Reducing Ambiguity in the Fuzzy Front End for Internal Corporate Ventures

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DIVISION OF INNOVATION ENGINEERING | DEPARTMENT OF DESIGN SCIENCES
FACULTY OF ENGINEERING LTH | LUND UNIVERSITY
2018

MASTER'S THESIS

Reducing Ambiguity in the Fuzzy Front End for Internal Corporate Ventures

A Case Study on a Global High-Tech Company

Emmy Malmqvist and Hanna Krokström

LUND
UNIVERSITY

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Published by

Department of Design Sciences
Faculty of Engineering LTH, Lund University
P.O. Box 118, SE-221 00 Lund, Sweden

Subject: Innovation Engineering (INTM01)
Division: Innovation Engineering
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Abstract

Innovation is a widely known concept which has received increased importance in today's organizations. Attention has especially been directed to the initial phases of the innovation process, commonly referred to as the *Fuzzy Front End* (FFE). Managing the FFE effectively, has become essential in the development of innovative products, since it can reduce cycle times and costs related to product development. However, due to the fuzzy and insecure nature of this phase, it is hard for companies to successful manage the FFE. Another emerging trend, is that of many companies seeking inspiration from external startups to find new ways to be innovative. For example, corporate venturing programs have been established to drive projects like startups, *internal corporate ventures* (ICVs). Nonetheless, the culture, climate and context of an external startup are different from the ones of an internal corporate venture, which has an impact on the possibility of an ICV to act like a startup.

The purpose of this study is to increase the understanding for how to decrease ambiguity in the FFE for ICV. As this research has been conducted as a case study, this master's thesis furthermore aims to provide recommendations to the case organization - the *Global High-Tech Company* (GHTC). The theoretical background has been used to construct a conceptual framework, which constitutes the basis for the empirical data collection as well as the data analysis. The data collection consisted of a case study and a benchmarking study. The findings from these have been compared to contrast similarities and differences between the two startup-like companies, when it comes to enablers and challenges in the FFE.

From the analysis, eight key enablers have been identified, which could reduce the fuzziness for ICVs in the FFE, namely:
Usage of partnership, Usage of networking, Usage of pivoting to develop and refine ideas, Engagement of customers in the product development, Validation with others than customers, Usage of a proof of concept, A team with all necessary competences, An appropriate degree of formalization and *Clearly defined goals.*

Keywords: Innovation process, Fuzzy Front End, Internal Corporate Ventures, Startups

Sammanfattning

Innovation är ett vidkänt koncept som har fått ökad betydelse i dagens organisationer. Uppmärksamhet har framförallt riktats till de initiala faserna av innovationsprocessen, kallade *Fuzzy Front End* (FFE). Att hantera FFE effektivt har blivit nödvändigt i utvecklingen av nya innovativa produkter, eftersom det kan minska cykeltider och kostnader relaterat till produktutvecklingen. Det är dock svårt för företag att hantera FFE på ett framgångsrikt sätt, på grund av dess osäkra och oklara natur. En annan framväxande trend är att många företag söker inspiration från externa startups för att hitta nya sätt att vara bedriva innovationsarbete. Så kallade corporate venturing program har bland annat etablerats inom större företag för att driva projekt likt startups (eng. *internal corporate ventures*, ICVs). Dock finns det stora skillnader vad gäller kulturen och klimatet hos samt kontexten för en extern startup och ICVs, vilket kan påverka möjligheten för en ICV att agera som en startup.

Syftet med denna studien är att öka förståelsen för hur otydlighet kan minskas för ICVs i FEE. Studien har utförts som en fallstudie, varpå studien ämnar ge rekommendationer till fallföretaget benämnt *Global High-Tech Company* (GHTC). Den teoretiska bakgrunden har använts för att ta fram ett konceptuellt ramverk, vilket utgör utgångspunkten för den empiriska datainsamlingen och följande dataanalys. Datainsamlingen består av en fallstudie och en benchmarkingstudie. Dataunderlaget har jämförts för att illustrera likheter och skillnader mellan de två startup-liknande företagen, när det kommer till möjliggörare och utmaningar i FFE.

Från analysen har åtta stycken huvudsakliga möjliggörare identifierats som sätt att minska osäkerheten och oklarheten i FFE för ICVs, nämligen: *Användande av partnerskap, Användande av nätverkande, Användande av pivotering för att utveckla och förfina idéer, Involvering av kunder i produktutvecklingen, Validering med andra än kunder, Användande av en prototyp, En lämplig formaliseringsgrad* samt *Tydligt definierade mål.*

Nyckelord: Innovationsprocessen, Fuzzy Front End, Internal Corporate Ventures, Startups

Acknowledgments

This master's thesis has been performed as the last part of the Master of Science in Engineering program in Industrial Engineering and Management at the Faculty of Engineering at Lund University. It comprises 30 out of the program's total of 300 credits.

First of all, we would like to thank the case organization for giving us the opportunity to write our master's thesis in collaboration with the company. It has certainly been a great experience for us to spend this time at the firm and we have learnt a lot during these months. Foremost, we would like to direct a warm thank you to our mentor at the case organization, Evert Nilsson, for your help and feedback during this thesis work and for supporting us through our iterative working process.

Next, we would like to thank all the individuals, both in the internal corporate ventures and the external startups, who have contributed to this study by sharing thoughts and experiences with us. It has been invaluable, interesting and most importantly inspiring. We appreciate that you have taking your time to participate in the interviews and hope you feel that it has been meaningful. Talking with you and listening to your journeys have definitely been one of the highlights of our research!

We would also like to thank our peer-students at the GHTC, Amanda Österling and Ebba Rundquist, for your positive energy, hilarious times and unforgettable discussions!

Finally, we would like to express our sincerest gratitude to Susanna Bill, our advisor at the Faculty of Engineering in Lund, for your support, encouragement and valuable feedback. It has made us constantly improve this thesis and see new perspectives. Also, thank you Malin Olander Roese for your great insights and feedback on the final draft.

Lund, May 2018
Emmy Malmqvist and Hanna Krokström

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1 Introduction

The Introduction chapter aims to give the reader a background to the research field, in order to create an understanding for why the study has been conducted and why it can be considered relevant. Moreover, the purpose and aim of the study is defined and the research questions as well as the delimitations are presented. Finally, the disposition of this article is explained.

1.1 Background

Innovation is a widely known concept which has received increased importance in today's organizations. More specifically, attention has been directed to the initial phases of the innovation process, commonly referred to as the *Fuzzy Front End* (FFE), when it comes to improving companies' innovation work (Ho & Tsai, 2011).

Innovation generally refers to the introduction of something new with the purpose of increasing value or solving problems (Mohr, Sengupta & Slater, 2010; Greenwald, 2014; Wadström, Schriber, Teigland & Kaulio, 2017). Furthermore, it is a key element for a firm's superior performance and its importance to the wealth of organizations is being emphasized. Research shows, that innovative companies in general have a greater profit and better opportunities to survive in the long-haul, due to their ability to adapt to globalization and rapid progress of new technologies (Wadström et al., 2017). Furthermore, the ability to create new products has become a pre-requisite for the long-term survival of high-tech industries (Ho & Tsai, 2011). Innovation can be carried out in large corporations, by for example research and development departments or through corporate venturing, but also in smaller companies such as startups (Becker & Gassmann, 2006; Chesbrough, Van de Vrande & Vanhaverbreke, 2008; Kohler, 2016).

Even though larger organizations have plenty of valuable resources for investing in innovation, they still lack prerequisites, which make them less innovative. For example, in contrast to small companies, larger corporations are often hindered by non-flexible bureaucratic structures that restrain the possibilities to have a creative culture (Cohen & Klepper, 1996). Therefore, an emerging trend is that of many companies seeking inspiration from small, new and flexible ventures, also known as startups, further on referred to as *external startups* (Weiblen & Chesbrough, 2015; Kohler, 2016). Today, external startups are a major source of innovation and

they are competing with large and well-known actors with their innovative products (Kohler, 2016). According to Steve Blank, cited by Ready (2012), "*a startup is a temporary organization designed to search for a repeatable and scalable business model*". Examples of initiatives from larger corporations to connect with startups are: corporate venturing (e.g. corporate incubators or accelerators), labs, startup competitions and hackathons. These initiatives provide an instrument for larger organizations to explore new and adjacent business models outside their core business (Weiblen & Chesbrough, 2015; Kohler, 2016). When it comes to corporate venturing for innovating new businesses and business models, an *internal corporate venture* (ICV*)*- an internal project driven as a startup, has become a more commonly mentioned and used phenomenon (Chesbrough, 2014). In contrast to external startups, ICVs have support from a parent company, from which the members constituting the team belongs to (Karhukorpi, 2017).

