

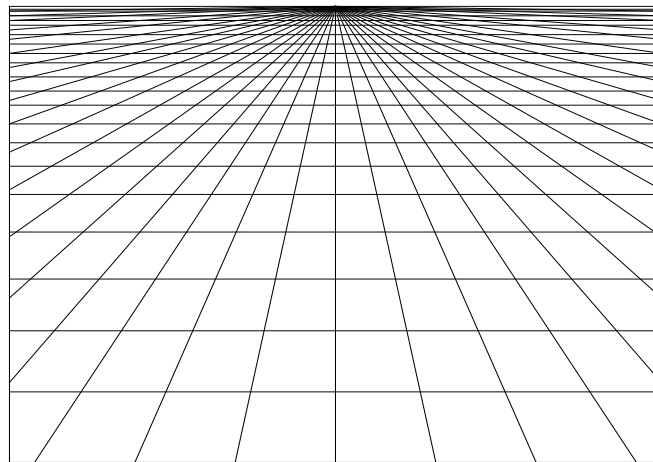


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**Innovation in a Business Incubator
- A study of IT Fornebu**

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2009

Word count: 20000

I. Acknowledgements

I would like to thank my supervisors Siri Brorstad Borlaug and Merle Jacob for ideas, advices and comments. A special thanks to Fred. Olsen, Tormod Hermansen and Per Morten Vigtel for spending valuable time with me. Tina, Morten and my family, thank you for reading and commenting on my thesis. I am also very grateful towards Kristin, Nils, Kathrine, Marius and Tor at IT Fornebu, and all the entrepreneurs related to IT Fornebu, for cooperating with me. In addition, I would like to thank Ragnhild for being patient and motivating me.

II. Abstract

This study examines how Business Incubators are facilitating the entrepreneurial process. A case study on IT Fornebu has been applied to answer and analyze this research question. The findings highlight that a hybrid between a specialized and diversified Business Incubator has some advantages in terms of supporting entrepreneurs. Facilitating and managing various but related clusters from the Business Incubator may gain such advantages. This is highly dependent on the social networks and the absorptive capacity to the individuals working at the incubator. Social capital and sector specific knowledge is crucial to entrepreneurs and thus a specialized incubator with accumulated knowledge may seem better. The empirical evidence and the literature show that specialization sometimes leads to disadvantages and thus a hybrid might be preferable.

Keywords: IT Fornebu, Business Incubator, Social capital, absorptive capacity, cluster theory

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2. Introduction

The increase in Business Incubators has led to an academic discussion whether their existence enhance the performance to start-up companies. (Phan, Siegel et al. 2005). By providing different types of resources that reduce transaction and operating costs have Business Incubators helped the entrepreneurs (Peters, Rice et al. 2004)? Have Business Incubators managed to facilitate a community where the incubated firms can share knowledge, labours and network and learn from each other? *“The question remains, do incubators facilitate the entrepreneurial process and if they do, how?”*(Peters, Rice et al. 2004:83). Hackett and Dilts (2004a) give an overview over the main topic and research questions from 1984 and until 2000 presented in the figure 1. Papers after 2000 still shows the interest for many of the same questions and as Hackett and Dilts claimed in 2004: researchers have only begun to scratch the surface of the phenomenon of Business Incubator and the incubated firms (Hackett and Dilts 2004a). Articles from recent years confirm that that the same questions on how Business Incubators best can help entrepreneurs and start-up firms is still to be discussed (Bøllingtoft and Ulhøi 2005; Grimaldi and Grandi 2005; Palmberg 2006; Aerts, Matthyssens et al. 2007; Hughes, Ireland et al. 2007; Bergek and Norrman 2008; Schwartz and Hornych 2008; Chen 2009; Aaboen 2009). The thesis’ goal is to contribute to the Business Incubator debate with a case study on a Norwegian Business Incubator and the overall research question is:

How does a Business Incubator promote innovation?

The limitations of this thesis do not allow an investigation of the whole Norwegian incubator system, thus it has been carried out a qualitative study on one Norwegian Business Incubator, IT Fornebu Holding AS (ITFH) and how they promote innovation. To be able to investigate more on how ITFH is promoting innovation it is fruitful to find out why they are using exactly this business model and thus the sub research question: why are they using this business model to promote innovation? IT Fornebu Holding AS has developed a business model with a set of tools to promote innovation. To better understand how they are working it would be fruitful to put this in an analytical framework. The how-question will be analyzed with an overview of the literature innovation and Business Incubators. The empirical data originates from documents, interviews and participant observation. The why-question refers to an organizational reorganization that ITFH has recently been through.

ITFH changed their way of supporting start-up companies and entrepreneurs with a new business model. This change has its starting point with several years of experience with Business Incubators, but investigations show that not so much originate from the literature on Business Incubators (CEO, IT Fornebu Visjon AS). Based on literature, interviews and documents some theoretical framework has been identified to better analyse these changes including: Business Incubators, absorptive capacity, social capital, and cluster theory.

As innovation is a complex and uncertain process, it is vital for Business Incubators to employ persons with prior knowledge and adaptability. Without any exceptions, all participants that were interviewed during the research process clearly stressed the importance of the managers working in a Business Incubator and their qualities. The manager's enthusiasm, social capital and ability to understand the technologies from the incubated firms, are crucial for the survival of a Business Incubator. Literature on absorptive capacity is discussing the ability to recognize and utilize new knowledge and how this leads to advantages to entrepreneurs and firms. To better monitor the market and to support entrepreneurs, an incubator manager with a large accessible and mobilized social network is likely to provide better support. To be able to hold and develop characteristics such as social network and absorptive capacity there is an ongoing debate whether a Business Incubator's performance is increasing if they are operating in a specialized sector, such as the ICT sector. Evidence from interviews with entrepreneurs proves that demand for a network and knowledge closely related to what they are working on, was valued most. Focusing on a specific sector makes it easier for a Business Incubator to accumulate knowledge and thus provide better advice and support for entrepreneurs, but may lead to competition between incubated firms. A specialized focus on one sector may be too narrow and do not produce sufficient entrepreneurs and thus hard to create revenue for a self supported Business Incubator. To help dealing with such challenges as absorptive capacity, social capital and focusing on a specific sector, the Incubator needs access to knowledge. Knowledge can be found in clusters of firms that have a connection to a common technology. By managing such cluster it might be possible to engage a diversity of firms and maintain the specialized support and knowledge.

This thesis targets some of the ongoing debates on Business Incubators and will hopefully be able to contribute with some answers to how Business Incubators are helping entrepreneurs and start-up firms, based on a case study in Norway.

Research streams	Incubator development studies	Incubator configuration studies	Incubatee development studies	Incubator-incubation impact studies	Studies theorizing about incubators-incubation
Characteristics					
Research period	1984–1987	1987–1990	1987–1988	1990–1999	1996–2000
Main topics	<ul style="list-style-type: none"> • Definitions • Taxonomies • Policy prescriptions 	<ul style="list-style-type: none"> • Conceptual frameworks • Incubatee selection 	<ul style="list-style-type: none"> • New venture development • Impact of planning on development 	<ul style="list-style-type: none"> • Levels and units of analysis • Outcomes and measures of success 	<ul style="list-style-type: none"> • Explicit and implicit use of formal theories (transaction cost economics, network theory, entrepreneurship, economic development through entrepreneurship)
Research question(s)	<ul style="list-style-type: none"> • What is an incubator? • How do we develop an incubator? • What life cycle model can be extracted from analysis of business incubators? 	<ul style="list-style-type: none"> • What are the critical success factors for incubators-incubation? • How does the incubator-incubation concept work in practice? • How do incubators select incubatees? 	<ul style="list-style-type: none"> • What is the process of new venture development in an incubator context? • What is the role of planning and the business incubator manager? 	<ul style="list-style-type: none"> • Do incubators achieve what their stakeholders assert they do? • How can business incubation program outcomes be evaluated? • Have business incubators impacted new venture survival rates, job creation rates, industrial innovation rates? • What are the economic and fiscal impacts of an incubator? 	<ul style="list-style-type: none"> • What is the significance of relationships and how do they influence entrepreneurship? • What are the critical connection factors to success, e.g., settings, networks, founder characteristics, group membership, co-production value, and creation process?' • What constitutes a model for a virtual incubator? • Is the network the location of the incubation process?

Figure 1 overview of incubator-incubation literature (Hackett and Dilts 2004a)

2.1 Background

Fornebu used to be an international airport and was situated very close to Oslo, the capital of Norway. It was a broad political agreement that Fornebu Airport was going to close down and that the area was going to be used for a knowledge park as a business policy tool to promote innovation (ITF 2008). In 1995, a Norwegian business man named Fred Olsen and The Norwegian Investor Forum (Norsk Investorforum) started planning the establishment of an IT and knowledge park at Fornebu. The year after, Fred Olsen founded IT Fornebu AS, and in 1997 they launched a strategy for a knowledge and innovation park. The government opened an international competition to develop the innovation park at Fornebu in cooperation with the Norwegian government. Three of the competitors were most likely to win: Nettverk Fornebu AS (Orkla ASA, Storebrand ASA and ICA AS / Hakon gruppen), Fornebu Technoport (KLP Eiendom AS and Forskningsparken) and IT Fornebu AS (Fred.

Olsen). Fornebu Technoport and IT Fornebu AS later merged their offers to develop Fornebu to an innovation park. They called this cooperation IT Fornebu Technoport and in 2000 they won the competition to the joint venture with the Norwegian government, after the parliament reached a different conclusion than the government who had promoted Nettverk Fornebu AS (ITF 2008).

IT Fornebu Technoport has a real estate company called IT Fornebu Eiendom with a mission statement: *“the masterplan is to regenerate the space which previously housed Norway’s national airport into a world class innovations park which will provide the highest standards of work space, educational facilities, housing and social amenities”* (ITF 2008). The other company, IT Fornebu AS, had another vision: *“the interaction between research, education and business which in the long term will create diversity in a forward-looking knowledge based environment and thereby becoming the driver of the expansion innovation and knowledge based sector in Norway”* (ITF 2008). IT Fornebu AS was later reorganized into a holding company, IT Fornebu Holding AS (ITFH). IT Fornebu Holding AS (ITFH) is owned by the government through SIVA 32, 6 % and the remaining two thirds are private investors. ITFH had three daughter companies called: IT Fornebu Eiendom AS, IT Fornebu AS and IT Fornebu Inkuabtor AS (ITFI). ITFI was owned by the two other companies with 42, 5 % each, and the remaining 15 % was owned by Oslo Innovation Center (Forskningsparken¹). This latter company was established to realise an attractive environment for knowledge based and high tech start-up firms and is working as a Business Incubator. ITFI intended to exercise shared ownership in an early phase for the incubated companies and offer board members, a large network and capital. ITFI was later terminated due to political changes who led to a full stop in the planned start-up funding of ITFI and reports showing a weak performance. ITFH later reorganized their organization, but continued supporting entrepreneurs.

¹ <http://www.forskningsparken.no/>

3. Analytical framework

3.1 Innovation

Innovation can be defined as: “*the practical implementation of an idea into a new device or process.*” (Schilling 2008:16). Kline and Rosenberg describe it like this: “*Innovation is complex, uncertain, somewhat disorderly and subject to changes of many sorts.*” (Kline and Rosenberg 1986:175). Innovation can come from individuals, firms, universities, private nonprofit or government-funded research (Schilling 2008). To distinguish between invention and innovation can be helpful in terms of understanding innovation. “*Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice.*” (Fagerberg 2005:4). In other words, you take something that already exists and you find a new way of doing it. Something may refer to products, processes or organizations. The entrepreneur is the one who carries the invention done by the inventor into the market. Fagerberg (2005) states that it may be a long time between the invention and the innovation simply because all or some of the conditions for commercialization may be lacking (Fagerberg 2005). The linear model of innovation is one of the first attempts to explain the relation between technology and economy (Godin 2006). The model shows how basic research is followed up by applied research and development and then ends with production and diffusion. It is based on an assumption that innovation is based on applied science. “*It is linear because there is a well-defined set of stages that innovations are assumed to go through*” (Fagerberg 2005:8) The linear model may explain how some innovations come to life, but the criticism claims that many types of innovation are left neglected. Kline and Rosenberg says that: “*The process of innovation must be viewed as a series of changes in a complete system not only of hardware, but also of market environment, production facilities and knowledge, and the social context of the innovation organization*” (Kline and Rosenberg 1986:175).

In other words, the linear model is not a sufficient model to explain the wide definition of innovation. An important aspect that the model does not cover is when innovation happens because of an identified need for it. Companies may use existing knowledge and combine this into innovations without basic research. Only when this does not work, a company may invest in further research, but the starting point was out of a need and not just research. The

industry push versus the market pull is an interesting discussion, but I will not discuss that here.

