan-cing	Labor	Production resources	Market access
Multiple attributes		+						
Size							+	
Range	+		+	+	+			
Multiplicity	+			+			+	+
Collegial relations	+			+			+	
Service relations	+	+	+		+			
Industrial relations							+	+
Kin/friendship	+	+	+	+	+			

Table 3.2, appendix : The effect of resources on start-up success in Foss (1994)

Independent variables	**Dependent variable: start-up**
Affective resources	
Advice on bureaucracy	-
Advice on accounting	
Advice on technology	
Financing	
Labor resources	-
Production resources	+
Marked access	+

Table 3.3, appendix: Interaction effect of the number of initial and emerging weak and strong ties on start-up success for business and church entrepreneurs.

	Dependent variable: revenues (LV20.XX)	
	Business entrepreneurs	**Church entrepreneurs**
Independent variables:	**Beta**	**Beta**
Number of weak ties (LFORE14X)	0,237*	0,134
Number of strong ties (LFORE14Y)	0,036	0,074
Interaction (LINT14XY)	0,242	-0,113
Year of start-up (LV16V22X)	-	-0,214**
	Adj. R Sq. 0,169	Adj. R Sq.: 0,000
	Signif. F: 0,000	Signif. F: 0,410
	N= 98	N = 84

* p<0,10, **p<0,05, ***p<0,01, ****p<0,001

A regression was also run for all the churches that were newer than the median of the year of start-up. However, this did not change the results.

Table 3.4, appendix: Interaction effects between 1) strong ties and redundancy and between 2) multiplicity and redundancy on motivation and material resources.

	Church entrepreneurs		Business entrepreneur	
	Dependent variable: motivation sources (LMOTI09A)			
Independent variables	**Beta**	**Sign.**	**Beta**	**Sign.**
Strong ties (LFORE14Y)	0,639	0,000	1,259	0,015
Redundancy (LREDUNDN	0,338	0,006	,875	0,062
Interaction (LNINTSR)	**-0,289**	**0,162**	**-1,387**	**0,112**
	Adj. R Sq.: 0,263, Sig. F: 0,000, N = 98		Adj. R Sq.: 0,333, Sig. F: 0,000, N = 93	
Multiplicity (LMULTIPL)	0,115	0,450	0,107	0,774
Redundancy (LREDUNDN	0,144	0,889	0,419	0,693
Interaction (LNINTMR)	**0,116**	**0,913**	**0,053**	**0,962**
	Adj. R Sq.: 0,065 Signif. F: 0,027, N = 96		Adj. R Sq.: 0,202 Signif. F: 0,000, N = 91	
	Material resources (LPENG09A)		**Material resources (LNMATRCH)**	
Strong ties (LFORE14Y)	0,290	0,133	1,187	0,015
Redundancy (LREDUNDN	0,133	0,314	1,400	0,002
Interaction (LNINTSR)	**0,047**	**0,835**	**-1,752**	**0,035**
	Adj. R Sq.: 0,122 Signif. F: 0,002, N = 98		Adj. R Sq.: 0,405 Signif. F: 0,000, N = 93	
Multiplicity (LMULTIPL)	-0,067	0,666	0,045	0,893
Redundancy (LREDUNDN	-1,039	0,324	0,850	0,373
Interaction (LNINTMR)	**1,265**	**0,243**	**-0,247**	**0,802**
	Adj. R Sq.: 0,028 Signif. F: 0,134, N = 96		Adj. R Sq.: 0,359 Signif. F: 0,000, N = 91	

* A collinearity problem was detected in several of these regressions

Table 3.5, appendix: Correlation between degree of trust and access to resources for church entrepreneurs.

	Business entrepreneurs		
Resources	**Little trust (LTILE12A)**	**Trust (LTILE12B)**	**Strong trust (LTILE12C)**
Information resources (LNINFOBU)	0,152	0,350**	0,514**
Material resources (LPENG9D)	0,0164	0,357**	0,270**
Affective resources (LMOTI9A)	0,0518	0,321**	0,453**
Church entrepreneurs			
Information resources (LNINFOCH)	-0,084	0,191	0,629**
Material resources (LNMATRCH)	0,166	0,266**	0,553**
Affective resources (LMOTI9A)	-0,079	0,305**	0,602**

* - p<0,05, **p<0,01,

Table 3.6, appendix: The correlation between age, level of education and social network properties.

