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Master Degree Project in Innovation and Industrial Management

Innovation at a Science Park

A case study of Lindholmen Science Park

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1. Introduction

The concepts of science parks have arisen from the demand to create an environment where innovation can be translated into commercially viable enterprises, and various parties can meet on common ground to develop their ideas and business. Generally speaking, it implicates the bringing together of a university with well-functioning scientific and technological faculty and an active industrial facility. There are a few famous examples of functional science parks, such as, Silicon Valley in USA and Cambridge Science Park in Britain. The accomplishments from these well-known areas have created a common picture among people that science parks are the solution to economic downturns and a formula that will automatically lead to success. Unfortunately, the blissful visualized view of these parks led to tremendous growth of new institutions around the world but one shall keep in mind that it was not all that became as perfect as the visualized picture. The relationship between academia and industry, and the creation of new business development are built on several factors. During hard economic times, universities are pressured to capitalize and realize findings and their research as these often are sponsored by funds from the public. Governments see parks as centers for economic growth and employment opportunities, and not least a possibility for inventive individuals to recognize and turn their ideas into practicality. Even though, the idea of a science park is in reality very good, however, one must remember that there is no absolute formula for a successful science park. The reality shows what may create success within one political, economic, and social context may lead to failure in another. (Elsevier Ltd., 1985) (Brown, 2009)

1.1 The birth of Lindholmen Science Park

The birth of Lindholmen Science Park can be traced to the early 2000's when Ericsson was on the search for new offices in the Gothenburg area. At that point in time Gothenburg did not have a lot of attractive options for companies demanding an area for more than 1000 employees. In a close race just before Ericsson decided their next move, officials of Norra Älvstranden presented the possibility of an office located on one of the piers at Lindholmen. Ericsson jumped on the idea and the birth of a future science park was taking place. (Dagens Industri, 2000)

Historically, there has been skepticism toward the action of living and working on Hisingen where the Science Park is located today. The area has previously been characterized by marine and shipping industries, and as these have disappeared have opportunities for innovation and growth emerged.
As Ericsson chose the location of its office for their Mobile Data Design unit the area has become very attractive. In addition to the move and building of a new office, Ericsson demanded that creation of a new information technology cluster on Lindholmen. That included an amount of IT-based companies in collaboration with Chalmers-IT which is located closely. During the exploitation process the CEO for Ericsson Mobile Data Design, Åke Johansson, stated "It will work 10,000 to 20,000 people here in a few years. We will have the advantage of the access to the large labor market." (Dagens Industri, 2000)

Lindholmen Science Park located on Hisingen Island in Gothenburg, Sweden, is an international science park with three focus areas; information and communication technology, transportation, and media. It is outspoken labeled as the national arena in Sweden within its focus areas. The main objective is to create collaboration between industry, academic and society, on both the national as well as the international level. The collaboration will hopefully result in further developments of ideas and viable business opportunities. On the premises there are test and development environments that promote growth and competiveness for Western Sweden.
The park offers a neutral environment for development where actors from industry, academia, and society can collaborate and run large research and development projects. The whole idea includes an environment with the concept to co-create and run collaborative projects. Actors and guests will meet people who are working within the specified areas of focus and may be scientists, project managers, business managers, vehicle specialists, EU experts, students, designers, artists, professionals, entrepreneurs, and politicians. (Lindholmen Science Park, 2014)

1.2 Purpose and research questions

The core of this study will revolve around identifying what conditions that are perceived to stimulate and hamper innovation at Lindholmen Science Park. The personal interest in finding and understand what items that affect a situation or location are valuable insights for future endeavors. The fact that different conditions can be identified and considered positive at one

location may not be valued similarly at another. The reality shows what may create success within one political, economic, and social context may lead to failure in another. (Brown, 2009) Science parks mimic the picture that innovations in technology grow from scientific research and that the environment at science parks can offer an accelerated setting for turning research into business. (Westhead, 1997) The growth of firms can be correlated to the individuals around a firm such as competent managers, and decision-makers who are able to evaluate the potential benefits of collaboration with academic institutions. The option of using science parks is one of many policy tools that try to increase the number of innovation firms. (Hans Löfsten, Science Parks and the growth of new technology-based firms—academic-industry links, innovation and markets, 2002)

By that I aim to answer the following research questions:

- ***"What conditions are perceived to stimulate innovation at Lindholmen Science Park?"***
- ***"What conditions are perceived to hamper innovation at Lindholmen Science Park?"***

The term "conditions" represent the factors and valuable items that promote innovation at the science park. There are as many different views of what elements that could be considered positive and negative and therefore these are described as perceived. In order to receive valuable answers for this study the focus will be to interview and draw conclusions from respondents who have experience from the specified science park. The terms "positive" and "negative" are based on theory and respondents answers whether they label answers to be assigned with a certain aspect. In this case the term "innovation" symbolizes the ability to take care of new ideas and develop solutions into feasible businesses. (Näringsdepartementet, Vad är innovation?, 2012)

1.3 Limitations of study

The scope of this study concerns identification of items that affect innovation and are perceived at the specific science park. This is a case study of Lindholmen Science Park and solely the explicit science park. The study is completely subjective, based on the answers and insights from the respondents. It will not go into all items and details that are likely to have been observed. Rather, it will understand and categorize conditions that affect innovation perceived by experienced individuals at the specified location.

2. Theoretical framework

This chapter primarily consists of a literature review regarding innovation, sources of innovation and the drivers that promote innovation, a brief overview of Swedish innovation systems followed by science parks and cluster theory. Firstly, an introduction to innovation will be presented together with the drivers of innovation as these are important factors when looking at innovation as a tool for growth. Secondly, Swedish innovation systems will be discussed which will lead us into the subject of science parks and how these have emerged and grown since its start. Various data and findings will show studies of cluster theory as these bring valuable definitions that are of important terminology on the subject.

2.1 Background

A key aspect for organizations of today's world is to constantly renew and improve processes, and management to maintain and sustain competitive advantage in today's markets. The ability to be groundbreaking and with other words innovative are key to improving one's competitive advantage, a characteristic that has increased in importance in recent years. (Cameron M Ford, 2000) The idea of innovation is often described as "new and better ways to create value for society, businesses and individuals." (Näringsdepartementet, Regeringen.se, 2012) Often, innovation solutions meet the needs and demand of everyday life and additional needs from different parts of the world. The value of an idea is based on the utilization and usability that the solution presents to an existing problem. The created value can take various forms and may be of economic, social and environmental benefit to the society.

The national growth of science parks have resulted in several new breakthroughs that have pushed past limits beyond imaginable levels and stemmed in new solutions that we are able to enjoy in everyday life. A science park makes it possible to bring together collections of people with a various backgrounds and expertise in order to collaboratively create innovative solutions. What is interesting is to look at the factors and conditions that successful science parks or clusters have had in common that have stimulated innovation in both negative and positive ways at these locations. Another approach is to see how science parks play a significant role in the Swedish innovation system and what undertakings these parks take on.