Another approach to innovation is the User Producer model (Schilling 2008). This is a non-linear model of innovation. Here it is the feedback from users who is the main source of innovation and not science. Schilling has tried to divide innovation into four categories: Product innovation is different from process innovation. A Radical Innovation is something very different from prior solutions while Incremental Innovation makes minor improvements to existing practice. Competence-Enhancing innovation builds on existing knowledge as a starting point in the innovation process. In opposite Competence-Destroying innovation needs new knowledge as a starting point. The last of the four categories is Component Innovation and Architectural Innovation. Component innovation is defined as a change in one or more components that does not significantly affect the overall configuration of the system. Architectural Innovation changes the overall system (Schilling 2008).

There are many ways of indentifying sources of innovation and thus it is not easy to define. Furthermore it is not easy to systemize innovation and the innovation does not necessarily need to be something radically new, but rather something with minor changes that can be commercialized. This enhances the argument of the qualities that managers need to possess in terms of recognizing a potential commercial product or service and carrying it out in to practice together with the entrepreneurs.

3.2 Business Incubators

Business Incubators can be seen as a tool for promoting innovation. Entrepreneurs and start-up companies can apply to a Business Incubator and receive support in order to commercialize their product or services. This section will give a brief overview of Business Incubators.

3.2.1 Evolution of Business Incubators

To better understand the definition of Business Incubator it is wise to take a look at the development of Business Incubators over time. Most of the first Business Incubators can be traced back to late 1970s and early 1980 in industrialized countries (CSES 2002), but the

first Business Incubator was established in 1959 in Batavia, New York in the United States (Aerts, Matthyssens et al. 2007). Because of the rapid increase in unemployment in both USA and Europe, there was a need for a new strategy to regenerate crisis sectors, regions and communities. At the time most of the strategies were characterized by a “top down” approach relying on exogenous factors and with a public intervention to secure jobs in underdeveloped or declining regions. They have now changed to a more “bottom up” strategy that is focusing on national economical development. Business Incubators now became more commonly used as instruments to promote innovation and technology transfer. The first generation of Business Incubators were initially offering only affordable space and shared facilities to some selected entrepreneurs (Lalkaka 2001). Later in the 1990s it was identified the need for more counselling, skills enhancement and network services. The network is very important for start-up firms without sufficient knowledge to the market particularly in terms of fund raising in an early stage. These extended services have led to the second generation of Business Incubators although some countries are still in the original mode (Lalkaka 2001). In 1998 a new Business Incubator emerged. This model focused on the ICT sector and intended to provide a convergence of support towards creating growth potential, tech based ventures.

3.2.2 Definition

The Centre for Strategy & Evaluation Services in the EU has stated the following definition: *”A business incubator is an organization that accelerates and systemises the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: Incubator space, business support services, and clustering and networking opportunities”* (CSES 2002:9). Peters et al. has a different definition *“Their role is to provide a support environment for startup and fledgling companies, thereby promoting local job creation, economic development, and technology transfer”* (Peters, Rice et al. 2004:83). Grimaldi and Grandi has this definition: *“The incubation concept seeks an effective means to link technology, capital and know-how in order to leverage entrepreneurial talent, accelerate the development of new companies, and thus speed the exploitation of technology”* (Grimaldi and Grandi 2005:111). Bergek and Norrman claims that there are many definitions in the literature, but that they are somehow similar. Bergek and Norrman has identified four components that have received particular attention in previous research (Bergek and Norrman 2008:21):

- (1) shared office space, which is rented under more or less favourable conditions to incubatees
- (2) a pool of shared support services to reduce overhead costs
- (3) professional business support or advice (“coaching”)
- (4) network provision, internal and/or external.

Aaboen (2009) list up five services: office space, office support, access to financial resources, entrepreneurial start-up support and access to networks. To be defined as a Business Incubator the authors argue that one in a strong sense need to offer all five services and in a weak sense just four. Less than four indicates that it is not an Business Incubator (Aaboen 2009). Over the past years the Business Incubator term has had a range of different more or less synonymous names (Bøllingtoft and Ulhøi 2005): Business Accelerators, Research Parks, Science Parks, Knowledge Parks, Seedbeds, Industrial Parks, Innovation Centers, Technopoles, and ‘Networked Incubators. They are all following the overall objective as stated above, helping entrepreneurs and start-up companies in their growth to compensate for perceived failures or imperfections in the market mechanism. They provide the same service for their clients, the entrepreneurs and start-up firms, but they may be established for different reasons. *“Some incubators have been established to accelerate regional economic development and to help capitalize investment opportunity, while others have been established for the purpose of commercialising academic research, typically by bringing small, high-tech firms into contact with high-tech university campuses”* (Bøllingtoft and Ulhøi 2005:269). All in all a Business Incubator is an organization that supports entrepreneurs and start-up firms in their commercialization process. The different types and names of Business Incubators have led to an academic research goal to classify and categorize the Business Incubators. This will be outlined in the following section.

3.2.3 Types of Business Incubators

It is not easy to classify Business Incubators. *“Although the general goal of incubators is to develop firms and stimulate entrepreneurship, different incubators have different priorities. Even among incubators of similar models, there are differences between their operations and goals”* (Bøllingtoft and Ulhøi 2005:270). Despite this fact there have been several contributions to this issue in the literature on Business Incubators. An important distinction between incubators can be made by those who are privately held and thus depending on

economical returns and the governmentally funded that has goals such as increase in unemployment rates in a region. (Markman, Phan et al. 2005). A lot of incubators are connected to sciences parks of universities. Incubators connected directly to university can be called a Technology Transfer office or a TTO. The TTO's are designed to transfer the technology developed in a university to the market where it can be commercially applied and profitable (Schilling 2008:25).

Grimaldi and Grandi (2005) map Business Incubators into four different categories: Business Innovation Centres (BICs), University Business Incubators (UBIs), Independent Private Incubators (IPIs), and Corporate Private Incubators (CPIs) (Grimaldi and Grandi 2005). The BICs offers a set of basic services such as: provision of space, infrastructure, communication channels, and information about external financing opportunities, visibility, etc to their incubated start-up firms. The BICs were set up on the initiative of the European Commission. Universities can make substantial contributions to economic development thus the creations of the UBIs. The universities are sharing scientific and technological knowledge through patents and spin-off firms managed by the UBIs. UBIs are offering similar services to their incubated firms but are more focused on commercialization from scientific and technological knowledge from the universities. According to Grimaldi and Grandi 2005 there are two types of UBIs: *“(a) typical incubator services including shared office services, business assistance, access to capital, business networks and rent breaks; and (b) university related services including faculty consultants, student employees, university image conveyance, library services, labs/workshops and equipment, mainframe computers, related R&D activity, technology transfer programs, employee education and training, and other social activities”* (Grimaldi and Grandi 2005:112). Private Business Incubators are divided into Independent Private Incubators and Corporate Private Incubators. The CPIs are managed by large companies with the aim of creating corporate spin-off firms. The spin-offs are often a result from joint research between the large companies where new ideas evolve from knowledge spill-over. The CPIs also hosts more generic start-ups in addition to the spin offs and they start intervene with the business development in an early stage. IPIs are set up by single or groups of individuals, but may also be set up by companies. IPIs are sometimes called accelerators and intend to help entrepreneurs in developing their business ideas. IPIs usually partner up with start-ups when the business has

already started and need injections of capital or know-how knowledge unlike the CPIs who intervene during the business concept phase.

3.3 Best practice

In Bergek and Norrman's article on: Incubator best practice: A framework, from 2008 they highlight two problems with the literature on Business Incubator's best practice. The first problem is the definition of performance. How can performance be measured and compared in the jungle of different Business Incubators? (Bergek and Norrman 2008). The second problem they reveal is that most studies focus on the outcome such as number of new jobs, firms and firm survival without relating it to how different Business Incubators organise and support their incubated firms. Because of these two problems they claim that the Business Incubator model has been "black boxed" and that the "box" needs to be opened in order to identify best practice. *"Best practice may be defined as a process that is better at delivering a particular result than any other process"* (Bergek and Norrman 2008:22). Best practice is clearly an attempt to find the best way of managing a Business Incubator, but the challenge is how to measure efficiency in such a complex system. Mosselman and Prince 2004 gives a definition of efficiency: *"Efficiency is the term commonly used for relating outputs to inputs. A process is 'efficient' if it requires relatively little inputs to produce a certain amount of output. If a process produces relatively little outputs, compared to the inputs, it is said to be 'inefficient' "* (Mosselman and Prince 2004:24). Bergek and Norrman (2008) argue that it is not enough to just measure the output of a Business Incubator, it is needed to measure the outcome related to the expected outcomes. In other words they define Business Incubator's outcome as a result of its goals (figure 2). To identify Business Incubator's performance Bergek and Norrman uses different "Incubator models".

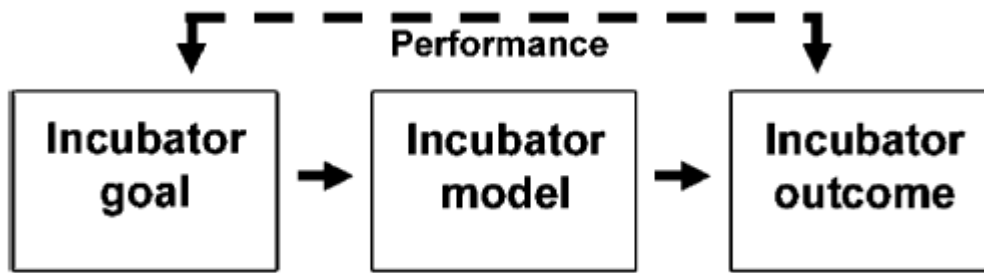


Figure 2 Evaluation model (Bergek and Norrman 2008:22)

The different Incubator models are an attempt to distinguish between different types of Business Incubators and their goals. At the same time it is important to notice that different goals correspond to different outcome indicators. If the goal for a given Business Incubator is to create more jobs a suitable indicator would be the numbers of employees. Business Incubators may have several goals depending on their owners which can complicate the measuring of their performance. It should not be too hard to distinguish the goals between Business Incubators running for profit and those who do not (Peters, Rice et al. 2004; Bøllingtoft and Uthøi 2005). According to Bergek and Norrman Business Incubators may have two main types of goals: “(a) *enhancing economic development and/or reduce unemployment in a region by facilitating the start-up of new companies, increasing their survival rate and growth and, more generally, by training entrepreneurs, and (b) stimulating firms involved in emerging technologies or the commercialisation (or transfer) of research done in universities, research institutes and firms*” (Bergek and Norrman 2008:22). Despite that they mention these two types they also claim them to be a bit too crude and present their own framework to identify performance among Business Incubators.

They build up their models from five different components (Bergek and Norrman 2008:23):

- Selection: refers to decisions concerning which ventures to accept for entry and which to reject.
- Infrastructure: consists of localities, office facilities and “administrative” services.
- Business support is associated with coaching/training activities undertaken to develop the start-up firms.
- Mediation: refers to how the incubator connects the start-up firms to each other and to the outside world.

- Graduation: is related to exit policies, i.e. decisions concerning under what circumstances the start-up firms should leave the incubator.

They do not take all of the components into consideration when they are making their models. Their opinion is that infrastructure and graduation are not important when separating different Business Incubators. More or less all previous articles written about Business Incubators, show that they supply the same of administrative services. Furthermore there are no substantial differences in terms of exit policies either. Selection, business support and mediation are the foundation for a Business Incubator model according to Bergek and Norrman (2008).

3.3.1 Selection

The literature on Business Incubators has shown interest in the selection process in terms of Incubator models (Hackett and Dilts 2004a). Several researchers have pointed out that the screening process or the selection process is of importance for the Business Incubators performance (Aerts, Matthyssens et al. 2007). Identifying “weak, but promising” business ideas and avoid the ideas that won’t survive even with the services of a Business Incubator and those ideas that survive without any help, is not an easy task (Bergek and Norrman 2008). Business Incubators have different criteria when selecting their firms. Aerts, Matthyssens et al. (2007) found out that 76% of their investigated companies have a selection committee for their new start-up companies. 26 % depend on one person’s judgment.