No matter if it is a startup or an initiative from a large corporation, the launch of a new enterprise could be everything from a success to a failure (Blank, 2013; Edison, Smørsgård, Wang & Abrahamsson, 2018). In literature, the innovation process is often depicted as a journey of critical decisions with the goal to develop initial ideas into successful businesses (Dornberger & Suvelza G, 2012). However, the way the process is described has changed throughout the years, from a sequential linear process to a more complex and iterative one. No matter viewpoint, research agree on the fact that the initial stages of the innovation process are uncertain and ill-defined (Kim & Wilemon, 2002). Therefore, these stages in literature are referred to as the Fuzzy Front End (Koen et al., 2002; Tate, Bongiovanni, Kowalkiewicz & Townson, 2018).

The FFE is the first stage of the innovation process where ideas, concepts and business cases are defined before the product development process begins, i.e. when the assessment of the idea or concept is made. Managing the FFE effectively, has become essential in the development of successful innovative products, and furthermore it involves activities enhancing the sustainable competitive advantage in the high-tech industry (Ho & Tsai, 2011). Moreover, the FFE is vital for innovation success and better management reduces development cycle times and costs related to product development (Korityak & Cao, 2010; Stevens, 2014; Raphael & Chijioke, 2017). In high-tech environments, which are highly competitive, the apparent front-end fuzziness may lead to distraction, deviation from strategic goals, creation of hinder in the decision-making process, as well as prevention of the availability of accurate information to the project teams (Ho & Tsai, 2011).

Even though the importance of the FFE is emphasized for all types of organizations for successful innovation, there is an existing gap in literature when it comes to factors contributing to a less ambiguous front end for ICVs. The FFE is often described from the perspective of larger corporations or the size of the company is excluded (e.g. Khurana & Rosenthal, 1998; Koen et al., 2002). It is therefore, both

interesting and relevant to explore the initial phases of the innovation process for ICVs in larger corporations, and further investigate if it is possible to decrease the fuzziness in the front end for these startup-like companies by taking inspiration from external startups.

1.2 Background Case Study Organization

The case study organization in this thesis is a *Global High-Tech Company*, hereby referred to as the GHTC, located in Sweden with a global headquarter. The GHTC operates within industries of an innovative character, which due to rapid changes in technology have become highly competitive (Mohr et al., 2010). To adapt to the emergent trends on the market and to remain competitive, the GHTC has begun to carry out innovation through corporate venturing with the aim to find new ideas, both within and outside their current business areas (Company website, 2018). The corporate venturing programs, also referred to as funding tracks, are fairly young initiatives. Thus, efforts to strengthen the programs and to make them more robust are made on a continuous basis. In order to be able to develop and further refine their processes, they have realized that they need to increase their knowledge about the way external companies, more specifically startups, conduct innovation. The fact that the GHTC is a large high-tech organization with ICVs, requesting a more robust innovation process, makes it interesting to include the company in this research.

1.3 Issue of Study

Innovation has become an increasingly important matter for organizations. As mentioned above, larger corporations try to learn from and seek inspiration from startups and startups' way of working, which has led to the emergence of corporate venturing. One of the most important and still most difficult parts of the innovation process is the FFE, which is related to the uncertainty and ambiguity in the early stages of the innovation process. The importance and vitality of the FFE is pointed out, since better management of the FFE leads to reduced costs, reduced time to market, less failures and also a better foundation for the evaluation of new business ideas. When it comes to large corporations the FFE and its activities are defined, and critical success factors have been identified. However, there is an existing gap in literature in regard to the FFE for small companies and how the FFE could be designed to decrease the ambiguity in the initial stages of the innovation process.

The GHTC has recently started to work with internal corporate venturing, through their ICVs. Now, the GHTC would like to improve their corporate venturing,

especially in the initial stages of the innovation process. Furthermore, they are interested in evaluating their performance and gain insight into ways to reduce development costs and failures in their processes. Their knowledge about the external environment- other companies' way of working and best practice, is limited and focus is mainly on the internal work.

1.4 Purpose

The purpose of this master's thesis is to increase the understanding for how to decrease ambiguity in the Fuzzy Front End for internal corporate ventures. More specifically, this master's thesis will focus on the internal corporate ventures at the Global High-Tech Company.

1.4.1 **Research Questions**

To cover the overall purpose of this master's thesis, the purpose has been broken down into the questions stated below.

Research question 1: What are key enablers for a less ambiguous Fuzzy Front End?

Research question 2: What are challenges related to these key enablers?

Sub Question: What are differences and similarities between internal corporate ventures and external startups regarding enablers and challenges in the Fuzzy Front End?

1.5 Delimitations

Since this project is conducted as a master's thesis, the project is limited to a timeframe of 20 weeks, which has impacted the choice of project scope, research questions and furthermore the delimitations of this thesis.

Due to the limitation, this paper will not result in an actual implementation plan for the GHTC, but suggestions and recommendations on where the GHTC could direct its focus in order to refine and improve the innovation processes for their ICVs. In order to increase the relevance of the recommendations provided to the case organization a single case study will be conducted.

To limit the number of interviews to an adequate number suitable for a 20-week project, only the team leaders for the ICVs in the late *Concept phase* or in the *Incubation phase* of the innovation processes at the GHTC have been interviewed, see *4.1 Introducing the Case Study Organization*. It could be argued that interviews should be carried out with all team members, since this approach may provide more extensive insights, but due to the time limitation the above stated delimitation is set. Furthermore, a limitation of not including the third corporate venturing program, namely the funding track *Track 3*, in the case study has been made. This since the track launched a new strategic initiative in December 2017, which implied a new setup and design of the innovation work. Therefore, it has not been implemented long enough for the ICVs reaching the above mentioned phases. However, information about *Track 3* can be found in Appendix B. Furthermore, only external startups in Malmö and Lund have been interviewed. This delimitation implies that the data from the benchmarking study is dependent on this geographical context.

1.6 Disposition

Chapter 1 Introduction
The Introduction chapter aims to give the reader a background to the research field, in order to create an understanding for why the study has been conducted and why it can be considered relevant. Moreover, the purpose and aim of the study is defined and the research questions as well as the delimitations are presented. Finally, the disposition of this article is explained.

Chapter 2 Method
The Method chapter aims to introduce the reader to the methods that have been used for the study. The chapter presents the research strategy, the research design, the methods being used for data collection and data analysis. Furthermore, the chapter describes the overall work process and discusses the credibility of the study.

Chapter 3 Theoretical Background
The Theoretical Background chapter aims to give the reader an extensive theoretical background to the topic. It has been created through a literature study and is a compilation of previous research in the field. The chapter mainly focuses on Entrepreneurship, Intrapreneurship and the Fuzzy Front End. This chapter will be used to analyze the findings from the case study and benchmarking study.

Chapter 4 Case Study
The Case Study chapter presents the result of the case study. It comprises an introduction to the case organization as well as a description of its innovation work and processes. Furthermore, the opinions of the different ICVs at the case organization related the critical themes identified in the conceptual framework are discussed.

Chapter 5 Benchmarking Study
The Benchmarking Study chapter presents the result of the benchmarking study. It comprises an introduction to the external startups that have been interviewed for the benchmarking. Furthermore, the opinions of the different external startups related the critical themes identified in the conceptual framework are discussed.

Chapter 6 Analysis
In the Analysis chapter the findings from the case study and the benchmarking study are analyzed in regard to the critical main themes in the Conceptual Framework, chapter *3.7 Summary of Theory & Conceptual Framework*. Comparisons with previous research conducted in the field will also be presented. The aim with this chapter is to identify key enablers for reduced ambiguity in the Fuzzy Front End, by using the analysis model described in 2.4 Data Analysis.

Chapter 7 Conclusion
The Conclusion chapter provides answers to the research questions formulated in chapter *0 Introduction*. Furthermore, recommendations to the case organization, based on the findings in this thesis, are presented. Lastly, the conceptual framework, which has been the basis for this research, is discussed as well as suggestions on areas for future research.

2 Method

The Method chapter aims to introduce the reader to the methods that have been used for the study. The chapter presents the research strategy, the research design, the methods being used for data collection and data analysis. Furthermore, the chapter describes the overall work process and discusses the credibility of the study.

2.1 Research Strategy

This master's thesis has been conducted with a qualitative approach as an overall research strategy. A qualitative approach, in contrast to a quantitative, proceeds from the perspective of the studied population (Hennink, Hutter & Bailey, 2011) and is preferably used when studying unknown issues (Edmondson & McManus, 2007). A qualitative research aims to address the questions *why* and *how*, questions that are closely aligned with the research questions of this master's thesis. Further on, the strategy also focuses on gaining deeper understanding of complex problems or new topics (Hennink et al., 2011). The strategy is of a field-based nature, implying that data are collected by conversing and studying people (Yin, 2016). This way of collecting data, has been the most commonly used method in this thesis.