2.2 Innovation

The Swedish Government defines innovation as the ability to turn visionary ideas into feasible business solutions and as a result of actions create value to the individuals in a particular context. The Organisation for Economic Co-operation and Development (OECD) states that there are four types of innovation: product innovation, process innovation, marketing innovation, and organizational innovation. (European Commission - Organisation for Economic Co-operation and Development, 2005) Sengupta (2014) elaborates on the subject and says that innovation can take various forms; however, often it leads to reduced cost per unit or increase market demand in an area. As unit costs decrease it raises competitive advantage against other actors. Competitive advantage destroys old borders of advantage and creates new levels which competition now has to compete within. This phenomenon when innovation is replacing old sources of advantage is called creative destruction. (Sengupta, 2014)

Innovations can be categorized into two different modes and can either be incremental or radical. There are many ways in which these two outcomes are described. Some authors chose to call minor developments as incremental, while on the other hand breakthrough innovations are labeled as radical. Christensen, a well-cited writer and author of the book *The Innovator's Dilemma*, discusses the differences in innovation. He states the difference between sustaining versus disruptive technologies where sustaining technologies are labeled as improved product performances; these can be of both radical and incremental character. On the other hand are disruptive technologies labeled as technologies that in the short-term future have worse product performance but due to a very different value proposition that was not available before, and the overall weight of other features bring value that customers appreciate. However, the conclusion of these are that in the long term perspective the cost per unit decreases and or old technology becomes replaced by new technology that are more preferred by the market. (Christensen, 1997) Even if we understand the concept that innovations can come in various forms and be either radical or incremental it is interesting to recognize where innovations originates from. Therefore, I will take a look on the sources of innovation.

2.3 Sources of innovation

There are various views on where an innovation originates from and who the actual owner of an innovation is. Eric Von Hippel gives a universal view of sources of innovation in his book *Sources of Innovation*, he mentions that the term functional sources which declare that innovations come from firms and individuals who have a functional relationship to a given product, process, or service that they use. Obviously there are many stages in innovation and improvements along the line as new products take shape. An example could be improvements in metal-welding that could be useful in the construction of cars, where input may come from a manufacturing team. In addition to the established functional relationships that can be seen between innovator and innovation are the relationships that can occur with users, suppliers, and manufacturers. As mentioned previously, whole supply chains can benefit from innovations as individual actors within the chain innovate and improve their processes. (Hippel, 1988)
Innovations can therefore be traced to individuals, users, actors or other people involved in the research and development process. Additionally, processes and responses that provide feedback that are constructive can be considered to be part of the development progress.
Another view on the sources is Drucker's view, which he describes in *The Discipline of Innovation*. He puts importance on the constant and purposeful searches for opportunities in the community. Opportunities can be found everywhere around the one who is searching, in some cases these can be discovered within the existing organization whereas others are found outside of ones existing working environment. Sometimes innovations are perceived to come from individuals with masterminds who seem to release new ideas every so often. However, what innovations really grow from is the clear picture of the mission along with specific goals and outputs. It includes leaving efforts and paths that does not lead to the results wanted. What is needed is to put all efforts on the opportunities that can really make a difference, follow-up on these and evaluate results. This is what it means to be disciplined and conducting diligent and thoughtful innovation. Sources of innovation, whether they are businesses or individuals, require minds that focus their innovation on both needs and opportunities. (Drucker, 1998)
Pointless to state is that innovation originates from ideas that initially are born in the minds of people, however, through careful processes and hard work will opportunities arise from which

innovations can fill the gap between a demand and opportunity. In the upcoming part of the theoretical framework, the drivers behind innovation and the factors that promote the items that decrease the gap mentioned.

2.4 Drivers of innovation

An interesting part of innovation is to understand what factors and substances that are the driving forces behind innovation. Most discussions around innovation place a lot of focus on the outcome rather than the actual drivers behind innovation. There are many different types of drivers. The author (Sengupta, 2014) describes drivers to be something that promotes an effort in order to later receive an award. An incentive to innovate can be a financial reward, recognition, a legal right and protection of ones innovations. There are certain motivators that inspire people to act and innovate; however, this paper will not focus on the psychological motivations. Those mentioned are often the result of what one can receive from the advances one make in innovation. However, there are certain factors that promote innovation and create conditions that promote people to innovate. In the book *Theory of innovation* one can read that a major force in some sectors is knowledge and the growth of one's knowledge base. Investments in R&D and knowledge capital have been a crucial role and driver of growth. R&D expenditures are often resulting in an increased knowledge and information base but also improve organizations' ability to understand, exploit, and to develop existing information and knowledge capital. Continued from the book one can read about the concept of innovation policy and how promoting knowledge creation through increased support of R&D and university education is not satisfactory enough. What is considered equally important is to teach individuals to turn newly gained knowledge into new products and services to increase economic growth. A better fitting choice when picking a strategy would be to promote entrepreneurship in the education system which would in the long-term increase the amount of capable and risk-taking individuals. (Sengupta, 2014)

A framework by Harmsen et. al proposes that the orientation that a firm chose influence its core and accompanying competencies. These choices will directly affect the innovative activities that a firm chose to pursue. They state that R&D is not to be considered as an isolated force that specifically drives innovation within an organization. Instead, an R&D department can be described as a force that improves organizations competencies. Additionally, that means that

R&D helps a firm that is product-oriented to deliver innovative products, and benefit process-oriented firms to improve their processes. Notably in this study is that firms can innovate both types but most likely, according to the study, is that those that are consistent with the values of the organization will be most prevalent outcomes. The most innovative firms do not normally start to allocate large sums of money into R&D departments; instead, these companies understand the role of R&D departments in the innovation process and use them wisely to drive research programs. (Harmsen, Grunert, & Declerck, 2001)

In a study by Tom Nicholas it is concluded that the function of capital markets has an evident effect on level and speed of innovation which also affects economic growth. However, it is not definitely certain that technological progress is completely driven by finance. Studies show that there is a positive correlation between greater amounts of investment and higher economic growth rate. On the other hand it is still unclear whether finance drives growth or vice versa. Other studies show that European countries that are in a transition phase with firms owned domestically to be less productive and innovative than foreign-owned firms. This fact is making an attempt to point out the variances in ability to access funds. If the fact that innovation is only driven by finance it would be expected to find lower rates of innovation and economic growth in the transition economies. (NICHOLAS, 2011)

Innovation is driven by a direct result of internal processes and the enhancement of the human capital within a nation which will ultimately cause economic growth through the development of new practices of technology and improved processes of production. A complex number of elements that have impact on innovation are hard to exactly define but can be categorized into three broad areas: intellectual property rights, sources of innovation, and financing of new development. (Investopedia, 2014) (NICHOLAS, 2011)

Conclusively, many authors on the subject agree and share the impression that individuals and their ideas, and visions are realized and later developed into feasible projects. There are certain shapes and forms that these visions can be taken care of. Processes and practices are and may be very different and depending on whom and what team that will work on a specific project it may result in diverse outcomes. Something that needs to be mentioned is that there is an absolute need for funding and capital in order to turn ideas into reality. The items that can be extracted from this part are the need of motivation, knowledge, research and development, an increased knowledge-

base, and the need of capital. This information is critical to understand in order to recognize the forces that drive innovation. The forces may vary in both amount and availability depending on location; however, the right mix of the forces can only be estimated and customized to each situation.