Bergek and Norrman divide it into two overall selection factors: idea focused selection or entrepreneur/team selection. To be able to pursue the idea selection process the Business Incubator needs extensive knowledge about relevant technological fields, the product, the market and the potential profit related to the idea. The entrepreneur or team approach requires the ability to judge whether the person is capable of accomplishing the selected business plan. Furthermore, knowledge on general business development is needed to evaluate the entrepreneur or entrepreneur teams. The selection process is not always a matter of criteria, since there are never two business plans of the same kind and thus hard to make a standard analytical scheme. Merrifield (1987) describes the selection process in a three step decision tree. The first step is an evaluation of the start-up company’s or entrepreneur’s sales

profit potential, political and social constraints, growth potential, competitor analysis, risk distribution and industry restructure. The fit between the company and the Business Incubator is evaluated in the next phase based on another six criteria: capital availability, manufacturing competence, marketing and distribution, technical support, component and materials availability and finally management. The third step is a combination of step one, business attractiveness, and two, fit factors (Merrifield 1987). This will determine whether the business idea can be a commercial success which means that it may give added value for the Business Incubator. Start-up companies usually write a business plan when communicating with investors, Business Incubators or other people or institutions of interest to answer such criteria as described under the selection process. The content of a business plan² is often outlined specifically to answer such questions.

The selection process is not only a matter of criteria, but also a matter of flexibility or strictness in applying them. Bergek and Norrman (2008) distinguish between another two approaches. The “picking out the winners” approach is focused on identifying the potential successfully firms ex ante. The “picking out the winners” approach may get Business Incubators resemble with private venture equity firms³. The other approach is “survival of the fittest”. With this strategy Business Incubators has a larger number of firms within their portfolio. They rely on market processes that over time will separate the winners from the losers. Bergek and Norrman then combine the two approaches into four strategies for a selection process for Business Incubators (figure 3).

² <http://www.business-plan.com/outline.html>

³ http://en.wikipedia.org/wiki/Private_equity

Selection strategies	Survival of the fittest	Picking the winners
Idea-focused selection		
Entrepreneur-focused selection		

Figure 3 Selection strategies (Bergek and Norrman 2008:24)

- *Survival-of-the-fittest and idea*: The portfolio will presumably consist of a quite large number of idea owners (or upcoming entrepreneurs) with immature ideas related to a broad spectrum of fields.
- *Survival-of-the-fittest and entrepreneur*: The resulting portfolio will be diversified, and consist of entrepreneurs/teams with strong driving forces representing a broad set of ventures.
- *Picking-the-winners and idea*: Results in a highly niched portfolio of thoroughly screened ideas within a quite narrow technological area—often sprung from the research of highly ranked universities.
- *Picking-the-winners and entrepreneur*: The portfolio consists of a few handpicked and carefully evaluated entrepreneurs, commonly with ideas coupled to the research areas of a nearby university.

(Bergek and Norrman 2008:24)

Bergek and Norrman's study of 16 Business Incubators shows that six of them had a clear focus on the entrepreneur when selecting firms to join their incubator program. Seven of the Business Incubators were primarily focused on the idea when selecting new firms. The remaining three Business Incubators equally focused on the idea and the entrepreneur in their selection process. Only one of the Business Incubators had a "survival of the fittest" strategy in picking out firms. This Business Incubator had a significantly higher amount of firms in their portfolio and around 40% of the applicants were accepted to join their

incubator program. All other Business Incubators followed the “picking out the winners” strategy. They only accepted 20% of their applicants after a rigorous process with multiple criteria being evaluated. According to Bergek and Norrman these Business Incubators often have a pre-incubation process. In this phase new firms were selected more out of a survival of the fittest approach where the idea and its qualifications are in focus, before the winners went on to the proper incubator program.

3.3.2 Business support

In addition to the more administrative help that most Business Incubators offer, it’s important to identify what kind of business support that is given new firms. The business support services are generally identified to include entrepreneurial training and business development advice, but also general business matters such as accounting, legal matters, advertising and financial assistance (Bøllingtoft and Ulhøi 2005; Chan and Lau 2005; Bergek and Norrman 2008).

Business support offered by Business Incubators may differ depending on some different factors. The first factor is time intensity that refers to the percentage of working hours that the Business Incubator spends on monitoring and assisting the start-up firms. Second, is comprehensiveness that refers to the degree to which strategic, operational and administrative assistance is provided by the Business Incubator. Third, is the degree of quality that refers to relative value of the assistance provided by the Business Incubator to the start-up firm (Hackett and Dilts 2004b; Grimaldi and Grandi 2005). Rice (2002) gives another approach to business support and distinguishes between three types of counselling (Rice 2002). “Reactive and episodic” counselling is defined when the entrepreneur requests help solving a crisis or a problem. This is similar to other counselling businesses where the client initiates the counselling effort. The assistance is generally of limited duration. “Proactive and episodic” is incubator initiated and the Business Incubator proactively engages entrepreneurs in informal, ad hoc counselling. “Continual and proactive” is also initiated by the Business Incubator, but with more aggressive intervention focused on the ongoing developmental needs of the start-up firm.

Business Incubators may look at themselves either as managers of the incubation process or as external facilitators of a process primarily managed by the start-up firms themselves. In

one end of the scale Business incubators can offer a strong intervention of the innovation process. In the other end of the scale a “laissez-faire” strategy can be offered, where companies are left to themselves and are provided with very little assistance unless they take the initiative (Bergek and Norrman 2008). Bergek and Norrman found three typical types of business support in their empirical study. Four Business Incubators with the “laissez-faire” approach, with minor intervention initiated by the incubated firms. Three Business Incubators with a strong intervention acting almost like a venture capitalist with ownership in the incubated company and an active role in the management. The remaining firms described the process as a step by step programme that they were obligated to follow.

3.3.3 Mediation

The huge range of different business ideas that enters a Business Incubator makes new processes for each and every new firm. This results in processes that transcend the Business Incubator itself, because of the need for new knowledge (Hackett and Dilts 2004b). This is why it is important for a Business Incubator to act as a mediator between the incubated company and the environment. The main purpose is to leverage entrepreneurial skills and/or resources (Bøllingtoft and Ulhøi 2005). Resources might be knowledge and technology, financial capital, market related resources and human capital. Business Incubators may engage in network mediation or institutional mediation according to Bergek and Norrman (Bergek and Norrman 2008). Network mediation is a tool for helping incubated firms establishing an entrepreneurial network. More commonly used is “Networking”, but in this case the Business Incubator facilitates the network to an advantage for their clients, the incubated companies. The Business Incubator can help incubated firms to find potential customers, partners, employees, university researchers and financiers. Aernoudt stresses the fact that one of the biggest barriers of the development of Incubators is the lack of entrepreneurship and the underdevelopment of seed capital and business angel⁴ networks (Aernoudt 2004). A large network might solve such problems. Institutional mediation refers to Hackett and Dilts findings of network relationships and institutional knowledge transfers enhance Business Incubation success (Hackett and Dilts 2004a). *“Through mediation, incubators may help incubatees to understand, interpret and perhaps even influence the*

⁴ A business angel provides early stage funding and business support for entrepreneurs (<http://www.eban.org>)

institutional demands introduced by regulations, laws, traditions, values, norms and cognitive rules”(Bergek and Norrman 2008:25). This may help the incubated firm to obtain legitimacy and social acceptance when launching a new venture (Bøllingtoft and Ulhøi 2005). Some Business Incubators are limited to regions in terms of mediation described above and others have a more international mediation within a certain technological field (Carayannis and von Zedtwitz 2005; Clarysse, Wright et al. 2005). Bergek and Norrman 2008, suggests that it is fruitful to distinguish between regional/national innovation systems and technological/sectoral innovation systems.

3.4 Specialized vs. diversified

In terms of making the best support for entrepreneurs and start-up firms there might be an advantage to focus on a specific sector. This section gives an overview on the pros and cons of providing sector specific support in a Business Incubator as well as a definition of a sector.

“Innovation greatly differs across sectors in terms of characteristics, sources, actors involved, the boundaries of the process, and the organization of innovative activities” (Malerba 2005:380). When comparing innovation in different sectors there are differences in R&D strategies and R&D alliances, the intensity of patents and patent protection, the role of competition and the extent of R&D support, but this not all. There are other factors that might be more relevant when discussing sectoral innovation systems. Differences are to be found in each sectors knowledge base, the actors involved in the process and the links and relationships between the relevant institutions. *“A sector is a set of activities that are unified by some linked product groups for a given or emerging demand and which share some common knowledge”* (Malerba 2005:385). There are three main dimensions that can help identify some of the differences between sectors and some of the similarities. First, is the knowledge and technological domain that may characterize the sector in terms in knowledge base, technology and inputs. The boundaries between sectors are dynamic and may change over time. The accessibility and the ability to accumulate knowledge may impact the innovation system within the sector. Actors and networks are the second dimension. A sector is composed of heterogeneous people and/or organizations, and they will all act differently in the different sectors, due to their dissimilar learning processes, competencies, beliefs,

objectives, organizational structures and behaviours which interact through process of communication, exchange, cooperation, competition and command (Malerba 2005). The third and last aspect is the institutions. Norms, routines, common habits, established practises, rules, laws and standards will affect the way firms in a sector interact with each other. Regulations might be an example that limits the innovation process in a sector, while patents might be very helpful in another sector.

Most of the Business Incubators are focusing on a large scale of different fields resulting in a highly diversified set of incubated firms (Schwartz and Hornyach 2008). Schwartz and Hornyach (2008), claims that there has been a strong disregard in the literature on Business Incubators in terms of the possible benefits arising from the concept of a sector-specialized Business Incubator. The growing complexity of innovation might lead to better results if the Business Incubators had a more specialized approach when choosing their hosted firms.

“When establishing a new Business Incubator, local decision makers increasingly take into account the possibility of focusing this incubator on a specific sector” (Schwartz and Hornyach 2008:438). Schwartz and Hornyach (2008) lists up four propositions of potential benefits of a sector specialized focus for Business Incubators and one proposition for disadvantages presented in the following sections.

3.4.1 Availability of specialized equipment and premises

Some sectors are in need of more than just office space and other administrative tools when trying to build a new venture. Technology intensive new ideas might need highly specific and sophisticated equipment and premises that can be very expensive. Schwartz and Hornyach’s studies show that several incubated media firms underlined the importance of such specialized equipment and premises from their Business Incubator. The Business Incubator offered TV, film and sound studios, equipped with state-of-the-art technology, as well as post-production facilities such as cutting rooms and broadcasting facilities. These facilities have flexible leasing conditions that make it easier for start-up companies with a tight budget. Chan and Lau concludes with: *“However, sharing technical resources among firms is found not valid in our study as technology-related resources are varied from tenant to tenant unless science park is set up with a main theme of technology, e.g. software development, IC design or biotechnology, etc.”* (Chan and Lau 2005:1227).

3.4.2 Sector-specific knowledge and know-how

Many studies on Business Incubators show that much of the consulting services and business assistance offered are used only to a minor extent. Chan and Lau (2005) found that these consultants might not be that relevant because they are experts in their own field and thus there will be barriers in communication and cooperation (Chan and Lau 2005). The quality of the advisory skills of consultants is often described as insufficient, due to heterogeneity in the range of incubated companies. This variety of firms and the development stage of the firms makes it very hard for consultants to give fruitful advices (Schwartz and Hornych 2008). Another reason found by Chan and Lau 2005 is that entrepreneurs were afraid that their product technology might be stolen if they talked to consultants. Ideally the incubated firm needs a “custom made” consultant for their specific requirements, but that is unlikely to happen with a collection of heterogeneous incubated companies. However, sector specialized Business Incubators have an opportunity to reduce this challenge. The consultants are able to focus on one specific sector. This will make it easier to develop necessary sector-specific knowledge and expertise to provide exactly the support that is essential for this sector (Schwartz and Hornych 2008). If the consultants can give such specific expertise within a sector, it may add huge value to the incubated firms. Schwartz and Hornych (2008) therefore suggest that sector specific knowledge in sector specialized Business Incubators is preferable for incubated firms (Schwartz and Hornych 2008). Such customized knowledge will also appear over time according to Peters et al. (2004), because the incubator management is learning the firm’s needs over time. Frequently the management team in a Business Incubator does not have sufficient market and technology knowledge, which leads to a selection of new firms with a weak resource base, but a promising market potential (Hackett and Dilts 2004a). If the Business Incubator has accumulated sector specific knowledge, the selection process would be a lot easier, due to better estimations whether an idea or product has a commercial potential. A sector specified Business Incubator might concentrate its services, service rationalization, due to the accumulated knowledge in the selected specified sector. This will reduce costs for the Business Incubator and provide better services for the incubated companies. Schwartz and Hornych’s (2008) study on a German Business Incubator that is specialized on the media sector, found that focusing on one sector considerably improved the quality and effectiveness of their services. They offered tailor made, high-quality sector-specific knowledge and know-how for a homogeneous group of

media firms (Schwartz and Hornych 2008). The incubator staff did only offer a minimum of business consultancy services and none of the staff had any relevant education or experience in business administration. These services were outsourced to partners of the Business Incubator to keep.