This master's thesis has been conducted with abductive reasoning as a research approach. The choice of research approach, is often a consideration between theory and empirics. There are mainly two methods being used: either inductive or deductive reasoning. The inductive reasoning proceeds from the collection of data, from which more general and theoretical conclusions can be drawn (Wallén, 1996). In an inductive approach, the collected data tend to lead the emergence of a concept and further on the development of a theory (Olsson & Sörensen, 2011). This approach is preferably used when conducting a qualitative and explorative study (Yin, 2016). In deductive reasoning, on the other hand, hypotheses about the reality are derived from theory and are then tested empirically (Wallén, 1996; Olsson & Sörensen, 2011), which is more suitable in quantitative studies (Olsson & Sörensen, 2011). However, as this master's thesis is based on both a literature review and a qualitative study with interviews, both of the previously mentioned strategies are relevant. Furthermore, as been mentioned above, previous research within this field of topic have been focused on larger sized corporations, implying that the theory constituting the *3 Theoretical Background* is not explicitly adoptable on startup-like

companies. Hence, an abductive reasoning approach has been used to highlight the interplay between the inductive and deductive interface (Olsson et al., 2011). The conceptual framework presented in chapter *3.7 Summary of Theory & Conceptual Framework* should therefore not be seen as a checklist, but rather as a basis for discussion, shading light on interesting areas of the topic.

An abductive reasoning helps to map out a status analysis by adopting inductive inference, and by integrating the deductive approach the status analysis can be strengthen. Hence, abduction has its central point in the interaction between the theoretical perspective and the result of the interviewees' understanding of the reality (Olsson & Sörensen, 2011). Nonetheless, it is important to underline the fact that abductive reasoning has characteristics of its own and should not be reduced to a mix between the inductive and the deductive approach. One thing that differentiates abductive reasoning from the other two approaches, is that it focuses on understanding (Alvesson, 2017), which will be central in this master's thesis. By adopting this inference, this master's thesis will have an interaction between a theoretical perspective and the interpretations of the interviewees (Olsson & Sörensen, 2011).

Finally, this study has taken an exploratory approach, which is commonly used to gain basic knowledge about a certain problem, answering questions such as *what*, *when*, *where*, *how* and *in what context*, in order to generate new knowledge (Wallén, 1996). An exploratory approach is preferably conducted when the aim, for example, is to seek new insights, assess a phenomenon in new light or generate ideas and hypotheses for future research (Robson, 2002). Since this thesis aims to advance the existing knowledge about the FFE to decrease the ambiguity for ICVs in the initial stages of the innovation process, an exploratory approach is suitable for this project.

2.2 Research Design

A case study design has been adopted as the overall research design for this master's thesis. In short, when conducting a case study, the aim is to develop an in-depth analysis of a single or multiple case through multiple sources, such as documents, interviews and observations (Lekvall & Wahlbin, 2001; Robson, 2002).

This master's thesis has been conducted with a single case study design, with focus on the GHTC. According to Stake (1995), this design is preferably used when the case object itself is interesting and complex, since it illuminates the researcher's understanding. This is relevant for the case organization of this thesis according to *1.2 Background Case Study Organization*. Furthermore, this research design is often applied when conducting an explorative research with the purpose of gaining

detailed insights of the processes within the examined object, which corresponds the research strategy of this paper.

Case studies typically collect data through various of methods, such as interviews, surveys and observations (Eisenhardt, 1995). In this thesis, interviews have primarily been used for the data collection. When applying a case study design, it is important to establish relationships with the interviewees, as it is often necessary to complement the initial interview with another one to deepen the knowledge within an interesting focus area. By gaining a greater trust with the interviewees, the chances of receiving more valuable answers increase (Lekvall & Wahlbin, 2001). As this thesis largely depends on qualitative data from interviews, the authors initially held informal interviews with various employees to establish relationships and create trust for future interviews.

Finally, case studies aim to achieve various objectives, such as provide descriptions, test or generate theories. They can also be used to determine whether a theory's propositions are correct or if there are any other more appropriate explanations (Yin, 2009). For this paper, the aim of the case study design primarily is to provide descriptions and to generate theories.

2.3 Data Collection

The nature of the collected data could either be quantitative or qualitative (Höst, Regnell & Runeson, 2006). When a phenomenon that is not well understood is studied, qualitative data is the most suitable (Edmondson & McManus, 2007). To achieve the purpose of this master's thesis, qualitative data will be used. Collecting qualitative data is a matter of interviewing people, who may know something relevant to the study, or by observing a phenomenon in a certain context and draw conclusions with the newly gained knowledge (Minichiello & Kottler, 2009). In this study, data has primarily been gathered empirically from interviews. However, a literature review has been conducted initially to deepen the knowledge within the research field.

2.3.1 **Literature Review**

The literature review was performed in several steps.

First, a selective review was conducted in order to create a foundation for the future work, build an understanding for the research field and sharpen preliminary considerations regarding the topic of study, which is an approach suggested by Yin (2016). This was performed in order to formulate the purpose, research questions

and to support the following data collection. The initial literature review helped the authors to distinguish the particular focus of the research and identify where new knowledge could be added to the field of study, according to Hennink et al. (2011). Electronic research was performed in scientific databases such as Google Scholar and in the Lund University library database LUBSearch. The key words being used for this initial search were primarily "Innovation", "Startup", "New Product Development", "Fuzzy Front End", "Front End of Innovation", "Internal Corporate Ventures", "Large Corporations" and combinations of the listed key words.

The second step of the literature review, concluded in *3 Theoretical Background*, was more comprehensive, with the purpose of gaining a broader perspective and understanding of what is currently known about the topic - greater details about previous studies directly related to the topic of study (Yin, 2016). More specifically, the research has primarily been focused on three areas: *Entrepreneurship*, *Intrapreneurship* and *the Fuzzy Front End.* The data was collected using the databases: Google Scholar, LUB Search and Ebscohost. The literature being used, mainly consisted of peer-reviewed articles published during the 21st century.

Lastly, a conceptual framework was created to illustrate the focus of the study, with the objective to indicate the importance of the research topic (Yin, 2016), see chapter *3.7 Summary of Theory & Conceptual Framework.* Furthermore, the conceptual framework provided structure and focus to the study and helped to further refine the research questions (Hennink et al., 2011).

2.3.2 **Empirical Data Collection**

The empirical data has been collected through in-depth interviews. Furthermore, focus has been directed to a few and strategic sampled interviews. The number of interviews has been affected by limitations in resources and time. In total, nine external startups and seven ICVs have been interviewed in order to answer the research questions.

In-depth Interviews

Interviews are suitable to deepen the understanding of events, generate rich descriptive data and learn more about a specific context. However, the fact that they involve personal interactions, makes the willingness and engagement of the participant, as well as the interpersonal skills of the interviewer, essential (Rossman & Rallis, 2017).

An in-depth interview is a one-to-one method, aiming to discuss a topic in-depth. Hence, it could be described as a conversation with a purpose (Hennink et al., 2011). The type of in-depth interviews, which this master's thesis has chosen to adopt, is

personal interviews - an eye-to-eye conversation between the interviewee and the interviewer. Personal interviews provide unlimited opportunities to ask different types of questions and to use different tools, such as pictures, diagrams or other illustrations. Preferably, the method should be used when aiming to conduct extensive and thorough interviews. Since personal interviews are time consuming, regarding man hours, this type of interviews should not be adopted when the examined population is too big (Lekvall & Wahlbin, 2001). All interviews in this master's thesis, apart from two telephone interviews, have been face-to-face interviews.

As a part of the preparation work for the interviews, the authors had a meeting with a Senior UX Researcher at the GHTC, with an interviewer background, to gain knowledge and become aware of aspects to consider during an interview for the best possible outcome. The recommendations were used in prior to and during the interviews. Furthermore, the interview guide, see Appendix A, was discussed with the Senior UX researcher to decrease the risks of explorer bias.

The interviewees were selected based on judgmental sampling, meaning that the selection criteria were decided in advance based on what could be interesting for this particular research. Judgmental sampling is commonly used in exploratory research when the aim is to do a deeper analysis of fewer examined units (Lekvall & Wahlbin, 2001), which is in line with the research strategy of this master thesis.

All of the interviews have been semi-structured. Semi-structured interviews are interviews with broader question areas, rather than detailed and exact questions. Furthermore, they are commonly used in qualitative studies. By adopting a semi-structured approach, a more natural conversation can be held with the interviewees with the aim to get the interviewees' opinions of the reality without the interviewer limiting the answers (Hedin, 1996). Moreover, the questions have been open ended to allow the interviewees to elaborate their responses.

The interviews were held in a language chosen by the interviewees, either Swedish or English. During the interviews, one of the authors of this thesis was responsible of taking notes and the other one for interacting and leading the interview. In total, each interview lasted for one hour.

Details for the different interview rounds: *In-depth Interviews with External Startups* and *In-depth Interviews with the Team Leaders of the ICVs at the GHTC*, are described below.

In-depth Interviews with External Startups

To gain a greater understanding for the challenges and possibilities an external startup experience in the FFE, nine in-depth personal interviews were carried out with the founder of different external startups. The aim with the interviews was

mainly to gain an understanding of what challenges and enablers the external startups have experienced in the early phases of their innovation journey, i.e in the FFE. Moreover, the objective was to explore how these challenges have been managed by the external startups. The result from the interviews constitutes the benchmarking study of this master's thesis, see 5 *Benchmarking Study*.