2.5 Cluster theory

The famous constellations of the high-tech industry that occur in Silicon Valley, have received a lot of attention from academic sector and groups within the public policy field. Some researchers state that national economic growth can be driven by the development of such constellations which also goes under the name *cluster*. An example of such progress with noticeable results is found from the long boom in the information technology sector in US during the 1980's and 1990's. The development during the time period was mostly driven by improvements in a few regional clusters. The factors that make clusters competitive are that innovation and entrepreneurship can coexist and be supported by actors within the cluster. Access to capital, knowledge about markets and technology, and proximity to collaborators are all considered to be supportive instruments to activities. The advantage leads to highly skilled people with solutions that are more in line with market needs. The benefits of these advanced and skilled constellations gather academics, business, and governmental organizations to a mutual arena where developments can take place. (Bresnahan, 2004)

Classical cluster theory can be traced to several papers by Michael Porter. Being located in a cluster area and involved in activities allows companies and actors to operate with more productivity when obtaining inputs for production. Access to information, expertise, desired national and regional institutions matched with related companies are among items that create the mix for measured and motivated improvement. The increased accesses to expertise labor and suppliers that a cluster brings lower companies search and transaction cost in recruiting these. As clusters often signal opportunities for growth it reduces the risk for future relocation of employees which are likely to result in the attraction of talented and skilled workers. (Porter, 1998)

The reasons why firms are moving closer together and into clusters have resulted in many different answers by experts around the world. Some think that clusters catch the efficiencies

from the closely linked firms within the cluster. Others believe that due to the certain type of activities performed at such locations demand face-to-face contact. (Florida, 2003)

Considered to be important is the fact that companies move closer in proximity and create clusters to draw from the benefits of talented individuals who share the motivation to drive innovation and economic growth. Competitive advantages for organizations are fueled by an organizations' ability of attracting the talented individuals in today's markets. (Florida, 2003)

Clusters facilitate new formations and creation of new successful business ventures by lowering the barriers and cost of entry. Improved opportunities for innovation-based entry, attracting local entrepreneurs to grow ideas into new technologies, and allowing recently started firms to leverage growth from utilizing local resources are key actions that working clusters carry out. Strong performing clusters are often linked to the association that it is in an environment with consumers with an innovation-oriented mind, which would increase the number of opportunities for possible markets within a geographical area. Therefore, entrepreneurship and opportunities new business development are forces that drive clusters together. (Delgado, Porter, & Stern, 2010)

2.6 The Swedish innovation system

This part of the theoretical framework is made to create an understanding for how innovation works in Sweden and a brief overview on how institutions, education and industry cooperate in order to stay competitive in today's markets.

Having in mind that Sweden only represents .13 percent of the earth's population it is looked at as one of the most innovative countries in the world. Sweden is often ranked highly in international reports and common indicators with regards to innovation and spending on R&D in relation to GDP. (Sweden.se, 2014)

The argument for such historical performances in innovation is among several items due to the industrial structure of Sweden. The nation consists of large companies with high-intensity R&D departments together with specialized knowledge in sectors such as high-tech and service industries. Also, the national networks, organizations and global innovation networks which

Sweden participates in have been influenced by the industrial structure of Sweden. (Cristina Chaminade, 2010)

The overall structure in Sweden which is built on a strong educational system with research universities that have established relationships to the industry and public sectors create a solid foundation from which knowledge, and interactions can take place.

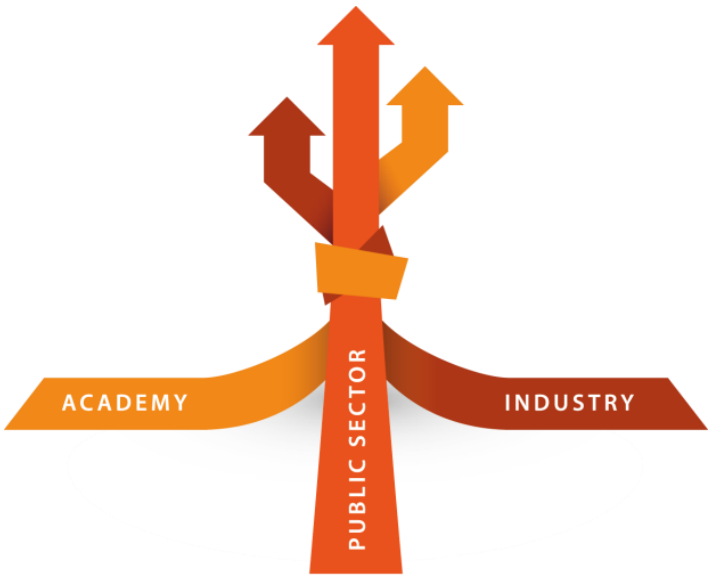
According to a report by Vinnova, a governmental organization which manages and promote programs in order to strengthening the innovativeness in Sweden, recently there have been examinations and instructions with inputs from The Organisation for Economic Co-operation and Development (OECD) on what policy makers should focus on in order for Sweden to stay competitive in the future. (Vinnova, 2013)

In the recent directions from OECD a lot of attention was put on the needs to be positive towards change and open to the fast globalization activities that affect the markets that Sweden are working within. An engine and key action towards those directions are that Sweden needs to improve and develop better collaboration between the industry, academic world, and the public sector. It is important that the nation continues with activities to develop the creation a competitive innovation climate as this will result in more competition. Among the principles of the Swedish innovation policy is to have a broad innovation investment, international openness and possibility for international cooperation, quality and relevant research followed by systematic evaluation.

In addition, a number of recommendations were given and these could be labeled as enablers for innovation and an improved innovation climate. The political processes needs to be developed in order to create a more efficient innovation policy, this includes outspoken strategies from governmental institutions for clarity purposes. Political processes also include a framework that promotes innovation on several levels such as tax-breaks and regulations stimulating innovation. An investment increase in small and medium-sized R&D driven companies are underway to create opportunities for collaboration between universities, R&D, entrepreneurship, and the industry. (Vinnova, 2013)

What we today recognize as an innovation system, Swedish scientist previously viewed as a linear model where an idea would be transformed into a product, manufactured and sold directly

to the market. In the mid 1980's a new theory about innovation systems was born, to some extent harder to understand but more in line with the reality. Charles Edquist, a professor from Lund University is among the scientists behind the theory. He states that an innovation system includes everything that impacts development and rise of innovations whether they are national, regional or sectorial. According to Edquist, innovations are new products and processes of economic value. Innovation systems can be national, regional or local as well as sectorial. Included pieces in a system are all structures within a society such as laws, regulations, tax system, and the interaction between the academic world and industry. In the early 2000's the term Triple Helix was born, a model which describes the importance of interaction between actors from different spheres. (Forskning.se - Den nationella forskningsportalen)