3.4.3 Networking and synergies

The importance of a network is already stated in the previous section on mediation. A network that can foster cooperative interactions and synergies between the incubated firms is crucial for new ventures. These networks are brought to the incubated firms from the consultants working at the Business Incubator. Schwartz and Hornych 2008 claims that: “...if the firms have something in common, i.e. they belong to the same sector, cooperative agreements within the BI are more likely to occur” (Schwartz and Hornych 2008:440). A more social and psychological perspective is the aspect of being a part of a community of entrepreneurs, sharing similar objectives, problems and experiences (Bøllingtoft and Ulhøi 2005). This might appear in heterogeneous Business Incubators to, but if the Business Incubator has a specialized sector focus this belonging might be stronger and lead to more synergy between the incubated firms (Schwartz and Hornych 2008).

In Schwartz and Hornych’s (2008) research on the media industry they found that horizontal and vertical networks are of importance due to the fragmentation of the local media firms. It is even more important in terms of work force: “*Considering the employment relations in the MI, this point becomes even more important, because these relations are characterized by a high share of part-time, temporary and freelance work contracts*” (Schwartz and Hornych 2008:444). Flexibility and mobility of labours is therefore important in a Business Incubator. The network, both formal and informal, helps transferring labours between firms. The German Business Incubator, MMZ, that Schwartz and Hornych (2008) uses as a case study, has a balanced mix of start-up firms and existing business that have relocated to MMZ (Schwartz and Hornych 2008). The combination of established and start-up companies can be fruitful in linking entrepreneurial actors to both informal and enterprise support networks. Before leaving, many firms used the Business Incubator as an internal market for purchasing goods or services from other incubated companies (Bøllingtoft and Ulhøi 2005).

Overlapping knowledge bases seem to be necessary in order to establish networks within Business Incubators. Even though it exists such overlap within Specialized Business Incubators potential cooperation hardly takes place. This might be because the problem of competition between incubated firms due to their specialization. This may lead to restricted motivation for cooperation and creating synergies (Schwartz and Hornych 2008). Schwartz and Hornych 2008 found that established and bigger incubated companies were favored in preference to the new incubated firms, when important decisions have to be made. This led to a considerably negative working climate in the Business Incubator and thus hard to establish trustful and reciprocal relationships (Schwartz and Hornych 2008). Considering this fact, their investigation gave little evidence of advantages in terms of networking and synergies, but rather disadvantages. This might be because the Business Incubator was recently founded and is just in the beginning of its development. *“Although the ties that could bind exist, obviously it takes some time to utilize them.”* (Schwartz and Hornych 2008:445).

3.4.4 Image considerations and community-related effects

One of the problems for an entrepreneur with a new business idea is getting other people to know and believe in the innovation. Being associated with a Business Incubator can lead to marketing benefits for the incubated firms, and may faster and easier give them a reputation in the market. It may give young firms credibility among customers and suppliers (Schwartz and Hornych 2008). One of the main reasons that entrepreneurs increased their credibility was the fact that they did not use their home address, but the address of a Business Incubator when communicating with other people (McAdam and Marlow 2007). Enhancement of the Business Incubator's image can lift the whole location's image as well. Due to the increase of Business Incubators it might be more effective to focus on one sector to attract more attention. This will give a “stand out of the crowd effect” and since the services are not limited to a region, but rather a sector, it may attract firms from other regions or be the choice of location for start-up firms. It therefore seems easier for a company to obtain the image benefits from a sector specialized Business Incubator than a regular Business Incubator without a specific identity and profile.

Schwartz and Hornych 2008 found no evidence of image benefits for the incubated companies, which is in contrary to other findings (Schwartz and Hornych 2008). Findings

from Schwartz and Hornyk (2008), showed a clear tendency to an increase in trans-regional visibility due to some huge firms acting as “flagships.” These flagships play a key role in marketing for international cooperation agreements for the incubated firms, resulting in many new firms establishing their business within this sector specific Business Incubator and not in its place of origin.

3.4.5 Disadvantages of the SBI concept

A limited amount of entrepreneurs in the specific sector might be a disadvantage for a sector specialised Business Incubator. When the specific sector has decreased activity, the Business Incubator would have a problem with recruiting new firms and the selected might not be as good as desirable (Aerts, Matthyssens et al. 2007). Furthermore, it might not be as easy to move to the right specified Business Incubator for the entrepreneurs, due to long travelling distances. This indicates that local Business Incubators should have a more diverse collection of firms.

There are also some disadvantages for the individual incubated firms. Because the firms in a sector specified Business Incubator are closely related, they might be competitors. This might prevent the advantages of network and synergies between the incubated companies (Schwartz and Hornyk 2008). Because the incubated firms have such a close relation cross-fertilization might not be fruitful. This is because they most likely share the same knowledge and sharing information might be revealing a competitive advantage for a competitor.

3.5 Clusters and knowledge spillovers

Business Incubators have many firms that are often located close to each other in the same region. Access to externalities such as knowledge spillovers between firms situated in a regional cluster have supposedly given advantages to firms (Porter 2003; Gilbert, McDougall et al. 2008). Knowledge spillovers can come from common technologies, general knowledge, skills or purchased inputs. Examples on such clusters are financial services on Wall Street in New York and IT firms in Silicon Valley. Porter (2003) argues that a given industry can be part of more than one cluster. Software is related to the IT sector in terms of technology and demand, but also other industries where software is being widely used such as medical devices (Porter 2003). The more knowledge intensive the companies are, the

more clustered they tend to be. The concentration of knowledge intensive companies tends to only increase, despite the fact that many places have tried to attract such knowledge intensive companies to another location (Asheim and Gertler 2005). As with the Business Incubators there is a debate whether a cluster should be specialized or diversified. A specialized cluster will advance more quickly in creating revenue, while a diversified cluster encourage creativity and innovation. Porter (2003) presents another hypothesis in between the two extreme points. As knowledge spillovers will be more relevant among related firms, cluster should be specialized. Since some clusters tend to be related to other clusters such as the IT sector, it would be fruitful with a diverse array of overlapping specialized clusters in a region in terms of performance (Porter 2003). Specialization inside each cluster and diversity between related clusters is needed for best performance and stimulating innovation. Porter (2003) also suggests that many essential determinants of economical performance can be traced down to a regional level. Furthermore Porter (2003) concludes that economical policy needs to be decentralized to the regions and that national policies are not sufficient and that such policies should be particularly attuned to the clusters in the region. The regions should focus on upgrading productivity for the ongoing activity rather than migrating to more desirable clusters (Porter 2003). This implies the importance of regional clusters.

A cluster can be defined as: *“Regional clusters of firms that have a connection to a common technology, and may engage in buyer, supplier, and complementor relationships as well as research collaboration”* (Schilling 2008:28). Collaborations between firms may lead to successful innovation and higher rate of growth and survival (Gilbert, McDougall et al. 2008). Examples on such collaboration might be: joint ventures, licensing and second-sourcing agreements, research associations, government-sponsored joint research programs, value added networks for technical and scientific interchange, and informal networks (Schilling 2008:28). Collaborations like those mentioned above is very important in technologies that demand a lot of research because it is not likely that a company will take the risk of implementing a complex innovation alone.

Schilling argues that one primary goal with regional clusters is the knowledge exchange. *“Proximity and interaction can directly influence firms’ ability and willingness to exchange knowledge”* (Schilling 2008:28). The first reason for this is because of the “sticky knowledge,” due to the knowledge being stuck at its location, which implicates that geographical closeness may be an advantage. Another term for describing such knowledge is

“tacit knowledge” and such knowledge may compose from “learning by doing.” Firms may need to interact frequently to be able to exchange the sticky knowledge. They may need to develop common ways of understanding and articulating the knowledge before they are able to transfer it. Tacit knowledge is important in order to understand why clusters may increase the level of innovation and performance. *“The accumulated tacit knowledge and culture of the entrepreneur are the resources essential to create wealth from research commercialisation leading to technological innovation and the creation of New Technology Based Firms (NTBFs)”* (Hindle and Yencken 2004:793). Clusters are often geographically located in the same area, but there can be identified in neighboring countries as well. Members in cluster are usually connected to the same industry or sector. With information technology it is easy to think that the flow of knowledge does not have anything to do with where you are located. A computer connected to the internet is all you need. Tacit knowledge is: *“knowledge that cannot be readily codified (documented in written form)”* (Schilling 2008:29). Since this type of knowledge cannot be codified it cannot be shared over the internet, one need to use other forms of learning and it is probably better to be at the same location. This is because it is heavily imbued in the social and institutional context in which it is produced. Another argument to why regional clusters are important is that innovation itself relies more and more on interactions and knowledge flows between actors. *“There is, however, also an ‘inherent’ potential for interaction between incubatees, which is of importance for e.g. social capital building and the development of agglomeration economies”* (Bergek and Norrman 2008:25). This socially organized learning process “learning by interacting,” also states why the geographical close presence of the actors is crucial. This is because interaction occurs often when both parts are present. The benefits that firms can obtain by being located geographically close to each other are also known as agglomeration economies (Schilling 2008:29).

Another reason can be that the willingness to share increases after frequent meetings. It is likely that firms develop trust and reciprocity norms that if they are situated close to each other and interact over time. Emergence of rules of engagement may occur with frequent meetings, so that the individuals understand how much and how knowledge is exchanged. Firms in collaboration close to each other where knowledge is shared may experience an increase in innovation productivity. It can lead to spin-off firms or new firms starting up in the same area. This may attract more labors to the region which will increase tax revenues

that can lead to improvements in infrastructure. Improved infrastructure may lead to benefits for the companies in the regional cluster in terms of better roads, schools and other utilities that may attract even more labors to the area. The proximity of clustering firms may lead to competition that reduces their pricing power when they are serving the same market. Another downside may actually be technological spillovers. If a competing firm got hold of the proprietary knowledge to another firm without paying it may lead to lack of collaboration. No company would let other companies be free-riders.

3.6 Social capital

As already argued, a social network is very important for incubated firms. Incubation of a firm improves when located within a Business Incubator that gives fledging businesses powerful connections through a professional network (Hughes, Ireland et al. 2007). *“An entrepreneurial actor’s social capital is constituted by all the social relationships and social structures that can be used to achieve his or her goals”* (Bøllingtoft and Ulhøi 2005:284). The network is offered by the Business Incubators or more precisely the people working there and gives access to collective social capital that seems to create social and economical opportunities. Such network provided by a Business Incubator is fruitful for start-up firms because it may lead to cooperative interactions and synergies between the incubated firms and the environment (Schwartz and Hornych 2008). Schwartz and Hornych (2008) claims that network is important in terms of a shared work force and thus social capital. *“In the evolution of social systems, perhaps the most important source of weak ties is the division of labor, since increasing specialization and interdependence result in a wide variety of specialized role relationships in which one knows only a small segment of the other’s personality”* (Granovetter 1983:203).

Capital in its embodied form takes time to accumulate. Social capital is the aggregate resources that come from belonging to a group. The relationships in a group may exist in the practical state, in material and/or symbolic exchanges which help to maintain them. They can also be socially instituted and guaranteed with a common brand name such as a family name or a company brand (Bourdieu 1986). It is important to distinguish between social capital and social networks. Social network provides the necessary conditions for access to and use of resources. The social network itself is not identical with resources. It is the social

capital that is defined as a resource that is embedded in one's social network (Lin 2008). While human capital postulates investment in certain human resources like skills and knowledge that create a surplus, social capital surplus is generated through investments in social relations. Through relations and network, a person may borrow or capture other person's resources such as wealth, power or reputation.

There are two theoretical approaches to describe how social networks capital can produce returns. The first is "accessed social capital" that estimates the amount of resources within a social network. Greater capacity gives better return. Granovetter (1983) argues that our weak ties, our acquaintances, reach out to populations and audiences that strong ties such as one's close friends can't reach. Close friends are most likely in touch with one another and create a densely knit clump of social structure. Individuals will be deprived of information from other parts of the social system thus a large network of weak ties give better access to information and knowledge. Number two is "mobilized social capital" that reflects the actual use of the resource. In this case it is the better use of one specific social tie, which gives better return. The link between "mobilized social capital" and the attainment is often inadequate. The use of a specific tie on order to achieve a goal may or may not be the optimal option reaching the goal. A particular social tie and its resources may only be detected if the right measurement is being used (Lin 2008). In some cases the returns from a network to a person might not be visible and thus unmeasured. When a person spontaneously, or by routine, communicates with another person in his/hers social network and this results in reaching an unintended goal. Since the person was not in search for a goal, it's hard to measure because probably this person won't notice that it happened. A goal was reached with the help of "mobilized social capital," but in an invisible way. The invisible return does not only occur within theory on social capital. In human capital theory there is a general focus on the accessible capital such as education and job related experience. Capital such as skills and knowledge that are actually being used to generate returns or surplus for a firm is not being measured to the same extent.