The selection criteria for the choice of interviewees were established together with the supervisor at the GHTC. Initially, the aim with the chosen criteria was to imitate the characteristics of the ICVs at GHTC. However, after some discussion the criteria were narrowed down to the following:

1. Being an external startup established in "Greater Copenhagen Area", located in Malmö or Lund.
2. Innovating a tech product in one of the following industries: *Industry and Production, Logistics and Transportation, Smart Buildings and Smart Cities* and *Health & Wellness*
3. Being in a growth/expansion phase

The first criterion was set to increase the likelihood of a face to face meeting. The second criterion was set to direct focus to external startups with similar products as the ICVs at GHTC, since the industries are the exact focus areas of one of the funding tracks at GHTC, see *4.1 Introducing the Case Study Organization.* Finally, the last criterion was set to target the external startups that had received some kind of market confirmation and hence could be seen as a successful external startup.

The interview guide used in the interviews, see Appendix A, is centered around the critical themes in the conceptual framework, see *3.7 Summary of Theory & Conceptual framework.*

In-depth Interviews with the Team Leaders of the ICVs at the GHTC

Similar to the interviews held with the external startups, the aim with the interviews with the ICVs was to gain an understanding of what challenges and enablers the ICVs have experienced in the initial phases of their innovation process. In total, seven interviews have been held with different ICVs. The result from these interviews constitutes the case study of this master's thesis, see *4 Case Study*.

The ICVs were selected based on a snapshot of the project portfolio at GHTC the 1st of March 2018, and the ICVs operating in the late *Concept* or in the *Incubation* phase at this point in time were chosen as interviewees. When conducting the interviews in this master's thesis, the authors have had both individual interviews and group interviews with the ICVs.

There are several benefits with arranging group interviews. For example, it might help to reveal consensus and it can make the respondents come up with richer

responses, as well as them challenging each other's opinions (Lewis, 1992). The choice of having group interviews in this thesis, was made to be able to take advantage of some of the above stated benefits. However, there are also some challenges and possible disadvantages of having group interviews. For example, group dynamics may limit the answers and the opinion of one powerful respondent may affect the opinions of the others (Frey & Fontana, 1991). Hence, the authors have cherished that all respondents have been active during the interviews. All ICVs at the GHTC are led by three types of roles, namely: Concept Leader, Business Leader and Tech Leader. Furthermore, all of these leaders for each of the relevant ICVs, were invited to participate at the interview. However, in the cases when all roles were not able to participate at the same meeting, interviews were held separately with the employees willing to participate.

The interview guide used in the interviews, see Appendix A, is centered around the critical themes in the conceptual framework, see *3.7 Summary of Theory & Conceptual framework.*

Compilation of the Interviews

After all of the interviews, the notes taken during the meetings have been read through thoroughly. Moreover, the authors have listened to the recordings from the interviews to complement and update the notes when necessary. The notes have then been overlooked and relevant parts have been attributed to a suitable critical theme in a summary. The compilation has been conducted separately for the external startups and the ICVs, resulting in two active documents, which have been updated after each interview.

These summaries have further on been used to identify key takeaways. Important to highlight, is that the authors have tried not to distort the interviews and put extra value on sayings. The key takeaways have then been mapped into different clusters under the different critical themes. This clustering activity has been conducted and revised by both of the authors. This breakdown has formed the foundation for the final data compilation, see *4 Case Study* and *5 Benchmarking Study*.

2.4 Data Analysis

The data analysis in this study has been inspired by the principles of *Grounded Theory*, which is a process for developing empirical theory from qualitative research by providing a set of guidelines and a process for textual data analysis (Glaser & Strauss, 1967). This approach has been used because it acknowledges the rigor of science, at the same time as it remains true to the interpretive nature qualitative analysis. Some of the principles that have influenced the data analysis are:

- *Data analysis is a circular process*- Implying that tasks sometimes have been repeated, overlapped and performed simultaneously.
- *Data collection and analysis are interlinked*- Furthermore, some analysis has been made alongside the data collection.
- *Constant comparison*- Comparisons have been used to both define and refine concepts.

(Hennink et al., 2011)

When analyzing the data from the literature review or the interviews, the greatest difficulty was to maintain a clear thinking to avoid biases, which according to Robson (2002) is a common phenomenon. Two of the deficiencies of the human as analysts which this study has considered in the analysis are the following:

1. *Ignorance of conflicting hypothesis* (Robson, 2002). The two researchers of this study have tried to be open to conflicting hypothesis when conducting the interviews and literature study.
2. *Ignorance of uneven reliability* (Robson, 2002). One common deficiency when conducting qualitative research, is the ignorance of the fact that some references are more reliable than others. In this study, the researchers have primarily used peer reviewed articles when compiling the *3 Theoretical Background.*

The conceptual framework, *3.7 Summary of Theory & Conceptual Framework*, has been the starting point in the analysis of the findings from the case study and the benchmarking study. The findings have been analyzed according to the authors' own analysis model, illustrated in Figure 1, in order to identify key enablers. Differences and similarities between the ICVs and the external startups have been compared in order to identify key enablers in the FFE for a more robust innovation process and challenges related to these. Furthermore, potential recommendations to the GHTC and topics for future research have been identified.

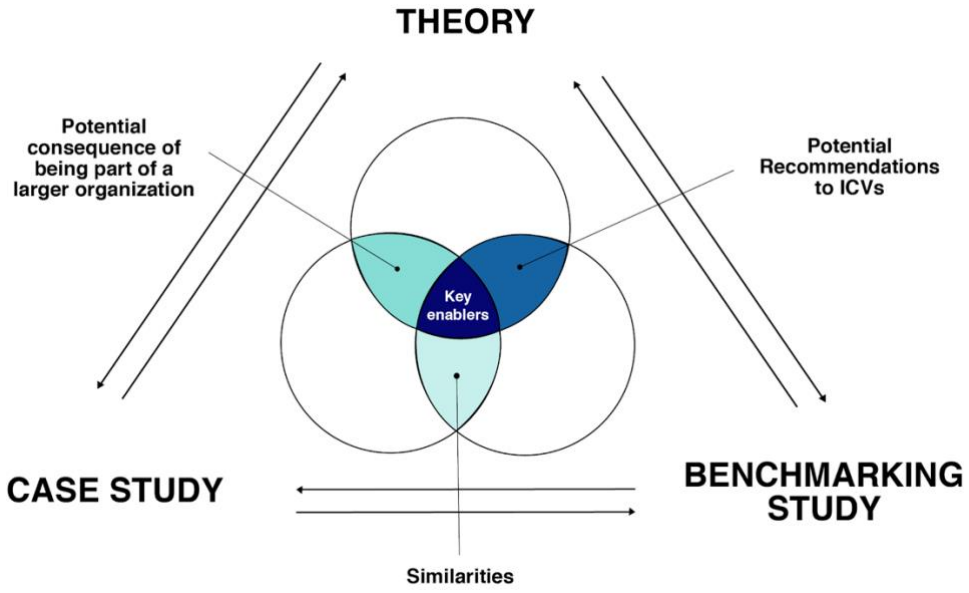

Figure 1 Model used for the data analysis developed by the authors

Description of the model

The intersections between the different sources of information- *Theory*, *Case Study* and B*enchmarking Study*, constitutes enablers for a more robust FFE. An enabler is a factor considered to contribute to less ambiguity and uncertainty by more than one of the information sources. Moreover, a key enabler is an enabler mentioned by all three information sources, which can be found in the middle intersection, referred to as the sweet spot, in Figure 1 above. Even though the model primarily has been used to identify key enablers, the other intersections also are of interest and have been discussed in the analysis. Below follows a description of the authors' interpretation of the intersections.

- *The intersection between Case study & Theory*- Enablers mentioned by the ICVs supported by theory. These are most likely associated with being a part of a larger organization. A discussion regarding these enablers will be held to evaluate whether they benefit or disfavor the ICVs.

- *The intersection between Benchmarking study & Theory*- Enablers mentioned by the external startups supported by theory. These are not mentioned by the ICVs, hence these could be basis for potential recommendations.

- *The intersection between Case study & Benchmarking study*- Enablers mentioned by the ICVs and external startups. These could to be an enabler related to the size of the company.

- *The sweet spot* - Enablers mentioned by both the ICVs and external startups and moreover supported by theory. These key enablers are likely to contribute to a more robust FFE.

2.5 Work Process

2.5.1 **The Qualitative Research Cycle**

The work process in this master's thesis has followed the qualitative research cycle presented by Hennink et al. (2011).