The Triple Helix model

http://www.lindholmen.se/verksamheten

2.7 Science parks

At many places around the world, countries, cities, universities, and businesses are devoting large sums of capital in new science parks. What can be called a research or technology park is essentially the act of bringing together researchers and scientists to one location. The phenomenon is a result of an attempt to create a place similar to Silicon Valley and other innovative hotspots around the world where people can interconnect freely. The collective investment are bidding to create an open environment with shared areas, open office spaces, shops and joint activities to spark inner motivation for people to create new connections, socialize, and share creative ideas. (Brown, 2009)

These hotspots and local areas provide an important network for innovative and high-tech firms. Government and other state organizations have announced regionally designed targets in order to make possible changes in the physical infrastructure which will support the economic development in local areas. The central government of Sweden has a long history of backing

R&D and allocation of technology into the industry. The regional authorities in the nation have announced a number of initiatives to promote employment opportunities and improved knowledge-base in certain areas. Several institutions and national departments have made commitments to be on location at some of the science parks located in Sweden. (Hans Löfsten, Science Parks in Sweden - industrial renewal and development?, 2001)

Westhead (1997) argues that science parks replicate the picture that innovations in technology grows from scientific research and that the environment at science parks can offer an accelerated setting for turning research into business. The accelerated setting is normally a network consisting of different actors, both private and publicly funded, whom which arrange resources that support the funding of new ventures, and openly back corporate spin-offs. (Westhead, 1997)

Löfsten et al, shares in a paper the determinants of location for a company and the difference of being located on or off a science park. The study describes the added value and important characteristics and performance attributes of firms and their location. In order for someone to assess and grasp the added value of a location in a Science Park one has to explore and analyze the attributes. According to the study which examined a large number technology-based firms on and off science parks in Sweden during the late 1990's an attempt to identify any component that added value which a park would provide. Results show that a major difficulty for technology-based firms was to obtaining finance. In fact, self-financing was found to be typical for small firms. Another important key point from the study shows that attitudes and enthusiasm of the people inside ventures is another key factor. It displays the inner capability to raise capital and drive to succeed with high growth and lucrative businesses. (Hans Löfsten, Determinants for an entrepreneurial milieu: Science Parks and business policy in growing firms, 2003)

In an additional study on new technological-based firms and relationships with science parks, Löfsten et al discusses the added value that the park brings to such firms. The study makes a distinction between firms on and off science parks in Sweden, and the added value that these provide to firms. Research indicates that firms located in close proximity to a science park are more likely to have a link with local academic institutions than those firms who are located outside of a park. A reason to the growth of the mentioned type of firms can be related to the people around the firm such as competent managers, and decision-makers who are able to evaluate the potential benefits of collaboration with academic institutions. Löfsten states that the

option of using science parks is one of many policy tools that try to increase the number of innovation firms. (Hans Löfsten, Science Parks and the growth of new technology-based firms—academic-industry links, innovation and markets, 2002)

3. Method

3.1 Selection and purpose of study

The purpose of this thesis is to investigate and identify what conditions and possible elements that are affecting innovation at Lindholmen Science Park. I have through a student literature review of theoretical studies on cluster theory, innovation, science parks, and on the Swedish innovation system found specific items that promote and drive innovation. Also, a number of items that can be considered to hinder and therefore considered negative towards innovation are discovered and mentioned in the theoretical part of the study. The author of this paper understand that there are multiple drivers of innovation and the conduct of realizing new ideas can vary between actors around the world. There are obviously several external conditions that affect areas ability and possibility to innovate, an example is the political and geographical forces. The theories used in this study were primarily chosen because they are commonly cited by other authors, some studies are few of a kind and others are studies of influencing factors at science parks in Sweden.

I find it interesting to study what factors and conditions that are positive and negative for innovation at a science park, hear opinions and responses from people who are working at the park and what they value for promotion of innovation. The reason for this approach is to gather a better understanding on what factors and conditions that are demanded at a certain location in order for that location to benefit from the inputs.

This thesis is a case study which concentrates on understanding the dynamic forces that are present within a single setting. This is a deductive study where findings in theory build the framework and observations of subjects through interviews will lead to results and findings. Therefore, the observation and research process of qualitative data has been conducted through semi-structured interviews with open discussions. The entire thesis is a single case, location, and representative study which takes place under a certain time period and will not include an observation that takes place outside of the given time span for thesis work. (Eisenhardt, 1989)

As with any research strategy there are weaknesses. The use of a case study approach often results in an intensive use of observed data which can lead to complicated theory. The general

fault is to use data to build theory which tries to capture everything which often leads to theory that is rich in detail but lack a simple overview. Another weakness is that when one takes on the challenge to build theory from observation results often tends to be very narrow and on a personal level. (Eisenhardt, 1989)

The focus is on collecting primary data from individuals who are working at Lindholmen Science Park, or have experience from working at this specific park. Individuals who have been working, or are working at the park are likely to have experience from working in such an environment that the park brings. I believe that people with familiarity to the park and its functions are more than well suited subjects for interview with regards to their experience when it comes to the upbringing of new ideas and realization of them. I have not chosen to specifically target people from a specific company or organization as these may have a shared and common view on the innovation subject. Thereby, I have chosen respondents who have different backgrounds and who are representing various companies and organizations.

The interviews have been done with individuals from various organizations and companies that work specifically at the Science Park. The interviewees have different backgrounds and work with different tasks, but still towards the main goal; to create and develop innovation. Answers from one interview or company will not be sufficient enough to provide me with an adequate amount of reliable data. There are several reasons to this phenomenon. Firstly, people with different tasks, backgrounds or organization are more likely to have different opinions regarding the conditions and factors that affect their work and ability to innovate. Secondly, data from numerous actors are important because innovation takes different forms, and people behave differently when innovating and executing new ideas. If this study would not be conducted with respondents from various organizations, backgrounds and/or companies it would be likely to be very biased and shared point of view. Also, this would not reflect how an individual feel or experiencing innovation at Lindholmen Science Park. Due to these reasons, I contacted several people which represent different companies as well as organizations that are located and perform their daily operations at the specified location. The chosen scope is to limit the base of respondents to those who are working or have experience from working in the environment that is available at Lindholmen Science Park. When contacting people, I tried to schedule enough time for interviews in order to have ample time and room for discussion and additional questions.