	Business entrepreneurs		Church entrepreneurs	
	Age	Education level	Age	Education level
No. of weak ties (LFORE14X)	0.2964*	0.0692	-0.1515	0.3600**
No. of strong ties (LFORE14Y)	0.0933	0.1825	-0.0389	0.2098*
Multiplicity (LMULTIPL)	-0.0078	0.0079	-0.1083	-0.0508
Redundancy (LREDUNDN)	0,1777	-0,0801	0,0350	0,1906
No. of ties (LV34)	0.2229*	0.0965	-0.0815	0.2649*
No. of initial weak ties (LFORF13X)	0.1647	0.2012	-0.0064	0.2796**
No. of initial strong ties (LFORF13Y)	0.0045	0.0927	-0.1297	0.1213
No. of initial ties (LV35)	-0.0140	0.1448	-0.0220	0.1114
No. of emerging weak ties (LFORPSUM)	0.2677*	0.0486	-0.2194	0.2052
No. of emerging strong ties (LFORXSUM)	0,1052	0,1542	-0,0527	0,1845
No. of emerging ties (LV36)	0.2596*	0.0441	-0.1255	0.2127*

* = p<0,05, ** = p<0,01

For business entrepreneurs there are positive significant relationships between age and three of the eleven network variables. There are not any significant relationships between education level and the network variables. For church entrepreneurs there are not any significant relationships between age and the social network variables. Five of the eleven network variables are positive and significant related to age.

Table 3.7, appendix: The effect of gender, membership in volunteer association, and parents self-employment on the social network (t-test).

	Business entrepren.			Church entrepren.		
	Mean	Mean	Sign.	Mean	Mean	Sign.
Gender (V04)	Male	Female				
No. weak ties (LFORE14X)	0.94	0.91	0.150	-	-	-
No. strong ties (LFORE14Y)	0.59	0.63	0.414	-	-	-
Multiplicity (LMULTIPLE)	0.04	0.05	0.851	-	-	-
Redundancy (LREDUNDN)	0,61	0,63	0.355	-	-	-
No. of ties (LV34)	1.49	1.67	0.396	-	-	-
No. of initial weak ties (LFORF13X)	0.52	0.45	0.942	-	-	-
No. of initial strong ties (LFORF13Y)	0.45	0.44	0.321	-	-	-
No. of initial of ties (LV35)	0.87	0.98	0.146	-	-	-
No. of emerging weak ties (LFORPSUM)	0.73	0.82	0.271	-	-	-
No. of emerging strong ties (LFORXSUM)	0,26	0,33	0.716	-	-	-
No. of emerging ties (LV36)	0.98	1.14	0.725	-	-	-
Volunteer association? (V10A)	Yes	No	Sign.			
No. weak ties (LFORE14X)	1.09	0.71	0.183	-	-	-
No. strong ties (LFORE14Y)	0.68	0.49	0.425	-	-	-
Multiplicity (LMULTIPLE)	0.06	0.01	0.160	-	-	-
Redundancy (LREDUNDN)	0,70	0,48	0.404	-	-	-
No. of ties (LV34)	1.68	1.33	0.975	-	-	-
No. of initial weak ties (LFORF13X)	0.63	0.37	0.031	-	-	-
No. of initial strong ties (LFORF13Y)	0.53	0.33	0.064	-	-	-
No. of initial of ties (LV35)	0.97	0.79	0.702	-	-	-
No. of emerging weak ties (LFORPSUM)	0.85	0.61	0.514	-	-	-
No. of emerging strong ties (LFORXSUM)	0,31	0,23	0.088			
No. of emerging ties (LV36)	1.16	0.81	0.961			
Parents self-employment (V09X)	Yes	No	Sign.	Yes	No	Sign.
No. weak ties (LFORE14X)	0.96	0.92	0.389	0.74	0.50	0.621
No. strong ties (LFORE14Y)	0.63	0.58	0.977	1.61	1.81	0.052
Multiplicity (LMULTIPLE)	0.01	0.07	0.016	0.29	0.23	0.628
Redundancy (LREDUNDN)	0,64	0,59	0.106	1,73	1,76	0.960
No. of ties (LV34)	1.59	1.48	0.942	2.07	2.10	0.390
No. of initial weak ties (LFORF13X)	0.51	0.50	0.396	0.94	0.83	0.712
No. of initial strong ties (LFORF13Y)	0.42	0.48	0.375	1.39	1.48	0.837
No. of initial of ties (LV35)	0.91	0.88	0.342	1.64	1.67	0.981
No. of emerging weak ties (LFORPSUM)	0.78	0.72	0.342	0.37	0.22	0.005
No.of emerging strong ties (LFORXSUM)	0.31	0.26	0.430	0.67	0.68	0.140
No. of emerging ties (LV36)	1.07	0.97	0.491	1.03	1.04	0.825

For gender, none of the mean differences are significant. For membership in

volunteer organizations two of the eleven variables show significant mean differences at a five percent level. These variables are the number of initial weak and initial strong ties. When it comes to parents self-employment for business entrepreneurs, one variable shows a significant mean difference for entrepreneurs with and without self-employed parents (multiplicity). For church entrepreneurs there are two variables that have significant mean differences: the number of strong ties and the number of emerging weak ties.

Table 3.8, appendix: The effect of gender, membership in volunteer association and parents self-employment on start-up success (t-test).