In terms of measuring social capital it is fruitful to use the same classification. The access to social capital is typically measured by a name dropping question, where the respondent lists up names of people in his/hers social network. Furthermore the respondent explains the relationships with the listed people and their characteristics. This will provide data for estimating the density of the network and the quantity and/or quality of the social resources

in the respondent's network. This method is called "name generator" (Castiglione, Van Deth et al. 2008). However this method of measuring social capital has some limitations. Usually respondents are asked to list up people they communicate with related to a topic such as work problems (Castiglione, Van Deth et al. 2008). Since this question is usually undefined or unknown for the researcher, it is difficult to argue that such questions representatively sample a person's social capital. The respondent often mentions three to five names and thus the reconstructed network is limited in range and scope. The names that were mentioned are often those closely related to the respondent, and does this give a representative picture of the network. Referring to the theory of the strength of weak ties, where it is argued that other acquaintances, or weaker ties, is relevant for drawing a picture of a social network (Granovetter 1983). Missing data on weak ties may underestimate an individual's social capital and give a homogeneous picture. Individual social capital is constituted by the set of social relations (social ties) surrounding the entrepreneurial actor in the incubator which can be mobilized when needed or when an opportunity arises. Access to collective social capital, for example, via a BI in general or a networked incubator in particular, seems to give rise to a particular set of social and economic opportunities. (Bøllingtoft and Ulhøi 2005)

3.7 Absorptive Capacity

To be able to achieve successful new companies within the Business Incubator it is important for the managers to be able to identify knowledge relevant for the start-up firms. The social capital might be both available and accessible, but if a firm or person does not know what to look for within the network, the network might not be valuable to the entrepreneur.

Absorptive capacity can be defined as: "*A firm's capacity to recognize, assimilate and utilize new knowledge.*" (Schilling 2008:67). This concept tells us how firms can innovate from collecting knowledge and learn from outside the company, but a firm needs some prior related knowledge to be able to absorb this new knowledge. Ray et al. (2004) conclude from their research identifying, exploiting, developing and protecting critical resources might give firms a competitive advantage over its competitors (Ray, Barney et al. 2004). Many entrepreneurs are very focused on developing their products and they may need help to focus on the outside world. "*Research on memory development suggests that accumulated prior*

knowledge increases both the ability to put new knowledge into memory, what we would refer to as the acquisition of knowledge, and ability to recall and use it” (Cohen W. and Levinthal 1990:129). Many entrepreneurs have never started a business before and the prior knowledge can be provided by the Business Incubator. In terms of being sector specialized the knowledge might be even more valuable.

The absorptive capacity is important for entrepreneurs as well. Securing resources and knowledge that others does not possess involves leveraging opportunities (Haber and Reichel 2007:122). According to Cohen and Levinthal a firm’s absorptive capacity is not based on the sum of the absorptive capacity to each employee. There are some different aspects that are distinctly organizational. It is important not only to look at how the firms collect information from the outside, but also how this information is shared inside the company. If the knowledge does not reach its proper destination due to lack of communication, the knowledge will be of no use. For this reason a company must focus on the communication system between subunits of the firm, but also between the firm and the outside. The company may have actors or “gatekeepers” that monitor the outside environment for useful knowledge and give this back to the right unit of the company. A Business Incubator might work as a “gatekeeper” for their incubated companies. This will relieve entrepreneurs from having to monitor the environment and they may focus on their jobs. The problem here is that first of all it depends on the individual actor’s absorptive capacity but also how this is translated, given to the right unit and if that unit has enough background knowledge. In complex technology it may be hard to communicate absorbed knowledge between internal units, because the group needs so much background information to understand. *“Therefore, relying on a small set of technological gatekeepers may not be sufficient...”* (Cohen W. and Levinthal 1990:132). If everybody were to monitor the outside environment to keep some level of background knowledge, they might not have time to work. Managers at an incubator might be the right tool for a start-up company that is very focused on developing their product.

Absorptive capacity works better with accumulated knowledge on a specific topic and thus it is easier for managers in a sector specific Business Incubator to maintain. As already discussed both “gatekeepers” and the rest of the unit must have some sort of prior knowledge to the specific field that they are working on. Over time the company accumulates more and

more knowledge and their capability to better and faster identify the knowledge that flows in the environment outside the company. The workers will develop an expertise in the field with the accumulated knowledge they gain from their absorptive capacity. This means that they faster and with more accuracy can decide if there is a commercial value in the knowledge or the technology (Cohen and Levinthal 1990).

In one way accumulated knowledge and the effect on the firm's expectation will make them stronger in a field, but this may also lead to a kind of path dependency and in some extreme cases, a lockout. In a quickly moving field a company may not have time to investigate all the information that flows in the area. When there is a sudden radical change in the field a company might not be able to invest in R&D to find out more because they don't recognize the knowledge as a value for them. As an example we could use the change from electromechanical devices to electronic ones in the calculator industry. This change resulted in a lockout for some companies that were not able to keep investing in their absorptive capacity (R&D) and they went bankrupt (Cohen and Levinthal 1990). So, the cumulative knowledge in a specific field is needed to understand the value of absorbed information for a company. At the same time firms may not realize that they should invest in more R&D simply because they do not have knowledge and therefore do not take it in to consideration. This self-reinforcing behavior for companies, which may put them out of business, is what Schumpeter called creative destruction. Monitoring the outside world is important for entrepreneurs and start-up firms with a long research and development phase. Competing technologies might run up on them and by the time they are ready to commercialize and enter the market they are already lagging behind.

4. Methodology

4.1 Case study

A case study can be defined as “*an intensive study of a single unit for the purpose of understanding a larger class of (similar) units*” (Gerring 2004:342). The unit can refer to a person, a nation or a company and is being observed over a limited period of time. A case study research design exhibits characteristic strengths and weaknesses relative to other similar units and the method is seen as an ideal-type rather than a method that can determine rules.

The overall study question for this paper is: How does a Business Incubator promote innovation? This is a descriptive question that aims to describe how the unit is working and put it in an analytical framework from previous research and literature on the related field. When describing a phenomenon one is usually comparing it to an ideal-type definition (Gerring 2004). The ideal is here found in “best practice” literature on how a Business Incubator should work. The “why?” question is somehow harder to answer without a cross-unit analysis (Gerring 2004). The “why?” question in this paper is describing why the Business Incubator has selected certain methods to support entrepreneurs. As the data collection showed that some key methods being used were not to be found in the “best practice” literature, additional framework has been added such as: specialized versus diversified, absorptive capacity, cluster theory and social capital. A comparison from an earlier business model to a new model has been contributed to answer this question. Gerring (2004) concludes that internal case comparability is more accurate than comparing external units, thus the two homogenous internal units have been used. The literature shows that there are many different Business Incubators with different goals. The evidence should correspond with the scope of the conclusions, thus this paper tries to demonstrate how Business Incubators are promoting innovation in general, but with focus on commercialization as a goal (Gerring 2004).

People who are critical to the use of case studies often argue that a case study investigator may fail to develop a sufficiently operational set of measures and that “subjective” judgments are used to collect the data (Yin 2009). Several sources have been used to collect data to try to depict a more unbiased picture.

4.2 Data collection

4.2.1 Participant-observation

As an entrepreneur together with being a master student I have two different roles regarding this thesis. I have started a company, Supportia Norge AS, that cooperates with ITF. This gave an opportunity to investigate as a participant observer and gain the advantages of access to inside events and the ability to perceive from the “inside” of the case in this thesis (Yin 2009). Another opportunity according to Yin (2009) is that as a participant observer you can manipulate minor events. I have had distinct access to information and people. Since Supportia is receiving services from IT Fornebu, I have hands on experience on how the interaction between a Business Incubator works seen from an entrepreneur’s perspective. My presence at IT Fornebu has been at a regular basis through the whole process of this thesis. A lot of my information is based on unstructured conversations and observations, which have been important for the interaction between ITF and Supportia Norge AS. I have been communicating with the Incubator Manager several times weekly over email and meetings every second week.

There are some major problems with this source of evidence that has to do with the potential biases that may occur. It might be harder for the investigator to work as an external observer. At times this may cause the investigator to take positions or become a supporter of the case of interest, which is in contrary to social science practice (Yin 2009). I might be in favour of IT Fornebu’s work since they are presumably going to read my thesis and I do not want to be in conflict with them. Another scenario might be that I am not satisfied with their work and therefore my thesis might be characterized by too harsh judgement of their services. I have of course tried my best to distinguish between my role as a biased entrepreneur full of optimism and my role as an unbiased student full of criticism. My intention with this thesis is to create constructive feedback to ITF, but most important to write an academic paper that contributes to the ongoing research on Business Incubators.

4.2.2 Interviews

Interviews are one of the most important sources of case study information (Yin 2009). A total of 17 people were interviewed during the investigation. The interviewees can be divided into three groups. The first group is three persons that had a lot of influence during

the development of IT Fornebu and have extensive knowledge to the political history before IT Fornebu was founded. These three people were interviewed in an informal and unstructured way. They all told their stories on how ITF was established and the process. Group two represents the people working at IT Fornebu Inkubator AS and the entrepreneurs of the previous incubated firms. The third group is the present managers at IT Fornebu Visjon AS and the present entrepreneurs of the incubated firms. All the interviewees and questions are listed in the appendix.

Most of the interviews were done face to face, but due to long distances some of them were interviewed by phone. Some informants answered partly by email. Both group 1 and 2 were focused interviews and lasted for one and a half to two hours. The same questions were asked, but there was an open conversation at all times and some of the questions were formed to stimulate the respondents to add new perspectives. The questions have been made in a naive manner to allow the interviewee to add fresh comments to the subject (Yin 2009). This is to avoid being biased in terms of making questions that is leading to answers already favoured by the interviewer. To avoid biased meanings and questions it is possible to interview people known to hold different perspectives (Yin 2009). The three groups represent the founders, owners, employees and clients at IT Fornebu which most likely represent a broad selection of perspectives. One of the interviewees has also been one of three authors on the report "Now Boarding!" a report on the challenges in the development of a high-tech knowledge milieu at IT Fornebu on a mission from the BI, the Norwegian School of Management (Bakkevig, Salter et al. 2002). There was an attempt to map the social capital in depth and with, but the results were only some names which underline how hard it is to measure social capital.

4.2.3 Documents

Documents and papers have been a key factor for the preparation of this study. Reading literature on Business Incubators has given a wide perspective on the ongoing debates and has made it easier to design the thesis. Some documents have also been used as part of the data collection. All the literature and documents have been found on official web pages, at the library or provided by ITF.

5. Business incubation in Norway

SIVA is the Industrial Development Corporation of Norway, founded in 1968. SIVA aims to develop strong regional and local industrial clusters through ownership in infrastructure, investment and knowledge networks as well as innovation centres. In 1998-99 the government decided that all business incubators were to be private run with the help of SIVA and SND (SND is now Innovation Norway). SIVA has established and developed a national incubator system in Norway since 2000. In 2007 they launched the Research and Development Incubator program with focus on knowledge intensive start-up companies with a high potential of economic growth. The incubators should offer different services for the incubated companies such as: professional consultancy in business development, financing, competence and administrative services⁵.

Innovation Norway is also a governmentally funded organisation that helps entrepreneurs in their struggle for success with their innovations. *“Innovation Norway offers products and services intended to help boost innovation in business and industry nationwide, foster regional development and promote Norwegian industry and Norway as a tourist destination”*⁶. Everybody can apply for financial support from Innovation Norway, but in relation to the incubator system there are different terms. If the company which applies for financial support is situated within an incubator it is possible to receive more capital from Innovation Norway. This capital is highly appreciated among entrepreneurs since Innovation Norway does not take any returns on their investments. Innovation Norway’s special funding program is designed for companies within an incubator and they list up some criteria’s for the given incubator. This has helped defining a standard for incubators in Norway. They list some of the services that the incubator must offer their incubated companies which include more specific demands for a Business Incubator:

- Technical facilitation as offices, internal and external phone-/computer network, fax, copier and the like. Incubators must be established at a physical location.

⁵ <http://www.sivanett.no/>

⁶ <http://www.innovasjon norge.no/Om-oss/Innovation-Norway/About-Us/>

- Administrative offerings such as switchboard services, secretary services, financial / administrative services, mail, cleaning, and economies of scale with discounts and the like.
- Professional guidance and counselling related to the creation, enterprise development and mentoring.
- Access to expertise with other companies and knowledge environments.
- Access to the network to seed and venture, private investors and financing institutions.
- Employed incubator manager - that is to use a minimum of $\frac{3}{4}$ position to management / the daily operation of the incubators, be a contact element and the environment to create, find good projects, establish agreements with the entrepreneurs / companies, and network resources, build and maintain networks and the like.