Those interviewees that were unable to have a face to face meeting had phone interviews instead. Phone interviews are to some extent limited in the flow of information as it is harder to pick up body language and other bits of information that are easier during a face to face meeting. Overall, each interview gave me an opportunity to learn more about the interviewee, their position, work tasks, experience and area of expertise. (Alan Bryman, 2007)

3.2 Sample of respondents

The respondents who have been a part of this report has been selected and carefully considered before contacted. The respondents had to fulfill certain specifications to be accepted as possible interview subjects. Such specifications included experience from the location and the mentioned Science Park, and have some kind of connection to the realization of new ideas. Also, subjects had to work within the area of innovation at Lindholmen Science Park at Lindholmspiren 3-5 in Gothenburg. In order to find suitable individuals I used information and lists of people from the webpage of the science park (http://www.lindholmen.se/pa-omradet/foretagsregister). On that page it was possible to find companies and/or organizations that match the criteria that were relevant to this research. Following the selection of possible respondents, email and phone calls were made in order to contact these people to present the agenda and purpose of research.

In addition to using the webpage of the science park I contacted friends and other contacts that I learned to know from previous projects at the park. Overall, it was possible to have interviews with most of the people that I came in contact with; however, in some cases did respondents not answer emails or other lines of communication.

Most of the persons that I finally had contact with were also the ones who were able to have an interview; these people were very open-minded, flexible, complaisance and humble.

Following is a list and short description of the individuals interviewed.

3.2.1 Respondents

Lena Nyström, Chairman for Gothenburg's Inventors Association. She has over 30 years of experience in innovation and been involved in Sahlgrenska Science Park and innovation projects at Sahlgrenska Academy.

Mikael Von Dorrier, Venture, risk and seed capital allocator at Almi Företagspartner, Works with the national incubator program and knowledge transfer from Silicon Valley to Sweden.

Christian Riedl, Project leader at Media Arena Lindholmen. Main tasks are to lead, and initiate projects within the media industry in west Sweden as well as strengthen the media industry's position.

Jimmy Antonsson, Tournament director at Venture Cup. Responsible for Venture Cup's network, and holds the overall responsibility for the competition and general questions.

Ola Stensby, Head of Security Arena Lindholmen. Retired navy officer. He has over 20 years of work experience from Ericsson with international business missions. Present role can be described as central person in the triple helix model at the science park.

3.3 Primary data

In this study the author's choice has been to collect primary data by first hand interviews with additional questions of the conditions that are perceived to be positive and negative for innovation at the science park. The advantage of holding live interviews compared to other forms of interviews gives the interviewer the possibility to ask additional questions, ask if he or she does not understand and answer, and explain questions and ways of thinking if necessary. Also, holding interviews gave me the chance to get more detailed and pictured answers than other traditional forms of collecting primary data.

An interview can take place in various forums and have different procedures. Either, it can be done face to face, by phone or by email. During this study, interviews were done in such a way that it would fit in with the interviewee's schedule. Some of the interviews were held at Lindholmen Science Park while others have been done by phone. The interviews that were done face to face gave me the opportunity to read the body language of the individuals and their behavior which both are important parts of communication. Another piece of communication that one can read off is the tone and levels that respondent's use which can give an indication on their interested on the subject or answer. Also, the likeliness of misunderstandings are decreased when doing face to face interviews as interviewees are able to describe with both words and pictures to define an answer.

The choice of interview structure has been an informal interview structure. This means that the questions during interviews are presented in an unstructured way, which also leads to an unstructured procedure of collecting data. The advantage of performing interviews with this approach is that interviewing becomes very flexible, and increases the possibility to improvise and adapt the interview in order to extract satisfactory information demanded on the subject that are discussed (Alan Bryman, 2007).

Interviewed individuals have been asked whether they accept and approve to be a part of the report. Respondents have received the opportunity to read to report before the report becomes published. I asked and confirmed the questions to certify that they were not misinterpreted in any way. All subjects that have been interviewed have had the opportunity to be anonymous with their answers to verify that this report is made in an ethical way. (Alan Bryman, 2007) However, none of the respondents made the choice to be anonymous, thus, answers are presented as they have been interpreted and are offered in such a way what corresponds to what the mass answered.

The interviews are intended to capture the respondents' thoughts on the factors and conditions that are positive and negative for innovation and how these may have link to the theories of drivers of innovation. In order to understand and compare interviews as well as taking in important opinions and thoughts, interviews started with questions with regards to the background and previous experience, followed by questions regarding the factors that affect innovation. Interviews consisted mostly of open discussions and follow-up questions where I listened to their answers, experiences and their valuing of conditions.

3.4 Secondary data

The secondary data that the author includes in this report are to construct a better understanding of the overall subject, and the identified theories that are a part of the report. Literature such as articles, books and internet sources that has been used as secondary data to create the foundation of the introduction where the topic and some of the issues on the subject are raised briefly. All sources that the author feels relevant to the research have been analyzed in the theoretical framework, relevant theories and publications on the subject are considered to make up the spine of this report. (Alan Bryman, 2007)

The main search engine that has been used to collect, obtain and access material to form the chapters described above are offered by the economic library at University of Gothenburg. Emerald, EBSCOhost, and Scopus have been the most frequently used databases. Newspapers and minor entrepreneurial magazines have been gathered and picked up in person at Lindholmen Science Park. Examples of these magazines can be; *Entre'* and *älvstrand*. These sources have made it possible for me to access a large number of articles from recognized journals such as: MIT Sloan, Jstor, and Sciencedirect. Complementing sources from less known authors which have been audited and revised from recognized institutions have been regarded as acceptable sources. During research process there are a number of authors who recurrently are showing up in articles and papers. These have been considered as recognized authors and therefore have their works become a primary choice of options. Among the recurrent authors are Michael E. Porter, Hans Löfsten and Peter Lindelöf whose previous studies create a solid foundation within the subject. Also, Clayton Christensen is a Harvard professor who have written on the subject of innovation and released a well-known book on the subject. The process of article selection to use I firmly selected the ones that were in line with keywords and the chosen research questions. The established keywords that were used for basic research and to find relevant articles have been: *innovation, Science Park, drivers of innovation, science parks, Swedish innovation systems, entrepreneurship, innovation centers,* and *cluster theory.*

Obviously, these keywords are very broad and will result in a large number of articles. The process of limiting the amount of articles began with the keywords and the amount was later limited by selecting articles that I found to be relevant to the study. Also, a number of authors are

recurring as these have been writing several papers on the subject. Naturally, selection of papers from these authors occurred as their extensive research creates a solid foundation for framework.