The execution of qualitative research can be illustrated by three interlinked cycles: the *Design Cycle*, the *Ethnographic Cycle* and the *Analytic cycle*. Together, these cycles constitute the qualitative research cycle, including the research design, the data collection and the data analysis. Throughout this cycle, there is an alteration between inductive and deductive reasoning. Furthermore, it is not a linear process, but rather a circular and iterative one, in which each task is checked towards the previous ones to ensure the fit or coherence between all components. The tasks in the different cycles are performed in a circular manner, but sometimes simultaneously to be able to continuously update and revise the tasks (Hennink et al., 2011).

The first component in the overall cycle, is the *Design Cycle* focusing on the conceptual phase of the research. This initial step includes the formulation of research questions, the review of literature and theory, the development of a conceptual framework, as well as the choice of fieldwork approach. Here, more of a deductive reasoning approach is being used. The second step is the *Ethnographical Cycle*, which focuses on the collection of qualitative data with an inductive reasoning approach. Furthermore, this cycle involves the actual data collection including the design of the research instruments and choice of interview participants. Lastly, in the qualitative research cycle, comes the *Analytic Cycle*, which comprises the tasks of qualitative data analysis. It involves activities like the development of codes and theory, the description and comparison, as well as the categorization and conceptualization of data. In this final phase, inductive reasoning is being used to reflect the grounding in the analysis and deductive reasoning is used to incorporating inductive theory or concepts into existing theory. All these tasks are closely related, and they are often conducted in a circular manner. The findings

from the analytical cycle are compared to the conceptual framework of the study. This last phase then links back to the *Design Cycle*. Hence, the qualitative research cycle is an iterative process, implying a need for the researcher to alternate between different phases depending on the data (Hennink et al., 2011).

2.5.2 The Working Process of this Thesis

In accordance with the qualitative research cycle, presented above, the purpose and research questions were formulated in the initial stage of the research. First, the purpose and theoretical background were developed, then the research questions were formulated alongside the development of a sampling strategy. However, all of these components have been rephrased and reformulated throughout the study, in order to sharpen the focus and increase the relevance of the study and its result.

The working process consisted of three different phases. Each of these phases are described below.

Phase 0: ***Theoretical Background***
The purpose of this initial phase was to develop a conceptual framework, to use in both the data collection and when analyzing the outcomes from both the case study and the benchmarking study. This was done through a literature study, where areas such as *Entrepreneurship*, *Intrapreneurship* and the *Fuzzy Front End* were explored.

Phase 1a: ***Case Study***
The purpose of this phase was to increase the understanding for what enablers and challenges the ICVs at GHTC experience in the front end of the innovation process, by using the critical themes. Therefore, interviews were held with team leaders of the project teams, i.e. both Concept leaders, Business leaders and Tech leaders, to get an understanding of the current situation and challenges experienced by the teams in the FFE. The findings have been analyzed in the analysis.

Phase 1b: ***Benchmarking Study***
The purpose of this phase was to increase the understanding for enablers and challenges, in the front end of the innovation process, by using the identified critical themes. This was done through in-depth interviews with external startups. The data derived from the interviews were analyzed and compounded in tables, visualizing enablers and challenges mentioned by the external startups. Furthermore, the deliverable in this phase has been used as an instrument in the following analysis.

Phase 2: Analysis
Thereafter, an analysis of the data with focus on differences and similarities between the result from the previous phases was conducted. A comparison of the enablers and challenges identified in the previous phases was made to provide further insights and complement the recommendations. The analysis has been summarized in a table illustrating the identified key enablers in the FFE, which further on has been used to answer the research questions in the final chapter of this paper, 7 *Conclusion*.

The overall working process for this paper is illustrated below in Figure 2.

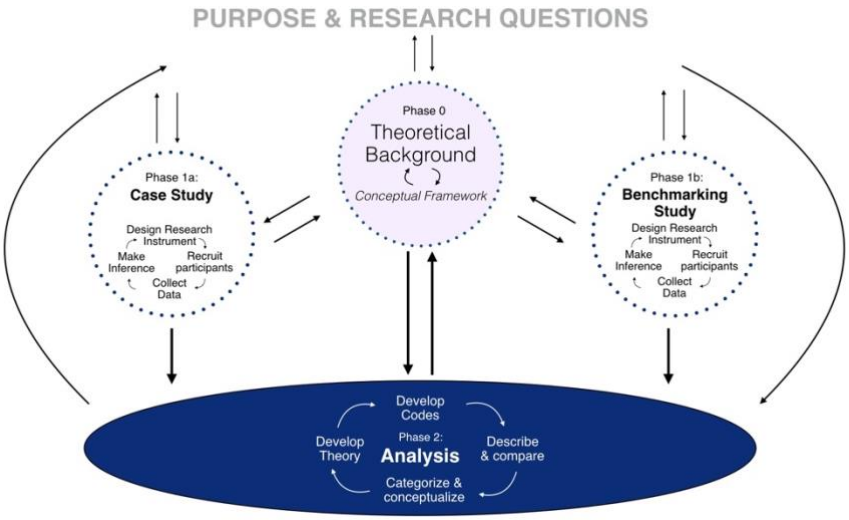

Figure 2 Overall working process inspired by the Qualitative Research Cycle by Hennink et al. (2011)

2.6 Credibility of the Study

Regardless of what methods or approaches that have been used, it is important to consider the credibility in a research study (Bell, 2000). Credibility in an article can be created by a proper collection and interpretation of data, resulting in findings and conclusions that reflect and represent the world as it was studied (Yin, 2016). Three ways to increase the credibility of a study are to consider validity, reliability and transferability. Below, the result of and methods being used in this master's thesis will be discussed in regard to these three aspects.

2.6.1 **Validity**

Validity is a measurement of how correct a result is, meaning that what is supposed to be measured actually is being measured (Bell, 2000; Mason, 2002).

The main threat when creating a valid description, is the inaccuracy and incompleteness of data. To overcome this issue all interviews have been recorded. The recordings have further on been used to complement and correct the notes from the meetings. Moreover, the interviews forming the case study background, see 4.1 *Introducing the Case Organization*, have been sent to the interviewees to ensure that all interpretations were made correctly. In order to increase the description validity, the working process of narrowing down the interview notes to key takeaways, has been iterative. This means that after each downsizing, the authors have returned to the initial interview notes to confirm that the key takeaways correctly correspond to the original saying. Looking at the interpretation of data, the main threat is to not have enough data to draw a valid conclusion from, implying that conclusions might be based on preconceptions (Bell, 2000). As this study has been conducted as a master's thesis, with a time limitation of 20 weeks, this has implied that the number of interviews has been limited. Apart from the time limitation and in consideration to the numbers of participants rejecting the interview invitation, the authors have tried to conduct as many interviews as possible. However, the result would naturally have been more valid if a larger number of interviews had been held.

One way of enhancing the validity in a study, is through triangulation. Triangulation refers to several references saying the same thing. The concurrence between different references is a sign of validity. (Starrin & Svensson, 1994; Yin, 2016). To adopt triangulation, both of the authors have attended all interviews, making it possible to discuss and confirm conformity between the personal interpretations from the interviews. The interview notes as well as the key takeaways have been double checked by both authors to avoid biases.

When managing the validity of a qualitative study, it is of major importance to handle biases in a correct manner. As this master's thesis topic was selected based on values and interest of the authors, the likelihood of bias increased (Willis & Jost, 2007). Hence, the phenomena of bias has been discussed in the initial stages of the master's thesis work and peer reviews have been performed continuously throughout the project to decrease the chances of bias. The peer reviews were performed by critical master's thesis students, as well as by mentors of LTH and the GHTC.

2.6.2 **Reliability**

Reliability measures the extent to which an instrument, method or approach provides the same result at different points in time, but during the same circumstances (Bell, 2000). Hence, it has to do with the accuracy of chosen research methods and techniques (Mason, 2002). The chosen data collection methods in this thesis were literature reviews and interviews. The usage of triangulation in the literature reviews increased the reliability in the theoretical background. However, a weakness is related to the choice of key words and peer-reviewed articles, since these have derived from references from other articles or from new key word searching. This means that the initial keywords have not solely been used to conduct the theoretical background, which might have had an impact on the development of the conceptual framework and the reliability of this study.

When it comes to the interviews, the choice of a semi-structured approach implies that each of the interviews have been different from each other, due to the fact that questions have been direct to the interviewees depending on their previous answers. This have an impact on the reliability of the study, since it decreases the likelihood of receiving the same result twice. An implication of the open-ended questions in the semi-structured interviews, is the possibility that issues, thoughts or opinions regarding a particular matter were not mentioned by a particular interviewee, even though him/her might agree on or has experience that. Therefore, one weakness of this paper is the number of interviews. If the authors have had more time, a larger number of interviews had been performed in order to complement the findings. Furthermore, the result of the interviews might vary if other participants were chosen according to the criteria.