6. IT Fornebu – findings and analysis

6.1 IT Fornebu Inkubator AS

ITFI may be defined as an Independent Private Incubator (IPI) with a goal to create revenue and thus has a strong focus on commercialization. ITFI was intended to be self-supporting, but received some governmental funding through SIVA. ITFI had a business plan with a time frame of about four to five years. They had access to about 100 million Norwegian Kroner over this time limit to run the Business Incubator. The capital was to be spent on operating costs and investments in the incubated firms. Access to early phase capital for start-up firms was a scarcity in Norway and thus an advantage for ITFI. The biggest investment over time was totally 5 million which positions ITFI in a more venture capital role for the particular firm. With capital investments at this level there was a strict focus on generating returns.

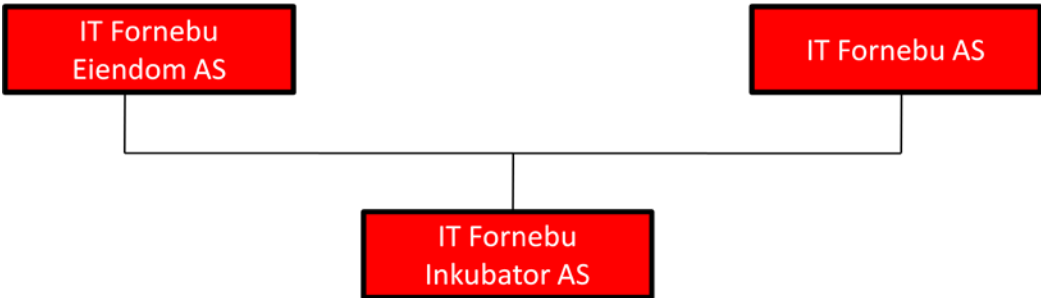


Figure 4: Earlier organizational map of IT Fornebu

In terms of best practice ITFI had a strict selection process. After declining some applications, around 200 cases were evaluated in the first meeting. 90% of the applicants never came back and the remaining 20 entrepreneurs came back to the next meeting. After being selected in a “picking out the winners” strategy the firms were moved over to a pre-incubation phase. This phase was a three step development phase and the “survival of the fittest” was offered a space in ITFI’s portfolio. IFTI has clearly a combined strategy and according to sources at ITFI the entrepreneurs are definitively the most important factor during the whole selection process, but as ITFI is a commercial Business Incubator they are

obligated to select firms with a huge potential of generating profit. Weak but promising ideas are not an alternative compared with a strong idea with a good entrepreneur. ITFI's survival is based on the selection process since their income is based on a possible exit from their incubated companies, thus only the best ideas and the best entrepreneurs would pass the selection process. The managers did possess a deeper knowledge in the telecom sector, but many of the firms were not within this sector. This might lead to a weaker estimation whether an idea or product has an innovative potential.

ITFI offered a standard contract with the selected companies with services such as: reception and postal services, conference room and offices. As for business support ITFI claimed to offer: help with writing a business plan, a place in the board of directors, writing a shareholders' agreement, management, strategic advisory and marketing. General agreements with partners of ITFI were also available.

In 2005 ITFI was in need of more capital from their owners and there was about 20 million left from the government and about 40 million from the private investors. The government refused to transfer the remaining capital to ITFI and thus the private withdrew their capital as well. The situation was critical because ITFI had not finished what they planned in 2001 and was forced to change strategy for many of the incubated firms. Evidence for why the government chose to stop funding ITFI has not been easy to identify. IT Fornebu was addressed nine times in the parliament before they reached a conclusion on who was going to build up a knowledge park. The Norwegian government first followed up on the project and it was uncertain whether it was going to be governmental financing of the project. Initially it was not proposed that the government should fund ITF, but the Parliament decided that the Government should be involved as an owner. After a change in the Government the New Minister at the Ministry of Trade and Industry was strongly against the plans of a new knowledge and innovation centre at Fornebu (Reinert 2005). Another deterrent for the development of ITF was The Norwegian University of Science and Technology⁷ (NTNU) who felt threatened by ITF because they it might give them competition in the IT sector in Norway. NTNU mobilized political power to prevent any competition and maintain status quo.

⁷ <http://www.ntnu.no/>

Another reason might spring out of the report that came out on ITF in 2004 (Jakobsen and Hvidberg 2004). The status report on ITF clearly states that ITF was goal-oriented in the extension of Fornebu, but in reality they were developing an industrial park and not a knowledge and innovation centre as the vision gives expression to. Jakobsen and Hvidberg (2004) conclude that the lack of international marketing together with lack of research and educational activities at ITF are critical reasons. The link between research institutions and firms is only weakly developed. Furthermore they find that ITF does not constitute a regional cluster due to a lack of all the necessary actors that define a cluster, thus ITF does not have a need for a cluster facilitating function. As Berkgek and Norrman (2008) argues that performance should be measured related to the expected outcome. With expected outcome such as: “world class innovation park” and “an increase in national innovation and knowledge based business development” the results may easily turn out badly. If ITFI had been measured on the actual income after they sold their shares in the incubated companies, it would have been easier to measure returns for the investors and compare it to any other investment. Between 2005 and 2008 ITFI sold most of their shares in the incubated companies and by the end of 2008 none of the five employees worked at IRFI anymore. Even with the funding trouble ITFI almost reached break even in terms of performance after they bailed out of their incubated firms. ITFI has both private and governmental owners and they might have different expected outcome, which may complicate the measuring of ITFI. To give another view due to performance, five randomly selected firms of ITFI’s portfolio has been interviewed and the findings are discussed in the next chapter.

6.1.1 Incubated companies at IT Fornebu Inkubator AS

The following companies have been a part of IT Fornebu Inkubator AS and have been investigated in order to find more data to this paper: Running Game AS, IT Liberator AS, Telekonferanser AS and Falanx AS.

Running Games AS

Running Games AS was established in 2003, after less than a year working in at ITF preparing the company launch. The entrepreneur presented the idea for ITF and three of the managers agreed on offering a place to Running Games in the incubator. Running Games was developing an online computer game called “Medieval Kingdoms.” They left ITFI after 2 years. The brand IT Fornebu made it easier for Running Games to apply for financial help

and they received minor funding from Innovation Norway. They all worked at IT Fornebu with a cheap office rental agreement. This rental was crucial for Running Games due to the economical situation. They were also given the opportunity to use the meeting rooms at ITFI. Administrative tasks such as posting letters they had to organize individually. In terms of business support Running Games did everything on their own. Accounting was outsourced to an external firm. ITFI referred Running Games to Seed Forum⁸ and Connect Norway⁹ where the entrepreneur met other entrepreneurs in the same situation and got business support advices both from professionals and other start-up firms. Running Games did not interact with other companies at ITFI. The network that was provided by ITF was not related to the gaming business that Running Game was a part of. Neither was sector specific knowledge and know-how given from the incubator. A general approach to business development was provided and ITF clearly understood the potential of the idea, but could not give any “gaming” related help. Social capital provided by ITF helped Running Games AS to a minor extent, but the names that came up were accessible to the Running Games and lead to some further development of the company. Running Games AS is no longer operative, but the company still exists and the founder will hopefully start-up again. Running Games found it hard to raise funding and spent too much valuable time handling the financial projection while the market continued to develop and Running Games AS felt lagging behind other competing firms.

IT Liberator AS

IT Liberator was established in 2001, but research roots go back 30 years. IT liberator provides tools and the technology required to efficiently distribute, share, utilize and update large amounts of structured data outside the office¹⁰. IT Liberator was selected to join ITF and did mostly communicate with one person at ITFI during this process. They were offered infrastructure such as office space and meeting rooms, but rarely used these facilities.

In terms of business support IT Liberator received help at a minor level. They communicated with their manager at ITF to discuss general business development issues. Support offered by ITFI to IT Liberator was characterized by being reactive and episodic. IT Liberator did

⁸ <http://www.seedforum.org>

⁹ <http://www.connectnorge.org/>

¹⁰ <http://www.it-liberator.com/>

not gain any advantages of the network provided by ITFI, due to their very specific technology. Thus the managers at ITFI were unable to help them in terms of sector specific knowledge and know-how and thus no social capital were accessible. IT liberator tried to interact with other companies at ITF, but none were relevant and thus knowledge spillover effects and cluster effects failed to appear. IT Liberator has tried different people and companies that practice business support such as ITFI, but no one has had any luck in supporting them. The reason for this might be because of their highly specialized technology and that hardly any other companies in Norway do basic research within the ICT sector.

IT Liberator was in incubated at ITFI for little over two years and had 4 to 5 employees. They defined the basic research as being ended by handing in the third patent application in USA in July 2009, they already have two patents. A consultant is working for them in Silicon Valley and IT Liberator is now entering a commercialization phase. They are still struggling due to investment requirements.

Falanx AS

Falanx AS was established in 2001 and is developing design for graphic-processors for mobile devices. Falanx AS was motivated to join ITFI due to capital needs and ITFI invested a total of 2 million NOK. ITFI could not offer a specialized network in terms of product development, nor could ITFI offer knowledge or “know how” since their sector and niche markets stretches out of the national borders. However ITFI managed to find a sales-person that helped Falanx with some important customers. ITFI had one of their managers in Falanx’s board of director and the support offered was considered as proactive and continual. Falanx has been situated in Trondheim all the time. Falanx AS was sold to ARM and has been ITFI most successful exit so far.

Telekonferanser AS

Telekonferanser AS was developing a telephone conference solution and was founded in 2003. ITFI invested a total of 1 million NOK in Telekonferanser AS. Due to limited resources at ITFI there were not any contributions in terms of network and social capital form ITFI. Neither was there any business support offered, but ITFI was a “door opener” to governmental funds such as Innovation Norway. Telekonferanser was located at ITF and rented office space and meeting rooms at ITFI. Telekonferanser AS was not able to identify

any cluster effects and did not interact with other incubated companies. Telekonferanser AS was sold after three years.

6.1.2 Key findings

From the inventions of the selected firms it seems like ITFI approach to sources of innovation from radical Competence-Destroying innovation such as IT Liberator to Telekonferanser AS with an incremental Competence-Enhancing innovation. As revenue is vital for ITFI it looks like they do not join entrepreneurs until they are close to commercialization. Both former employees and entrepreneurs at ITFI say that the accessible capital that ITFI could offer was an advantage. But as one of the entrepreneurs said: “they acted more like an investor than a Business Incubator.” It seems that ITFI offered risk capital in an early phase, which forced them to focus a lot on returns and less focus on general business support. ITFI was partly private and some of the incubated firms felt that focus was in a short term and their need of a Business Incubator was in a long term perspective.

Findings show that infrastructure was offered, but the data collection showed missing links between what claims to be offered by ITFI and what the responding entrepreneurs stated. Some of the firms never moved to IT Fornebu, but those who were located there did not give a corresponding list to what ITFI did. One source said that: “IT Fornebu was mostly used as an office as any other office.” Some companies had already taken care of a lot of the general support before entering the Business Incubator, but the overall evidence shows that the incubated firms had expected more in terms of Business Support. One contestant complained about even postal services was not offered, even though it is mentioned in the contract. The network offered by ITFI was mostly private to begin with and gradually a network around ITFI was built up. The overall network was, according to ITFI, satisfactory within the telecom sector, but not adequate for all the incubated firms. This was because most of ITFI’s business developers came from the telecom sector. Without an exception all the investigated companies agree that there was not a sufficient network provided by ITFI. Bergek and Norrman (2008) stresses that this is crucial to most start-up firms and thus a critical success factor for a Business Incubator. ITFI expressed that the entrepreneurs had to take advantage of ITFI’s network and that ITFI could open doors for them. In contrast one of the contestants said that: “As an entrepreneur it is not easy to approach rich business people, it would have been better if people did that for or with me.” The entrepreneur spent a lot of time

developing his product and did not feel like the right person to approach an investor, thus his firm joined a Business Incubator for a management team. The collected data shows little evidence that the social capital was not accessible for the incubated firms nor was it just “name dropping.” It was rather the extent of the network if there was any network at all. The problem was how to mobilize the social capital. Some entrepreneurs wanted ITFI to approach their own social capital, while lack of time and resources forced ITFI to only give access and let the entrepreneurs follow up. Invisible mobilized capital is hard to identify, but it’s likely to occur when the managers at ITFI spontaneously, or by routine, communicates with another person in his/hers social network and this results in reaching an unintended goal. Each and all of the contestants answered positively due to brand recognition from cooperating with IT Fornebu, thus their own social network might increase. The social capital of the entrepreneurs might be more accessible and more mobilized because they have proven to be satisfactory enough to access a known Business Incubator. This is not a result that originates from ITFI’s social capital, but indirectly through the IT Fornebu brand, the entrepreneur’s social network may be more accessible and more mobilized. As already argued measuring social capital is not an easy task, although it seems that the data collection is showing evidence of a general lack of network and thus social capital.