3.5 Validity and reliability

Reliability refers to the consistency of the measure of a certain theory. The reliability concept of a study is considered to determine or state how trustworthy a study is. A study that is conducted with a reliable method will with confidence if done over time, have very little variation in the results that are obtained. I believe that this study is reliable and performed in a consistent manner. Articles that have been used in the chosen theoretical framework are possible to find in databases mentioned in chapter 3.4. Questionnaires used in interviews are presented in appendix 1. However, it shall be mentioned that follow-up questions and additional questions will not be presented as these have been improvised during each interview. Conclusively, it is still possible to use the same kind of questions to execute a similar study. The choice of informal structured interviews presented the opportunity to ask follow-up questions on answers. As previously stated, these questions are very likely to differ from person to person which honestly will impact the reliability of this study. Additional factors that can affect the reliability of this study are that number of respondents as the sample of five respondents will give a limited but still a reasonable picture of the factors and conditions on site that affect innovation. Also, interviews were only done once and this type of measure show a relationship to what the respondents think at that particular moment in time and space. The opinions at the particular time reflect their thoughts at the point of interviews; it is possible that opinions and feelings regarding innovation differ between respondents as well as if the study will be conducted by someone else. (Alan Bryman, 2007)

The term validity refers to the issue whether or not an investigation is examining the concept or theory that it is devised to measure. If the study meets or exceeds those requirements it is considered to be valid. Also, a research paper considered to be valid should also reflect the reality. I believe that this report deliberately studies the subject that it was intended to study. On the other hand, how well this report reflects and describes the reality is more challenging to define. I had the possibility to interview and gather a reflection of the interviewee's opinions and thoughts at that specific time. Such reflection can change over time and can possibly affect the

respondents' opinions of the present state at the science park. If the possibility to follow individuals over a longer time period was present it is likely that the opportunity to gather an enhanced picture of the conditions of innovation on location would increase. Also, this would eventually lead to more time devoted to reflection and an increased number of inputs from respondents. It is unknown whether this would affect the result or if respondents would change their thoughts drastically over time. It was not possible to investigate this due to the limited time to write report. The five respondents and their views on the factors and conditions on innovation at Lindholmen Science Park varied on some areas while other responses were outspoken more frequently. In order to increase the validity of this report I understand the need to increase the number of respondents to enrich the overall picture of innovation at the location.

4. Results

This chapter will present the results and findings from interviews, beginning with categorization of results followed by a bullet list of the conditions that respondents stated during sessions.

4.1 Positive reflections

Respondents mentioned the fact that the environment is a great public area, perfected for venues and possibilities for unexpected meetings. The creative areas turn the minds of individuals into suitable modes for innovation and creation of new ideas. The possibilities for networking and unexpected meetings were something that respondents to some degree got excited about. The common argument was that the unexpected meetings could result in new business opportunities and relationships across industries as actors interconnect. One of the respondents saw the matter as Science Parks as enablers, which can be defined from the unexpected meetings and cross industry openings. The same respondent told a metaphor with regards to Science Parks. The respondents' metaphor can be described as a rain forest where the respondent stated that weeds need to present in order to have a real and genuine rain forest. This metaphor is more easily understood when someone picture the rain forest as a business environment where trees are the majors players in the market and weeds can be considered to be small or new ventures. Also, this highlights the fact that resources are close in proximity. The closeness in proximity was highly valued as knowledge or expertise in any area could easily be accessed through a phone call. Network and the access to specialized knowledge are core factors of the park. The connection and proximity to the local universities and the large companies create a feeling of dependability and reliability of the location.

Some of the respondents mentioned the fact that some of major Swedish institutions chose to be located is due to the proximity to projects and the positive outlook on the future. These institutions are bringing in large sums of governmental funds which also support various projects and ventures. The positive outlook was mentioned by several respondents, some even argued that Lindholmen is one of few places in Gothenburg that carries any positive future hope. The positive attitude is a belief that some share. Easy hierarchical structures lead to less friction and easy access to competent persons. A respondent wanted to state that there are a constant flow of

many ideas and innovative solutions to various problems. The same respondent continued to share that most of meetings were done together with developers, engineers, designers, and managers which are mostly represented in the park. Also, it was argued that there are very few people working in the banking or financing sector present with offices in the main building. Additionally, the respondent stated what is positive for innovation is to remove waste items, strive towards lean innovation to decrease the friction of realizing new ideas. One of the most convincing arguments was to facilitate innovation as much as possible and decrease barriers for innovation to take place. One of the respondents jokingly stated; build it and they will come. The joke relates to if investments take place in a certain area, people will show up and utilize resources.

Another very valid argument is that people have the perception that companies and individuals are present at the science park to do business. The network and close proximity to knowledge offers enough to meet the demands of entrepreneurs. The interactions and arrangements of seminars and projects benefit the trademarks of smaller organizations and ventures. Areas of focus are positive by the means of expertise and industry related actors who are present and gathered in one location. One respondent wisely said – here we have no pressure to innovate. A common theme from respondents was the statement of a continuous effort to challenge previous frameworks and push beyond present limits.

4.2 Negative reflections

The levels of intensity and interactions during evenings and weekends are very low according to one respondent. Respondent felt that the lower levels show proof of possible improvements in the utilization of the property.

Another respondent stated that there is somewhat of a pipeline effect taking place at the park. This means that consultants often take on projects and as a project begins to reach the end consultants argue and sell another service to the same customer. The triple helix model that Lindholmen Science Park is marketing on their webpage is more or less just a vision and dream rather than a reality according to a respondent.

A different respondent stated that the difficulty to access funds makes it harder to realize new ideas. Same respondent specified that a plan economy creates a territorial mindset among the actors. This phenomenon leads to competition between actors instead of the possibility to create something greater together. Additional, it is hard to determine who and which projects that should be funded as official's lack of knowledge tend to result in wrong priorities.

In addition to previous points there are regional political situations that affect, according to a respondent, innovation in a negative way. The respondent chose to describe this as the "Stockholm syndrome". The syndrome is not to be confused with a hostage situation. It is rather described as an invisible force that people outside Stockholm can describe as a barrier to get and receive attention. This problem inhibits start-ups as limited amounts of funding only reach a limited number and appropriate ventures that are in need of them.

4.3 Results categorized and paired together

The following table pictures the results listed and position in their separate category. The table is presented to give a better understanding of items found in each type.

Positive	**Negative**
• Great public area for unexpected meetings. • Creative area and environment, suitable for innovation. • Unexpected meetings lead to cross industry collaborations. • Distance proximity to expertise • Network and the access to specialized knowledge. • Closeness to national institutions. • The internal hope and positive future outlook. • Lean innovation – reduction of waste items. • No pressure to innovate	• Low levels of interactions and intensity during evenings and weekends. • Not utilizing the building to its full potential. • "Pipeline effect" – projects never end and same teams tend to always work together. • Triple Helix Model is a vision and not as much of reality as desired. • Difficulty to access funds – hard to realize new ideas. • A plan economy creates a territorial mindset among the actors. • National and regional political factors – invisible force with barrier to receive attention when located outside Stockholm.

5. Analysis

The analysis part of the thesis will include data observations that have been made and categorized into results compared with the established theory framework. The choice has been made to group results and findings in the analysis into three major categories for further examination and comparison with the previously mentioned framework. Additionally, a separate headline called "*Summary"* has been created where additional non-categorized items are included.