2.6.3 **Transferability**

Transferability refers to if specific findings from a qualitative study can be transferred to other situations (Yin, 2016). The choice of adopting a single case study approach, decreases the generalizability of the findings of this thesis. Rossman and Rallis (2017) emphasize the fact that because case studies focus on particularities of a specific case, they are context dependent. This implies that what is learnt from such a study cannot be generalized, but lessons can be learned (Eisenhardt, 1995). According to Yin (2016), the case in a case study should not be seen as a sample of a larger population of cases, however the case can be used to discover patterns and processes within the case and analytic generalization can be used to extract the lessons learned. Furthermore, all of the external startups interviewed in the benchmarking study were located in either Lund or Malmö and belonged to specific industries, which also have affected the generalizability. Since, the context impacts the experiences of the startups and thereby the result derived from the interviews.

3 Theoretical Background

The Theoretical Background chapter aims to give the reader an extensive theoretical background to the topic. It has been created through a literature study and is a compilation of previous research in the field. The chapter mainly focuses on Entrepreneurship, Intrapreneurship and *the Fuzzy Front End. This chapter will be used to analyze the findings from the case study and benchmarking study.*

3.1 Innovation

Innovation does not just refer to the development of new ideas and products, but also to new services, methods and processes - new ways of doing things. It is vital in the workplace, since it inhibits faster penetration and improvement of the connection to developing markets for companies (Henderson, 2017). Research shows, that innovative companies in general have a greater profit and better opportunities to survive in the long-haul, due to their ability to adapt to globalization and rapid progress in new technologies (Wadström et al., 2017). Furthermore, innovation generally refers to the introduction of something new with the purpose of increasing customer value or solving problems. Innovations can be either incremental or radical. Incremental innovations are evolutionary continuations of existing products made with existing technology and methods. Whereas, radical innovations are revolutionary and completely new products involving considerable changes in basic technologies and methods (Mohr et al, 2010).

Engaging customers in the development process of new innovations may provide benefits to both the company and the customers themselves (Ngo & O'Cass, 2012). By continuously improving product and service quality and by developing innovations that meet evolving customer needs, a market orientation may result in superior sales growth and superior profitability. The relationship between market orientation and firm performance is stronger in highly dynamic markets, which characterizes high-tech industries. There are different approaches for how to gain market intelligence: responsive and proactive. A responsive market orientation focuses on the expressed needs of customers. Whereas, a proactive market orientation is concerned with future and latent needs of the customers and thereby enables organizations to pursue market opportunities before their competitors. According to research, a responsive market orientation, also known as market driven

approach, often generates incremental innovations, while a proactive market orientation, which could be seen as a market driven approach, most often leads to radical innovations. Therefore, it is often necessary for firms to combine both of these orientations (Mohr et al., 2010). A company's ability to be market oriented is strongly linked with their networking competences. The aim of networking is to build up new relationships to get access to markets, increase sales volumes, or jointly develop new innovations (Ritter & Gemünden, 2003). Hence, as Ritter and Gemünden (2003) state, an organization's networking competence has a positive impact on the firm's product or process innovation success.

Where does innovation come from?

Innovation can be carried out in smaller companies such as startups, but also in large corporations by for example research and development departments or through corporate venturing (Becker & Gassmann, 2006; Chesbrough et al., 2008; Kohler, 2016).

Entrepreneurship in its different forms provides a valuable base when innovating in unpredictable settings that require great adaptability (Huff, 2016). Lately, there has been a surge of entrepreneurial activity and during the mid-20th century, the venture capital and startup entrepreneurship developed into its modern form. Since then, the startup industry has grown rapidly (Blank & Dorf, 2012). With the capability to use emerging technologies to invent products and reinvent business models, startups today are a major source of innovation (Kohler, 2016). But, the recipe for this repeatable startup success still remains unknown. What is known though, is the fact that the traditional curriculum for running large companies like IBM, GM and Boeing, does not work in startups and startups are not smaller versions of larger companies (Blank & Dorf, 2012). Other initiatives like: corporate venturing (e.g. corporate incubators or accelerators), labs, startup competitions, hackathons and outposts, have transformed the way larger corporates innovate and manage to be entrepreneurial (Chesbrough & Weiblen, 2015; Kohler, 2016). The phenomenon of corporate venturing is commonly referred to as intrapreneurship, which furthermore is an emerging subfield of entrepreneurship (Antoncic & Hisrich, 2003).

3.2 Entrepreneurship

Entrepreneurship can be defined in many different ways (Gündoğdu, 2012). According to one definition by Drucker (1985, p.13), entrepreneurship is "*the managerial process for creating and managing innovation*". To be able to encourage innovation, it cannot be seen as a threat but rather as an opportunity (Drucker, 1985). However, entrepreneurship tends to be portrayed as a disrupted and revolutionary force. But it can also be viewed as a corporate form, symbolizing the opposite in terms of efficiency and controlled growth (Egan-Wyer, Muhr &

Rehn, 2017). The ability of entrepreneurial activity to create jobs and contribute to economic growth has made it increasingly important (Goel & Saunoris, 2017). An entrepreneurial organization focuses on opportunities, and prioritizes what is new and innovative, without neglecting important problems. It can further be seen as a culture or climate, in which room continuously is made for what is new by abandoning the old (Drucker, 1985).

The traditional definition of an entrepreneur is an innovation hunter able to set up new smart businesses, ideally from the beginning till the end of the business cycle. He or she has an attitude to jump-start innovation in his/her current enterprise (Gündoğdu, 2012). Furthermore, an entrepreneur is considered to be a visionary devoting its full time to develop an idea into a successful business (Walling, 2010).

An entrepreneurial venture is a venture that strives to come up with new innovative offerings. They are usually seen as ventures aiming to grow rapidly and generally have a great impact on society and the economy. One example of an entrepreneurial venture is AirBnB, who launched a mix-and-match solution making it possible for people with available rentals in an area to lease these to tourists, creating a win-win-situation (Seth, 2017).

3.2.1 External Startups

External startups are commonly referred to as entrepreneurial ventures (Seth, 2017). In an external startup, entrepreneurship can be expressed by entrepreneurs bringing new products and services to market, providing supporting products and services to new products, or entering markets to compete with existing firms (Goel & Saunoris, 2017). An external startup is a newly emerged small-scale corporation, designed to scale quickly (Chou, 2017). The startup culture is characterized by innovation and focus is often directed to solve critical pain points in the market (Robehmed, 2013). Looking at startups, they are innovative, growth-oriented companies, constantly striving to come up with a scalable business. The founder and entrepreneur of a startup is often considered critical for the business success (Anthony, 2012). Furthermore, a startup is often low on resources, both financial and human (Chou, 2017). In recent years, successful startups have used strategic partnerships to overcome challenges related to be a small company. Without a partner in the initial phases of the innovation process, a startup may struggle for years to develop for example its customer base (Richman, 2015). Startup decisions are positively correlated to proactiveness and risk taking. Proactiveness refers to "*opportunity-seeking, forward-looking perspective that involves introducing new products ahead of the competition*" (Kropp, Lindsay & Shoham, 2008, p.104) and risk-taking entails a "*tendency to take bold actions, such as venturing into unknown new markets, committing a large portion of resources to ventures with uncertain outcomes, and/or heavy borrowing*" (Kropp et al., 2008, p.104).

Startup Principles- Lean Startup

Lean startup is an approach that favors experimentation over planning, customer feedback over intuition and iterative design over waterfall principles and has brought words like minimal viable product and pivoting to the innovation process and the development of new products. According to the lean startup approach, the goal of the management team is to find a product-market fit with a business model that can be scaled up before they run out of money. Furthermore, it focuses on dealing with the scarcity of resources in go-to-market efforts through adaptiveness and effectiveness (Still, 2017).

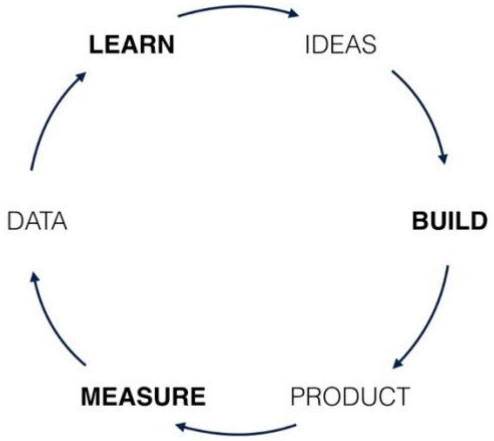

Figure 3 Lean Startup "Build-Measure-Learn-Loop"

According to the lean startup approach, the first part of the innovation process is to investigate whether there is a problem that can be solved by a particular product vision. If there is a match and the product vision is validated with customer data, the company begins the prototyping of the product. The initial prototype of the product is often referred to as the minimum viable product (MVP) and it should preferably be complete enough to be able to demonstrate the user value (Still, 2017). The development of the MVP is based on an agile method and customer feedback on the product. The feedback is used to validate hypotheses and improve the product further. The result might be a completely new direction of the business model, called a pivot (Edison, Wang & Abrahamsson, 2016). Building the MVP is not a one-time event. It is a build-measure-learn-loop, see Figure 3 which makes it possible to see where an idea has traction and where it does not (Ries, 2017). Pivots are common in startups, since they can lower the risk for bankruptcy, if the time between the pivots is minimized (Edison et al., 2016). Furthermore, a pivot is a "change in strategy without a change in vision" (Ries, 2017, p.108). According to Ries (2017),

founders of a startup always have a vision. To be able to reach this vision, they need a defined strategy. In a pivot, components of the strategy, such as target market or features of the product, change but the overall vision remains the same. As a consequence, each pivot creates a new set of hypotheses and implies a new loop in the build-measure-learn-loop, Figure 3 (Ries, 2017). The goal of the company is to validate if there is a market attractive enough for the solution. In other words, the company is looking for a viable business model (Edison et al., 2016).