Firms with a specialized technology felt that ITFI could not give any network at all and furthermore any knowledge or know how. One of the entrepreneurs said that: “ITF should be more specialized to what I was doing.” This was said in the context of absorptive capacity and the entrepreneur said that due to lack of attention to this specific market, the technology slowly developed past them. When other companies showed a gain, it leads to a decrease in their competitive advantage and more challenges for the firm. A firm that possesses a broad absorptive capacity is most likely to secure resources and knowledge that others do not possess. Evidence shows in this case that the start-up firms needed a “gatekeeper” that could monitor the market for potential competitors. One of the contestants states that: “the manager should have been more co-entrepreneurs.” To be a co-entrepreneur it would be fruitful for the managers to have a more specialized background. A business developer working for a Business Incubator is probably working with more than one company and over time a manager might have worked several firms. ITFI had about fifteen companies divided by four managers. According to Incubator managers a start-up company faces many of the same challenges and thus the accumulated knowledge of starting up many firms is valuable. This

generally accumulated knowledge will help any firm with accounting, general legal matters marketing and such. Depending on which stage the start-up firms is, this might already be taken care of and the need for more sector specialized knowledge and know how is increasing. The entrepreneurs may have procured these services elsewhere and are now facing trouble with the commercialization phase and need customers, partners or other resources. Without a manager team in the Business Incubator with specialized background it might be hard to offer social capital that suits the incubated firms needs. Some companies are having trouble with their product development and their revenue model. With managers that have worked mostly within companies in the same sector would, according to Schwartz and Hornyk (2008), occupy the right knowledge and thus give sector-specific fruitful advice and expertise.

In terms of synergies between companies, not only in the incubator, but at IT Fornebu in general, no evidence was found. All the companies answered negatively when asked if they had interacted with other companies at IT Fornebu. The social and psychological perspective of being a part of a community of entrepreneurs, sharing similar objectives, problems and experiences did not appear at ITFI. One of the entrepreneurs was referred to another organization where other entrepreneurs were introduced to each other. No interaction between the firms there was identified and thus no overlapping knowledge base that is necessary in order to establish synergies within Business Incubators. This might be because they were never introduced to each other and thus they never met, or it might be because they did not have an overlapping knowledge base that can lead to knowledge spillovers.

6.2 IT Fornebu Visjon AS

IT Fornebu Holding AS has now been re-established. At December 31st 2008 some of the names changed. IT Fornebu AS is now called IT Fornebu Visjon (ITFV) AS and IT Fornebu Inkubator is now called IT Fornebu Invest AS. The incubator has been removed, but the function is kept under the commercialization part in IT Fornebu Visjon AS. The agreement with Oslo Innovation Centre has been terminated. A closer description of how IT Fornebu is working with their incubated firms and innovation is presented the next chapter.

6.2.1 New Business Model

The idea behind the new business plan and the restructure of the IT Fornebu Holding AS is to combine Concepts, Network and the Commercialization part to better promote innovation and to give start-up companies a better overall complete offer. IT Fornebu is privately held and depend on their clients, the start-up companies, to succeed, thus still categorized as an Independent Private Incubator (IPI). The agreements that are made between the incubated companies and ITF contains a stock share contract starting from 5 -10 % ownership to ITF for their services .If ITF decides to invest capital as well as services the ownership may increase to 40 – 50% depending on the investment made. If the incubated companies succeed, ITF may execute their exit strategy and sell parts of their share or all of it to another buyer. This is how ITFV generates revenue. An important distinction from ITFI is that ITFV has, in addition to the ICT sector, identified new business sectors when selecting entrepreneurs.

IT Fornebu wants to avoid using the term Business Incubator and would prefer the use of Commercialization Actor instead, because they claim to offer more than a traditional incubator and are more focused on the commercializing part of the process rather than the development of the invention itself and administrative support. This depends of course on how a Business Incubator is defined, but the combination of Concepts, Network and Commercialization (figure 5) is what differ ITF from other Business Incubators and make them more innovative as well as a it is a competitive advantage. The inherent focus on commercializing forces ITFV to have a strong focus on the business idea, but most of all, the entrepreneur in the selection process.

Network

ITFV is engaging in different clustered networks. One of these networks is in the cluster for Telecommunication, Internet and Media (TIM). The TIM cluster consists of about 20 firms and are not necessarily connected to IT in any other way then being a part of this cluster. Other clusters are: Med-tech, Clean- tech, Services and energy. The network concept is still in an early stage, but it is a result of lacking network synergies at IT Fornebu. By facilitating more specialized clusters with an overlapping knowledge base ITFV might recognize potential collaboration between firms which again may lead to innovations and new start-up projects that can be incubated by ITFV. Porter (2003) argues that a specialisation in the

clusters will give more knowledge spillovers since the firms are related. At the same time some clusters, like the ICT cluster, are overlapping, thus specializations inside each cluster and diversity between related clusters is needed for best performance and stimulating innovation. The socially organized learning process “learning by interacting” also emphasizes why clusters are important, but demands proximity among the firms. IT Fornebu has a great potential here, due to a large area with room for many companies. Members of the TIM cluster have meetings on a regular basis. It has been identified scepticism to such meetings among incubated firms and one contestant said: “it may easily turn out to just another coffee meeting.” In meetings between firms in the same cluster there might be competition leading to lack of trust and thus no willingness to share knowledge. Schilling (2008) argues that willingness to share knowledge actually increases with frequent meetings and trust and reciprocity norms are developed. Due to the problem of sharing competitive knowledge, frequent meetings may emerge rules of engagement so that the individuals understand how much and how knowledge is exchanged. Evidence from the literature on sector specialized Business Incubators pointed out several disadvantages. A limited amount of entrepreneurs in a sector increases the quality of the selection process and sources from ITFI said that Norway may be too small in terms of just gambling on a sector. Furthermore competition might occur in a narrow focused incubator and thus no networking and synergies. With multiple clusters and networks one can try to stimulate synergies across sector instead of internal conflicts.

Access to network such as the TIM cluster might increase the social capital for ITFV and give them a better networking offer to their incubated firms. The managers at ITFV explained that each cluster, such as TIM, is going to have one cluster manager working for ITFV. The managers may work as “gatekeepers” for the incubated firms as long as the communication between the cluster managers, the entrepreneurs and the incubator manager is running flawlessly. It seems like ITFV is trying to make a hybrid between the advantages of a diverse and

Commercialization

This area of operation is working as a Business Incubator. The revenue model for commercialization is to provide entrepreneurial support in exchange for a share of the incubated companies between 5-10 %. ITFV claims that the difference between this business model and other business models is that it is going to be connected with a lot of clusters with

the same knowledge base as the companies they are aiming for. As argued, specialization would probably yield the best support for incubated firms, but at the same time Porter (2003) concludes that a specialized cluster among a diversity of other clusters leads to more innovation. With this model ITFI intends to reach both the advantages of diversity and specialization. Sources that have followed the development for a long time had two statements: “Diversity is best” and “It does not matter what is created as long as it leads to an innovation.”

IT Fornebu Holding AS also has a daughter company called IT Fornebu Invest AS. IT Fornebu Invest AS has capital that is available to incubated firms at ITFV. The company is strategically organized as a company outside ITFV. This strategic move is done so ITFV can work independently from the capital investments. One of the drawbacks with the old model was that ITFI behaved more like a Venture capital form resulting in less focus on Business support. IT Fornebu Invest AS does not currently have the amount of capital they wish for, but are working on gathering more capital.

Concept

The concept-part is working closely with IT Fornebu Eiendom AS (ITFE), and aims to “fill” the commercial property owned by IT Fornebu Eiendom AS with firms moving in. As of now ITFV is working on what they could use their upcoming hotel for. This area of business will be working as a link between the ITFE and the commercialization and network part at ITFV. They are also targeting other new ventures to move their businesses to IT Fornebu or other properties owned by ITFE.

IT Fornebu familien

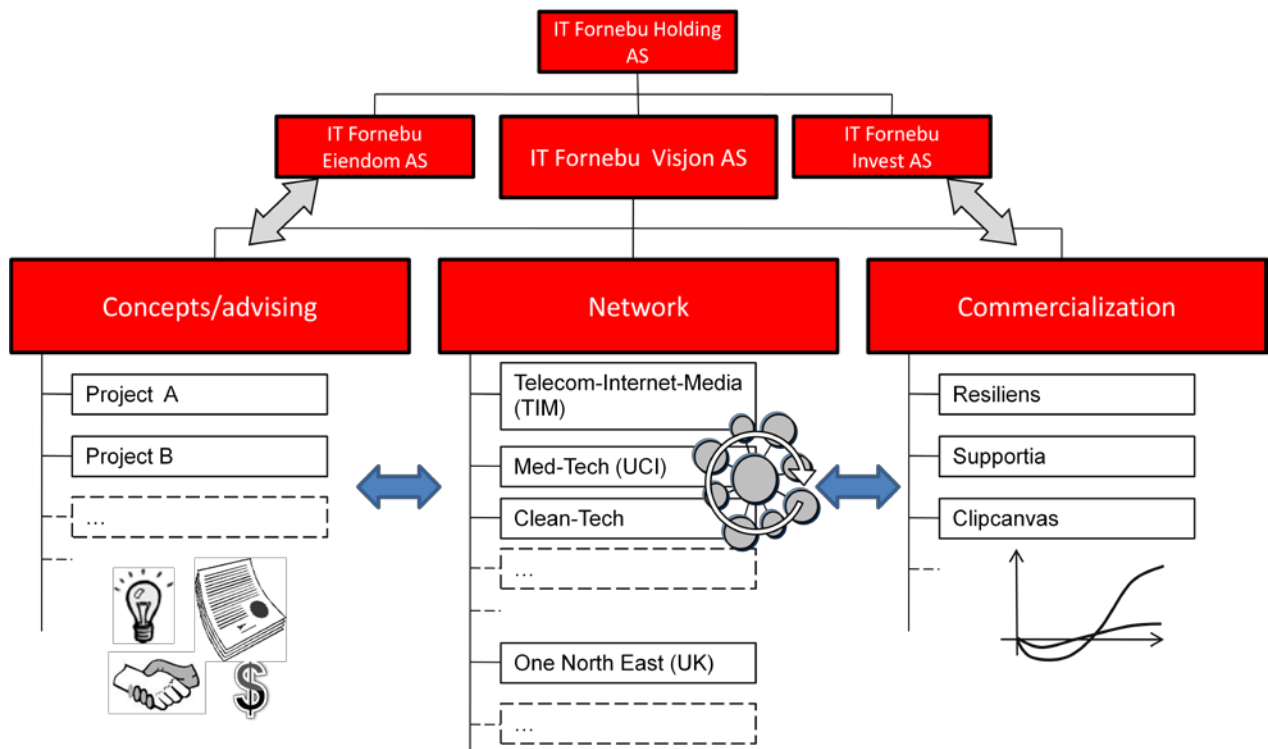


Figure 5: Company overview (provided by IT Fornebu Visjon AS)

6.2.2 Incubated companies

This section represents the new incubated companies in IT Fornebu Visjon AS. This is all the incubated companies until now at ITFV.

Resiliens AS

*“Resiliens Communication is developing solutions that improve the resilience of IP networks. The key benefits of the solutions are minimized service disruption, transient loop avoidance and easy management.”*¹¹ Resiliens AS was founded in 2003 and is a result of many years of research at Simula Research Laboratory¹². Simula Research Laboratory owns the commercialization company Simula Innovation who has strong ties to ITFV. Both Simula Innovation and Research Laboratory are located at IT Fornebu. Simula’s own commercialization company can only help to a limited extent and that is why ITF joined in.