5.1 Network

The importance of network and proximity to other actors from a broad spectrum of industries has been appreciated to be highly valuable among participants in this study. There are several theories that support the element in discussion. Cluster theory supports the fact that companies decide to move closer to each other in order to draw from the benefits of talented individuals who share the motivation to drive innovation and economic growth. Actors in a network will become stronger as they attract and grow human capital among individuals in the specific network. It will results in improved competitive advantage against other actors who are competing in the same markets. (Florida, 2003)

Networking is crucial for businesses in today's globalized world. A firms ability to be groundbreaking and with other words innovative are key to improving one's competitive advantage, a characteristic that has increased in importance in recent years. (Cameron M Ford, 2000) It is also here where networking plays such important role. It opens new doors for innovation as individuals from various backgrounds can meet and share experiences. The possible cross-industry collaborations that are created from such activities give great opportunities for future ventures in both more established areas as well as in unexplored industries. (Christensen, 1997)

The use of networks and experience from other individuals can be supported by traced by (Hippel, 1988) who argues that innovation comes from the functional sources by the people who use or exercise a certain type of activity. When networking, people share ideas, explore avenues of opportunities and increase their understanding for activities of others. These activities are very well supported by (Drucker, 1998) who talks about the constant and purposeful search for

opportunities in ones existing environment. Opportunities and unexplored avenues can be found everywhere for the one who is searching, in some cases these can be discovered within the existing organization although others are found outside of ones existing working environment. Sometimes innovations are perceived to come from individuals with masterminds who seem to release new ideas every so often. However, what innovations really grow from is the clear picture of the mission along with set goals from the result.

In contrast to the positive picture that have been described with networks there are certainly a few weaknesses when using networks. Actors within a network may not share the same goals and therefore are only interested in certain parts of the innovation process. Also, a respondent pointed out the fact that a "pipeline effect" often takes place in the park. The mentioned effect explicate the scenario where cases are that the same actors often work on the same projects and teams rarely change from one project to another. This was often seen in projects where consultants where involved. It was considered that consultant had a hard time seeing the goal and outcome of a specified project and as projects approached deadline, consultants sold in new projects on top of current assignments. I believe that this somewhat negative aspect can be supported by (Sengupta, 2014) who describe a driver to innovation to be something that promotes an effort in order to later receive an award. An incentive to innovate can be a financial reward, recognition, a legal right and protection of ones innovations. The actions taken by consultants are clearly an incentive to later receive a financial reward as oncoming projects are positive for the sake of their own business. I think on the other hand that consultants deliver projects on time but likely to be very skilled on selling additional projects to customers.

The usage and interaction with one's network are clearly an activity that gives individuals and organizations a competitive advantage against others who are not using their network to the same extent. The capability to be located and have the possibility to interact with other actors at Lindholmen Science Park does raise opportunities from unexpected meetings and a creative environment that is suitable for innovation. The interaction process, how shared knowledge and knowledge spillover can affect innovation will be under further analysis in the next part of the thesis.

5.2 Knowledge

What we learn from using networks is that one can access knowledge and learn from experience of others by exercising networking. Respondents precisely pointed out that the network and the access to specialized knowledge was considered to be positive. I think that this was mentioned among respondents because it creates a feeling of safety as they know that individuals with expertise knowledge are close enough for immediate assistance when needed. A theory that truly supports this finding is that a major force which promotes innovation in some sectors is knowledge and the growth of one's knowledge base. Findings show that investments in R&D and knowledge capital have played a crucial role and driver of growth. (Sengupta, 2014) It may be a reason why the Science Park has seen such growth since its birth.

During interviews it felt like respondents wanted to market the enormous knowledge supply that is available at the park. Several times it was mentioned that the access to knowledge and people who holds expertise in their area represents the back bone of the whole Science Park. Understandable, innovation originates from businesses or individuals and require minds that focus their innovation on both needs and opportunities. (Drucker, 1998)

Knowledge drives innovation indirectly as a result of internal processes and the enhancement of the human capital; ultimately increased knowledge-bases cause economic growth through the development of new practices of technology and improved processes of production. (NICHOLAS, 2011) The theory is clearly boosting and supports the results from respondents who specifically point out the accessibility to knowledge and individuals with solid human capital foundations.

Understanding that knowledge connects and travels differently in various channels are fundamental to the meaning and role of the Triple helix model which was presented in the theoretical framework. The overall structure in Sweden is built on a strong educational system with research universities that have established relationships to the industry and public sectors create a solid foundation from which knowledge, and interactions can take place. Knowledge travels between the different institutions and interactions take place which are likely to be what is described by respondents. Acknowledged in a response is that the "Triple Helix Model is a vision

and not as much of reality as desired". However, my belief is that the triple helix model is in very full effect and working pretty well as another respondent acts as core of the model.

Additionally, the mindsets among the actors who are working in such context are that they are "there to do business". Therefore, I make the analysis that individuals and groups who are working and visiting the park are eager to bring up new ideas and solutions for problems that occur in tomorrow's business world. Science parks replicate the picture that innovations in technology grow from scientific research and that the environment at science parks can offer an accelerated setting for turning research into business. The accelerated setting normally includes a network of different actors, both private and publicly funded, whom which arrange resources that support the funding of new ventures, and openly back corporate spin-offs. (Westhead, 1997)

Finally, the network and close proximity to knowledge creates a surplus supply large enough to meet the demands of creative entrepreneurs. By observation, Lindholmen Science Park is a very pleasant place with unexpected interactions, and arrangements of seminars and projects which benefit the trademarks of smaller organizations and ventures that are located on the premises. Areas of focus are positive by the means of expertise and industry related actors who are present and gathered in one location. The final words of this section bring us to the importance of location and what the respondents had to say about the topic.

5.3 Location

Location can be among the most valuable attributes when making appraisals on property. The same is true in the business world. As previously mentioned it has been a historic skepticism toward the action of living and working on Hisingen where Lindholmen Science Park is located today. The area was previously characterized by marine and shipping industries, and as those businesses disappeared have opportunities unwrapped for innovation and new philosophies.
As Ericsson chose the location of its office for their Mobile Data Design unit the area has become very attractive. Besides to the move and building of a new office, Ericsson demanded the creation of a new information technology cluster on Lindholmen. When such large and well-known company chose the location it increased the credibility and reliability of the place. It was the birth of a future hotspot and national arena for a few industries that have its hub in Gothenburg.

A respondent explicitly stated "- it feels like Lindholmen is one of few areas in Gothenburg where people have a hope for the future. Here we have a positive outlook on development." I think that this statement can be related to the theories about cluster areas and how involvement in activities allows companies and actors to operate with more productivity when obtaining inputs for production. Access to information, expertise, desired national and regional institutions matched with related companies are among items that create the mix for measured and motivated improvement. As clusters often signal opportunities for growth it reduces the risk for future relocation of employees which are likely to result in the attraction of talented and skilled workers. (Porter, 1998) The importance of location can be linked to the access of knowledge and how such short proximities between actors ease the innovation process. The fact that such findings claim an uncomplicated innovation process is to be debated. My own belief is that there are too many elements that play a role which affect such process and which outcomes that can be reached.