To summarize, the lean startup approach first aims to achieve a problem-solution fit and then the product-market-fit (Edison et al., 2016).

During the past five years, large corporations like General Electric and Intuit has begun to implement the lean startup approach to ensure survival and competitive advantage. Corporations need to invent new business models, but this requires new structures and skills (Blank, 2013).

3.3 Intrapreneurship

Intrapreneurship is an emerging subfield of entrepreneurship and it refers to entrepreneurship performed in established organizations. Intrapreneurship is therefore sometimes called corporate entrepreneurship. Literature presents different definitions of the phenomena, some refers to it as a process and others as a spirit. However, intrapreneurship essentially means starting up new business ventures inside an existing organization. These new ventures operate within the boundaries of the parent company and could be valuable for innovating outside existing business in new unfamiliar areas. New business venturing is a cumulative characteristic of intrapreneurship and it could for example refer to: internal venturing, incubative entrepreneurship or corporate startups (Antoncic & Hisrich, 2003).

3.3.1 **Internal Corporate Venturing**

Not all promising ideas and technologies are found in external startups, but in the corporate environments as well. But, these ideas might not fit with the core business or in the existing business model of the corporation (Chesbrough & Weiblen, 2015). The act of organizations to encourage their employees to take risks pursuing their ideas and innovations as startups, is called internal corporate venturing. Internal corporate venturing is a field within intrapreneurship and it basically means: corporates searching for new businesses by establishing *internal corporate venture*s (ICVs). This way of working was mentioned for the first time during 1960s and has since then grown and become increasingly important for companies (Von Hippel, 1977). Today, product innovation has become vital for established corporations in

order to stay competitive and increase their profits (Wadström et al., 2017). Because product innovation is seen as a risky activity, ICVs have been introduced to foster product innovation in larger corporations. In many ways, established companies have prerequisites such as resources, structures and channels, that a startup can only dream of. Nevertheless, in contrast to startups, they often fail to be rapid and creative in their product development processes (Chesbrough, 2014). Corporate venturing requires time to become profitable and the venturing initiative often has to be a couple of years old, before it starts being successful (Biggadike, 1979).

3.3.2 **Internal Corporate Ventures**

An ICV refers to "*an individual or a group within the corporation which has taken on responsibility for all aspects of the task in regard to developing a new product and bringing it to the market*." (Von Hippel, 1977, p.163).

According to Block and MacMillan (1993, p.14), a business project could be seen as an ICV when it:

1. *Involves an activity new o the organization*
2. *Is initiated or conducted internally*
3. *Involves significantly higher risk of failure or large losses than the organization's base business*
4. *Is characterized by greater uncertainty than the base business*
5. *Will be managed separately at some time during its life*
6. *Is undertaken for the purpose of increasing sales profit, productivity or quality*

The outcome from a venture varies depending on if they are desired from and designed for the individual venture or the larger context of the parent organization. Even though an ICV fails to become successful and earn money of its own, it could still have contributed to positive outcomes for the firm by: discovering new business areas and dead ends, developing personnel, creating image and future offerings. Moreover, the outcomes could be either financial or non-financial and the ICVs can deliver either tangible or intangible outcomes. Tangible outcomes could be products, patents or new technologies, and intangible outcomes tend to be more organizational and related to personal competences (Tukiainen, 2004).

3.4 Differences Between External Startups and Internal Corporate Ventures

There are notable differences between startups and corporations, and each side has what the other is missing. A large corporation has resources, scale, power and routines required to run an existing business model efficiently. A startup, on the other hand, has none of these assets, but typically promising ideas, organizational agility, a willingness to take risks and aspirations of rapid growth. Though, the corporation's optimization for execution might cause problems when it comes to the search activities required to discover innovation outside the core business (Chesbrough & Weiblen, 2015; Kohler, 2016). Furthermore, a startup can be seen as a temporary organization in search of a repeatable and scalable business model, which is in contrast to the permanent organization designed for execution. This has implications on the innovation of new businesses and new business models inside an existing corporation (Chesbrough & Weiblen, 2015).

So, the context for an ICV inside an existing company is different from the context confronting an external startup. Corporations often have access to resources and capabilities, which some startups only dream of, such as free cash flow, a strong brand, a supply chain, fluent distribution, and a skilled salesforce. But, each of these assets is tailored to execute the existing business model, not to aid or support the search for a new one. This implies, that what can be seen as advantages for an internal venture, might just as well turn into inflexible liabilities, which block the search process of a new venture. There are other differences as well creating different game plans. An external startup normally spends hours on pivoting to identify the product-market fit, validate the minimal viable product and create a winning aspiration, which can be repeated and scaled. These activities need to be executed by the internal venture as well, but in addition the same procedure needs to be performed within the corporation to obtain for example permissions, protection and access to resources needed to launch the venture initiative. This work needs to be executed over time to ensure support when conflicts arise. Furthermore, the pivoting for the internal venture might need to be performed within the corporation as well, in order to get the support needed and ensure fit into the current corporate business (Chesbrough, 2014). Other differences exist when it comes to the drivers of the new business opportunity. According to KPMG (2014), the corporate world emphasizes business continuity and expansion with new initiatives being held up to a business case, whereas startups tend to have stronger and often personal drive to success. Furthermore, corporations tend to be held back by multiple conditions in their organization, which makes them limited by their own system, whilst startups are more or less more or less free (KPMG, 2014). Moreover, ICVs face administrative burdens such as bureaucracy and regulations imposed by the larger organization, which could impact their ability to be innovative (Makarevich, 2017).

3.5 Innovation Process

The innovation process is a process of developing something new, more specifically an innovation. In literature, it is often depicted as a journey of activities and critical decisions (Dornberger & Suvelza, 2012). However, the way the innovation process is described has varied throughout the years, from a sequential linear process to more complex and interactive models (du Preez & Louw, 2008).

The innovation process consists of different stages, each with challenges of its own. There are different opinions regarding how many stages the innovation process consists of and in the academia models of both three, five and seven phases are presented (Green, 2011; Neese, 2017; Newton, 2018). However, in this master's thesis, the innovation process will be referred to as a five-stage process, see Figure 4. The first three stages: *Opportunity identification*, *Idea Management* and *Concept development*, together constitute the *Fuzzy Front End* (FFE) of the innovation process, in this master's thesis also referred to as the "Early phase". During these early stages the opportunities, ideas and concepts are generated and further developed. In short, these stages are characterized by uncertainty and limited resources. However, they are the most critical for the overall success of the innovation. During the next stage of the innovation process, the concepts are developed into products that finally, in the last stage, are launched to market in the commercialization phase. The product development, together with the commercialization, make up the "Late phases" of the innovation process (Dornberger & Suvelza, 2012).

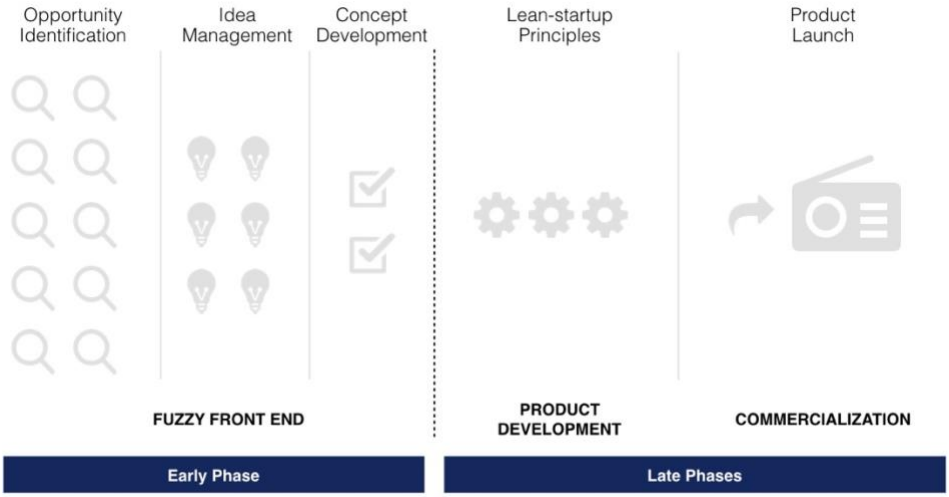

Figure 4 Illustration of the innovation process

The nature of the *Early Phase*, in contrary to the *Later Phases*, is characterized by the lack of or not existing routines, dynamics as well as uncertainty (Kim & Wilemon, 2002). Kim and Wilemon (2002) have compiled a table visualizing the main differences between the *Early Phase* (in their article called "NPD") and *Later Phases* (in their article called "Development Phase"). Their findings are presented below in Table 1.