¹¹ <http://resiliens.com/about>

¹² <http://simula.no/>

Resiliens AS had four full time workers and two part timers when they joined ITFV. ITF now owns 5 % of the Resiliens AS. Resiliens AS is now at a stage where their product is ready for commercialization and they only need minor adjustments to adapt to their customer's infrastructure. At this stage Resiliens needs a network that can yield licensing agreements with potential customers followed by an investment to implement the technology at their customers. Since the entrepreneurs at Resiliens AS are already working at Simula at ITF they do not use ITFV's infrastructure, but Simula is obligated to be situated at IT Fornebu and is paying rental to IT Fornebu Eiendom AS. The managers at ITFV have helped Resiliens AS to navigate in the possible funding alternatives in Norway, such as Innovation Norway and Venture capital firms. They have already received financial support from Innovation Norway. Resiliens AS takes care of accounting and legal matters, but ITFV supports them on market analysis and adjusting the business plan for different purposes. The support given to Resiliens AS by ITFV is characterized as being continual and proactive. The managers at ITFV have proven to give full use of their personal social capital, but little has been seen of the more organized network. In terms of more specialized knowledge this is taken care of by Simula and ITFV provides a more business development approach. And ITFV has proven to be able to absorb and utilize new knowledge on behalf of Resiliens AS.

Nordic Business Information AS

Nordic Business Information AS is branding themselves as NROL – Corporate broadcasting and “*is a nordic provider of business information, tools for financial analysis, corporate video production and corporate information.*”¹³ The company was established in 2009 and there is one entrepreneur working full time and another one part time. They contacted ITFV and after some meetings the managers decided to let NROL join the commercialization program. As for now NROL does not use any facilities at ITF and the entrepreneur is working mostly from home, but they have access to meeting and office facilities. ITFV has between 5 and 10% of the company and in return they have so far given continual and proactive support to NROL. The support until now has been mostly discussions of the business model and shaping the product. NROL needs a management team to fulfill their commercialization goals and found that ITFV could hold this role temporary. IT is too early for NROL to say something about ITF's network and human capital, but so far it seems to be

¹³ <http://www.nrol.no/>

very satisfactory. And the managers at ITF are good at recognizing knowledge that gains value for NROL. As NROL is in an early stage of development it is not yet to judge, but NROL points out that the operative part of the commercialization process and not just the administrative, is very important and they would hopefully see more of that. Meaning that leads of customers, partners etc., which may help NROL make money is vital in contrast to more administrative support such as office space and meeting rooms.

Movecom AS

Movecom AS¹⁴ develops an application for mobile phones that communicates with surveillance cameras and lets the user view the cameras real-time. Movecom has its address at ITF, but is not situated at ITF and thus do not experience any cluster effects or interaction with other companies at ITF. Due to some changes in the management team the level of support from ITFV has altered. The entrepreneurs wished that ITFV took more action and challenged Movecom AS in this period. Managers at ITFV were able to understand their technology immediately and opened new doors for Movecom AS. Movecom needs capital and are currently challenging ITFV's network for potential investors. ITF helped the entrepreneurs getting funding from Innovation Norway.

Supportia Norge AS

Supportia Norge AS is developing a support service for general consumer electronic support. The company is in a very early phase and still has no operational services at the market. Supportia has received support in developing and designing their services. Supportia has been introduced to some potential partners in ITFV's network. And are characterizing ITF as Proactive and continual in their work and claims that this is a result from the management team at ITFV.

6.2.3 Key findings

Compared to the findings on IT Fornebu Inkubator AS it seems that IT Fornebu Visjon AS has learned from experiences with a previous attempt in organization an incubator aid. ITFV is trying to develop a specialized network to meet the needs from their incubated firms. The network is diversified as well as specialized which makes ITFV well-equipped to support a

¹⁴ <http://www.mowecom.com/>

wide range of firms from different sectors. It is still too early for the incubated firms to comment on this clustered network since it is not yet fully developed and neither has anyone tested it, but literature on clusters and the need for more knowledge and social capital makes it look promising. It remains to see whether ITFV will increase their absorptive capacity and their social capital by facilitating clusters such as TIM or is it just going to look good and be just another place to drink coffee. The social capital held by the manager at ITFV has according to most entrepreneurs been satisfactory in terms of access and mobilization. One of the respondents said: "We are very happy with the ITFV and they have been very valuable to us." The level of support has been proactive and continual and another entrepreneur claimed: "They have showed engagement and initiative." As for the sources of innovation ITFV has the same wide approach as long as it is possible to commercialize and create revenue. There is also evidence on service, Supportia Norge AS, innovation which is, according to sources, unusual to find in Business Incubators. Service innovation and the focus on additional sectors open more "doors" for ITFV, the challenge is if they can rely on the cluster network to assist the entrepreneurs with such a wide range of ideas.

ITFV offers some infrastructure, but it seems that they should initially point out clearer after the selection process what is offered. As for management support such as legal matters and accounting there has been no evidence so far. This might be because it's missing or it is still too early for ITF to offer such services to the incubated firms due to the companies are in very different stages of development. All respondents said that ITFV so far have been helping them on a continual and proactive level, but all of them emphasized the importance of the relationship with the manager at ITFV and several claimed that: "Persons are the most important factor in the Incubator." One of the entrepreneurs had an additional comment: "I wish that ITF could set some requirements to the entrepreneurs." The entrepreneur agreed on ITFV as a proactive and continual support provider, but felt that they could "push" entrepreneurs a little more especially when the entrepreneurs had a little "down period" with declining motivation.

7. Conclusions

This thesis aim to discuss the question: how are Business Incubators promoting innovation? ITFV has been used as a case for data collection. A conceptual framework was introduced to ease the task of identifying how ITFV is promoting innovation. To add a discussion to the more descriptive “how?” question, it was also asked: why are they promoting innovation this way? Both of these questions have lead to some answers to the more general question in the literature related to Business Incubators: do incubators facilitate the entrepreneurial process and if they do, how? It is still too early to evaluate ITFV’s new business model, but it is possible to come up with some assumptions based on IT Fornebu’s experience and the literature.

After investigating firms and entrepreneurs that have been previously incubated at ITFI and presently at ITFV, there is little doubt that they emphasize the entrepreneurial process, thus ITFV is still categorized as a Business Incubator, even if they claim to be something more. All the companies are in different stages of development and have a diverse range of services and products that they are trying to commercialize. Some firms have done research and development for several years and some are just offering a service that can commercialize right away. The entrepreneurs have different needs and different skills and thus Kline and Rosenberg’s (1986) statement: “*Innovation is complex, uncertain, somewhat disorderly and subject to changes of many sorts*” emphasizes a perspective on how hard it is to investigate and give a general explanation on how a Business Incubator is promoting innovation. Due to the “how?” question, several facilitating tools have been discussed and analysed. In terms of “best practice” ITFV does not seem to focus on the general business support such as accounting, legal issues, office space and administrative services, but a strict focus on the selection process with commercialization as the conclusive factor. ITFV has so far focused their support on writing the business plan and developing a revenue model for the incubated firms.

Due to the “why?” question, it seems like ITFV is trying to give a more customized support to each entrepreneur rather than the more generalized support provided earlier by ITFI. Evidence indicates that ITFV is developing a hybrid between the specialization and diversification, which according to Porter (2003) may be promising. Two key factors to a successful performance are the social capital and the absorptive capacity and thus the human

capital is crucial for the survival of ITFV because both of these qualities are mostly held by individuals and not by an institution. There might be a link here due to the managers that worked at ITFI, since it has been registered that none of them continued working there after the reorganization and the complaints on lack of social capital and knowledge from the previously incubated companies. ITFV has developed a network strategy with multiple clusters to provide a network that does not depend on individuals to the same extent. As network is just a tool to access and mobilize social capital they still depend on the individual to succeed, but managers at ITFV does not necessarily need to use just their private social network. The same network may not just introduce social capital, but give valuable knowledge about the markets, customers and partners that ITFV can transfer back to their entrepreneurs, but again depending on the individual's absorptive capacity.

With regards to the conclusions made here, it may be a feasible plan for ITFV to underline expectations that ITFI has to the entrepreneurs and the general support provided such as: office space and management services. In terms of the customized support like social capital and know-how, evident limitations in width and depth seem fruitful. Neither the clustered network nor the managers will be able to accumulate or supply knowledge to all kinds of business ideas. Some entrepreneurs are operating in a narrow field and without an incorporated international network, it might turn out difficult to support. To take advantage of the clustered network it may be an idea to establish some regular meetings, "match making" or other ways to emphasize the value of such networks. ITFV must focus on selecting managers with social capital and absorptive capacity as this is the most decisive factor for entrepreneurial performance.

7.1 Further research

A suggestion for further research could be to find out whether a Business Incubator driven by commercialization selects anything else then winning ideas with a winning team of entrepreneurs to reduce risk. If so, wouldn't the company have survived without the Business Incubator? "Winners" indicates both reduced risk for the Business Incubator and less work, and thus they would act more like an investor. Another suggestion would be to continue this study and see whether close connection to clusters can help increase knowledge and social capital to entrepreneurs.

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9. Appendix

9.1 Interviewees

Name	Company	Title	Method
Group 1			
Fred Olsen	Fred Olsen	Founder/Stakeholder	Face to face
Per Morten Vigtel	Norsk Investorforum	Founder/ lobbyist	Face to face
Tormod Hermansen	Rådgiverne	Partner/ Chairman of the board at IT Fornebu	Face to face
Harald Kjeldstad	SIVA	CEO	Mail
Group 2 – It Fornebu Inkubator AS			
Knut Berg-Jacobsen	IT Liberator	Entrepreneur	Phone and mail
Hans Terje Bakke	Running-games AS	Entrepreneur	Face to face
Thomas Werenskiold	Telekonferanser AS	Entrepreneur	Mail
Mario Blacevic	Falanx AS	Entrepreneur	Phone
Karsten Houm	M_Solution	Entrepreneur	Phone
Tor Saunes	IT Fornebu Inkubator AS		Face to face
Group 3 – IT Fornebu Visjon AS			
Sebastian Hamdoini	Nordic Business Information AS	Entrepreneur	Face to face
Amund Kvalbein	Resiliens AS	Entrepreneur	Face to face
Hans Petter Stormoen	Movecom AS	Entrepreneur	Face to face
Didrik Egge Martens	Supportia Norge AS	Entrepreneur	Participant observant
Cato Salter	Clipcanvas AS	Entrepreneur, TIM Cluster	Face to Face
Nils Haga	IT Fornebu Visjon AS	Comercialization manager	Face to face, regular meetings
Kathrine Myhre	IT Fornebu Visjon AS	Concept manager	Face to face
Marius Ogaard	IT Fornebu Visjon AS	Network manager	Face to face
Kristin Woje Ellingsen	IT Fornebu Visjon AS	Managing director	Face to face

9.2 Questions

1. Ongoing discussions in the literature
 - a. Does ITF help entrepreneurs promote innovation?
 - b. How?
2. Best practice
 - a. Selection process
 - i. General description of the selection processes
 - ii. Committee or one person?
 - iii. What stage was the company in when joining ITF?
 - b. What infrastructure was offered?
 - i. Office space, meeting rooms etc.
 - c. What was offered of Business Support?
 - i. Accounting, legal matters, advertising and financial assistance
 - ii. General business development
 - iii. At what level were ITF helping (pick one of the following)
 1. “Reactive and episodic” (help is defined when the entrepreneur requests help solving a crisis or a problem.)
 2. “Proactive and episodic” (incubator initiated help where the the Business Incubator proactively engages entrepreneurs in informal, ad hoc counselling.)
 3. “Continual and proactive” (help is initiated by the Business Incubator, but with more aggressive intervention focused on the ongoing developmental needs of the start-up firm)
 - iv. Did you expect more or less help?
 - d. Network (mediation)
 - i. Do ITF provide any network that could help incubated firms develop your business such as customers, partners, employees etc.?
 - ii. Did you interact with any other companies in the BI?
 - e. Exit, when did your firms leave or are planning to leave the BI?
3. Specialized vs. Diversified
 - a. Was ITF specialized on the ICT sector in terms of equipment and premises?
 - b. Did ITF give some sort of Sector-specific knowledge and know-how (ICT sector) or did you feel that the help was more general?
 - c. Was the network provided by ITF closely related to what you are doing?
 - d. Did the brand “IT Fornebu” give you any more brand recognition in the market? Or other places?
 - e. Did you move your business to IT Fornebu?
 - f. Is it better with a diverse portfolio of companies or is it better that the BI is specialized in one sector such as the ICT sector?
4. Disadvantages
 - a. Did you meet any competition from other incubated firms within Incubator?

- b. Other disadvantages?
- 5. Did you feel that ITF was good at recognizing, assimilating and utilizing new knowledge for your company?
- 6. Social capital
 - a. Did the managers at ITF provide you with not just a network, but actual people that could help your business?
 - b. Did you feel that this network of people was accessible for you, or was it only names that was impossible to reach?
 - c. Was this network large enough?
- 7. There is a term called “tacit knoweldge” that is defined as: *knowledge that cannot be readily codified*
 - a. Did you feel that you learned something to help your business, just by being situated within a Business Incubator?
- 8. Any other comments?
- 9. How is your company doing today?