Furthermore, I find it interesting when one of the respondents talked about national and regional political factors. It can be described as an invisible force with barriers to receive attention when one is located outside Stockholm. The respondent continued to refer to how he, based on experiences, pictured that when being on events and uttering on what he represented have a major impact on his activities and likelihood to receive attention. For example, less attention or devotion has been given when stating that he is located in Gothenburg compared to when he

explicitly declares that he represents a national science park. On the positive note is this phenomenon mentioned in the theory section on how the Swedish government and other state organizations have announced regionally designed targets in order to make possible changes in the physical infrastructure which will support the economic development in local areas.

I would say that the location of Lindholmen Science Park is very exciting and the whole area breathes of flourishing feelings. It is closely located to several schools of various levels and high-tech companies that are major players in international markets. All these observations can be supported by research which indicates that firms located in close proximity to a science park are more likely to have a link with local academic institutions than those firms who are located outside of a park. (Hans Löfsten, Science Parks and the growth of new technology-based firms—academic-industry links, innovation and markets, 2002) A reason why previously stated feelings are experienced can be related to the people on the premises such as competent managers, and decision-makers who are able to evaluate the potential benefits of collaboration with academic institutions and other actors that are present in such environment.

To conclude the location analysis I would like to state that location is noticeably very important for everyone who is utilizing the park. The historical mindset of living and working in areas where marine and shipping industries previously took place has been overcome. Today the location has a totally changed feeling where most people have a positive outlook on the future. The takeaways from this part are the changed mindset of location, how a shared positive outlook create a positive atmosphere, and how being located together with governmental organizations, institutions, and large corporations create a melting pot of interesting actors.

5.4 Summary

Multiple items are recognized from empirical findings which have not been touched upon in previous parts of the analysis and will hence be further explored here.

An interesting argument that was raised during an interview was the open statement that at Lindholmen Science Park he experience "lean innovation". Further explanations followed and it was described as a reduction of waste items that are likely to hamper innovation. There was never a really clear and pictured answer of what such items could be, but if I speculate it could be items such as unnecessary meetings and enhanced empowerment throughout organizations on the location. Noted are the statements "simplify and lubricate", and a "build it and they will come mentality" which address actions for stimulation of innovation activities. I believe that such actions are crucial since many innovative ideas grow from simple solutions. Since the park is actively trying to decrease barriers for innovation, offers simplified structures and processes which create an inspiring environment to work within. This observation is also supported by Löfsten's theories and how attitudes and enthusiasm of the people inside ventures is a key factor for achievement. Additionally, the added value that a science park brings to firms is not to be underestimated as the added value is partly an outcome of the previously mentioned activities.

Certainly positive is the statement made by another respondent who wisely said "– here we have no pressure to innovate." The confident and competitive announcement gives an indication that there is no exact demand for innovation at such science park. On the other hand, the asset and availability of having national organizations that have certain goals and are on the pursuit for solutions on social problems create to some degree a demand for innovations. The statement is not directly supported by theory; however, it can be linked to the triple helix model and how interactions with desired national and regional institutions matched with related companies are among items that create the mix for measured and motivated improvement. (Porter, 1998)

In disparity to the more positive notes there are other observations that cannot be supported or found in the theoretical framework. Low levels of interactions and intensity during evenings and weekends are according to a respondent hindering innovation. The respondent argued that innovation can grow from unexpected meetings and there are no such interactions taking place outside of regular working hours. One could say the building is not being utilized and used to its

full potential. It is understandable that there may perhaps be additional costs of increasing activity outside of the regular working hours but one shall keep in mind that such increased cost may not result in innovations that are efficient or earns enough to cover the additional cost.

In addition to the activities outside business hours are respondents' explicit difficulties to access funds which make it hard to realize new ideas. Finance and access to capital is an evident effect on level and speed of innovation which also affects economic growth. (NICHOLAS, 2011) I find the statement to be somewhat abnormal. It is understandable that there are limited funds within a nation and people with a dedicated interest in specified industries. However, investments in R&D and knowledge capital have been a crucial role and driver of growth. (Sengupta, 2014) The likelihood of investment opportunities should therefore be fairly high as multiple large organizations are present on location. Another engine for improved access and flow of funds are increased collaboration between the industry, academic world, and the public sector. It is important that the nation keeps working with the development of creating a competitive innovation climate as this will result in more competition. Principles of the Swedish innovation policy are to have broad innovation investments, openness and possibility for international cooperation, quality and relevant research followed by systematic evaluation. (Vinnova, 2013)

Additionally, related to the possibility to access funds a respondent said that a plan economy creates a territorial mindset among the actors. It can be described as whenever someone receives funds for a project one is very cautious with actions and do not want to involve external actors in their project. The statement was followed by another claim which refers to the lack of understanding by decision makers which leads to less satisfied allocations of funds to applicants. Controversial said it is often the applicant that writes the best proposal and presents the need for funds who most of times receive funding. Since breakthroughs in technology can be hard to understand it is challenging to implement any other process when applying for funds than existing methods of proposals and presentations.

Conclusively, there have been multiple positive and negative pieces that have been discovered through empirical studies. The most recognizable are network, knowledge, and location. There are as mentioned previously a number of factors that affect the perception of respondents and to what extent they chose to openly express their experiences and opinions with me.

6. Conclusion

The purpose of this thesis was to find and identify what conditions that are perceived to stimulate and hamper innovation at Lindholmen Science Park. The personal interest in finding and understand what items that affect a situation or location are valuable personal gains for future endeavors. The element that different conditions can be identified and considered positive at one location may not be valued similarly at another. Based on that have my research questions been:

- ***"What conditions are perceived to stimulate innovation at Lindholmen Science Park?"***
- ***"What conditions are perceived to hamper innovation at Lindholmen Science Park?"***

Through interviews and observations have respondents stated that network, knowledge and proximity to expertise individuals, and location among those conditions that are considered to be perceived to stimulate innovation at Lindholmen Science Park. Validity of these findings has been supported by theories and is reflected to be stimulants of drivers that encourage innovation.

The perceived items that are seen as hampers to innovation are the utilization of premises outside of regular business hours, difficulty to access funds, national and regional political factors where invisible forces create barriers to receive attention when one is located outside Stockholm. Additionally there are several views on how well the Triple helix model works, and how a plan economy creates territorial mindset among the actors.

Finally, the science park is a melting pot of actors and organizations with a business mindset who are motivated to push previously set boundaries and create new frameworks from which industries and actors can work within. It offers enough knowledge and assets to meet the demands of tomorrow's entrepreneurs and innovators.

6.1 Future research

Takes that are interesting to go more into depth to are the items that are recognized in the study and what affects these have on a firm or individual level. I think that it would exciting to study entrepreneurs who have used these types of science parks and estimate their level of satisfaction from using incubators and the likelihood of using science park again if they had the opportunity.

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Appendix 1

Interview questions

1. Who are you and what background do you have?

2. How long have you been working at Lindholmen Science Park?

3. Please describe how your tasks are related to innovation?

4. What would you identify and consider being positive for innovation at this Science Park?

5. What would you identify and consider being negative for innovation at this Science Park?

6. Do you have any additional thoughts or opinions that you would like to express with regards to innovation and the upbringing of new ideas?