Variables	Organization	N	M	N	M	Sign.
Gender	Business	22 FM	4.12	76 M	3.14	0.00
Volunteer association?	Business	59 Yes	3.80	39 No	2.69	0.28
Parents self-employed	Business	44 Yes	3.56	54 No	3.20	0.21
Parents self-employed	Church	38 Yes	5.23	47 No	4.76	0.40

Table 3.9, appendix: The effect of age and education level on start-up success.

	Business entrepreneurs		**Church entrepreneurs**	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
Age (LALDER1)	0.103	0.356	0.021	0.849
Education level (LV07A)	0.082	0.463	0.213	0.060
	Adj. R Sq.: 0.004 Signif. F: 0,441 N = 85		Adj. R Sq.: 0.021 Signif. F: 0,167 N = 80	

Table 3.10, appendix: The effect of the number of inhabitants on start-up success for church entrepreneurs.

	Dependent variable: Revenues (LV20.XX)		**Dependent variable: Number of members at the time the church was cosidered as started** (LV24)	
Independent variables:	**Beta**	**Sig T**	**Beta**	**Sig T**
Number of inhibitants	0,213	0,053	0,229	0,029
	Adj. R Sq.: 0,034 Signif. F: 0,053 N = 83		**Adj. R Sq.: 0,042 Signif. F: 0,029 N = 91**	

Table 3.11, appendix: Correlation matrix for all variables for business entrepreneurs

	LFORE14X	LFORE14Y	LFORF13X	LFORF13Y	LFORPSUM	LFORXSUM	LMULTIPL	LREDUNDN	LNINFOBU	LPENG9D	LMOTI9A	LRANGE
LFORE14Y	,1855											
LFORF13X	,5524**	,3273**										
LFORF13Y	,0211	,6783**	,1704									
LFORPSUM	,8408**	,1213	,2032*	-,0352								
LFORXSUM	,2330*	,7435**	,4194**	,1755	,2012*							
LMULTIPL	,1594	,1730	,1264	,1758	,0978	,0950						
LREDUNDN	,2832**	,2062*	,2754**	,2357*	,1189	,1658	,1935					
LNINFOBU	,5897**	,4753**	,4148**	,2836**	,4793**	,4508**	,1635	,3629**				
LPENG9D	,3359**	,3523**	,3495**	,1900	,2682**	,3624**	,1038	,2187*	,4606**			
LMOTI9A	,1942	,4826**	,2181*	,4550**	,0816	,3638**	,1766	,3113**	,3827**	,2841**		
LRANGE	,5258**	,4379**	,3559**	,2991**	,4330**	,3742**	,1602	,3805**	,8061**	,4974**	,4874**	
LV20.XX	,3725**	,2705**	,4667**	,0053	,2557*	,3817**	,0554	,1681	,4877**	,5888**	,0816	,4172**

* - Signif. LE ,05 ** - Signif. LE ,01 (2-tailed)

Table 3.12, appendix: Correlation matrix for all variables for church entrepreneurs

	LFORE14X	LFORE14Y	LFORF13X	LFORF13Y	LFORPSUM	LFORXSUM	LMULTIPL	LREDUNDN	LNINFOCH	LNMATRCH	LMOTI9A	LRANGE	LV20.XX	LV24
ORE14X														
ORE14Y	,0908													
ORF13X	,5753**	,3329**												
ORF13Y	,1319	,6862**	,0097											
ORPSUM	,6909**	,0762	,3066**	-,0034										
ORXSUM	,0573	,4364**	,6159**	-,1806	,1979									
ULTIPL	-,0554	,0376	-,1459	,1933	-,0727	-,1490								
EDUNDN	,4019**	,6625**	,5482**	,4816**	,2466*	,3847**	-,0710							
INFOCH	,4384**	,4789**	,3757**	,3580**	,4220**	,2982**	,1238	,4642**						
MATRCH	,3447**	,5180**	,4485**	,3376**	,2982**	,3958**	-,0796	,6125**	,5152**					
OTI9A	,4088**	,5751**	,4152**	,4637**	,2560*	,2829**	,0911	,4627**	,4940**	,4695**				
ANGE	,3499**	,3884**	,3704**	,2434*	,3495**	,3613**	-,1194	,5161**	,7139**	,6699**	,3173**			
20.XX	,0553	,0098	,0082	,0287	,0802	,0242	,0942	,0396	,1651	,1334	,0910	,0670		
24	,0864	,1118	,0430	,2066*	,0728	-,0311	,1506	,1022	,2749**	,1786	,2350*	,0856	,8659**	
16V22X	,0023	,1924	-,0315	,1637	,0027	,0949	,1929	,1032	,0731	,0208	,0839	,0330	-,2118	-,1328

* - Signif. LE ,05 ** - Signif. LE ,01 (2-tailed)