Factors	Early Phase	Later Phase
State of an idea	Probably, fuzzy, easy to change	Determined to develop, clear, specific, difficult to change
Features of information for decision-making	Qualitative, informal and approximate	Quantitative, formal and precise
Outcome	A blueprint (diminishing ambiguity to decide whether to make it happen)	A product (making it happen)
Width and depth of the focus	Broad but thin	Narrow but detailed
Ease of rejecting an idea	Easy	More difficult
Degree of formalization	Low	High
Personnel involvement	Individual or small project team	A full development team
Budget	Small/none	Large designated
Management methods	Unstructured, experimental, creativity needed	Structured, systematic
(Visible) damage if abandoned	Usually small	Substantial
Commmitment of the CEO	None or small	Usually high

Table 1 Differences between the Early Phase and the Later Phases by Kim and Wilemon (2002)

3.6 Fuzzy Front End

The FFE is, as been mentioned above, repeatedly referred to as the very first phase of the innovation process, which begins with an identified opportunity or a raw idea and culminates with a go/no-go decision for further development (Kim & Wilemon, 2002; Crawford, Brower & Bastiaansen, 2006; Eling & Herstatt, 2017; Mohan, Voss & Jiménez, 2017). During the FFE, the firm identifies market opportunities, develops ideas and formulates product concepts (Kim & Wilemon, 2002). Gassmann and Enkel, (2004, p.4) describe the FFE as the: *"fuzzy zone between the time when an opportunity [or need] is known and the time when serious effort is devoted to the development project".*

Managing the front end is easier said than done, because of the fact that this stage has a "fuzzy" nature (Stevens, 2014; Ho & Tsai, 2011). This stage is ill-defined and characterized by unestablished protocols and management models (Koen et al., 2002). It is primarily the unclear information about customers, technology and competition that have defined the front-end-fuzziness, see Figure 5 (Zhang & Doll,

2001). Brown and Eisenhardt (1995) refer to it as the "structure chaos" due to its uncertain nature. Hence, it is important for the company to direct its attention to how information about the external environment is acquired, shared and used (Frishammar & Florén, 2008).

Fuzziness	Definition	Literature
1. Customer Fuzziness		Gerwin, 1988; Bacon et al, 1994; Khurana and Rosenthal, 1997; Gerwin and Tarondeau, 1982
1.1 Portfolio Fuzziness	Uncertainty of demand for the kinds of products offered	
1.2 Preference Fuzziness	Uncertainty of appropriate product characteristics	
1.3 Life-cycle Fuzziness	Uncertainty of length of product life cycles	
1.4 Volume Fuzziness	Uncertainty of amount of aggregate product demand	
2. Technology Fuzziness		Garwin, 1988; Bacon et al, 1994; Gupta and Mileson, 1990; Khurana and Rosenthal, 1997, 1998; Moenaert et al, 1995
2.1 Material Fuzziness	Uncertainty of demand meeting raw material standards	
2.2 Specification Fuzziness	Uncertainty of process functions or input characteristics specification	
2.3 Supply Fuzziness	Uncertainty of suppliers' design and manufacturing capability	
3. Competitor Fuzziness		Khurana and Rosenthal, 1997; 1998; Narver and Slater, 1990; Gupta and Milesozn, 1990; Bacon et al, 1994
3.1 Competitor's Product Development Fuzziness	Uncertainty of competitors' product development	
3.2 Competitor's Technology Adoption Fuzziness	Uncertainty of competitors' technology adoption	

Figure 5 Front-end-fuzziness by Zhang and Doll (2001)

The fuzziness will to some degree remain throughout the entire innovation process. However, the level of fuzziness will decrease as the ideas proceed through the FFE to the development phase (Kim & Wilemon, 2002). See Figure 6 below.

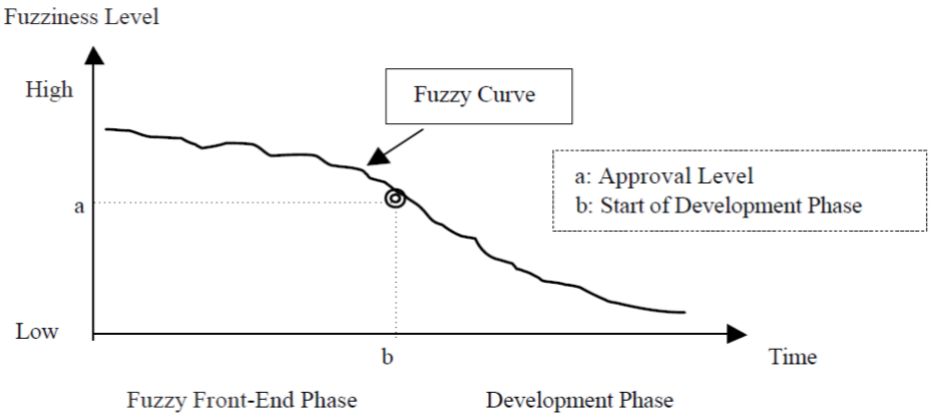

Figure 6 The level of fuzziness throughout the innovation process

3.6.1 **Effective Design of the Fuzzy Front End**

Effective management of the FFE is one of the most important and most difficult challenges for innovation managers (Cooper, 1988; Conway & McGuinness, 1989; Cooper, 1998; Dwyer & Mellor, 1991; Kim & Wilemon, 2002). Numerous authors claim, that the FFE is the greatest opportunity for firms to improve their overall success of innovation projects, as the front-end activities directly can contribute to following stages of the process (Cooper, 1988; Conway & McGuinness, 1989; Dwyer & Mellor, 1991; Koen et al., 2002). Also, this stage appears critical, since the most essential decisions for the selection of new businesses occur during this stage (Mohan et al., 2017). In order to manage FFE effectively, it is important to truly understand its nature and the predicted outcomes (Kim & Wilemon, 2002). Having a clear product concept early on simplifies this and the judgement of whether or not an opportunity is worth further exploration (Frishammar & Florén, 2008). By successfully managing the FFE, both development costs and cycle time can be reduced as direct consequences (Reinersten, 1994; Bacon, Beckman, Mowery & Wilson, 1994; Smith & Reinertsen, 1998).

To be able to effectively manage the FFE, the firm should work proactively to improve the chances of a successful outcome (Alam, 2006). A constant flow of high quality product ideas, and procedures for evaluating these are necessary for firms. Deficiencies in these activities often result in costly problems in later stages, and the initial screening highly correlates with new product performance (Frishammar & Florén, 2008). Hence, it is important to identify predictive guidelines early on in the process, so better choices can be made, and unnecessary costs avoided. As the cost of killing an innovation increases when the process proceeds towards the launch, it is clear that it is important to screen and evaluate ideas early on (Goldenberg, Lehmann & Mazursky, 2001). However, too intensive screening might also kill ideas too early and the selection logic tends to be insufficient when it comes to ideas within areas new to the firm (Frishammar & Florén, 2008). Due to the uncertain nature of the FFE, it is important to gather market information, from both internal as well as external sources, on a continuous basis (Alam, 2006). Having a market orientation helps making the FFE less fuzzy, by clarifying project objectives and meet the specific needs of the customers (Frishammar & Florén, 2008).

According to Khuruna and Rosenthal (1998), a holistic approach to the FFE contributes to greater chances for success. In their opinion, a successful approach effectively links business strategy, product strategy and product-specific decisions. Another aspect highlighted in more recently published literature in regard to strategy alignment, has to do with the so-called innovation strategy (Gaubinger & Rabl, 2014). According to Gaubinger and Rabl (2014), the lack of a clear innovation strategy makes decisions in the FFE ineffective. An innovation strategy contains the firm's long-term innovation goals and all strategic statements on development and

marketing of new products, technologies and procedures and the opening of new markets. Furthermore, this strategy determines where a company should focus its R&D efforts and where to search for ideas. Product portfolio planning is also strongly associated with product success in the FFE (Frishammar & Florén, 2008).

Normally, the degree of formalization is lower in the FFE than it is in the later phases of the innovation process (Kim & Wilemon, 2002). However, the relationship between the degree of formality and performance in the FFE, is nonlinear and too little as well as too much formality might be unfavorable for the company (Khurana & Rosenthal, 1998; Boeddrich, 2004). Formalization may facilitate transparency, order and predictability in process, however it might also inhibit innovation by striving to reach efficiency. Having formal processes early on might hinder ideas from reaching their full potential, which they might do through informal conversations (Khurana & Rosenthal, 1998). Furthermore, Conway and McGuinness (1986) claim, that organizations need to be flexible in order to be able to create participative commitment without conflicts arising.

Actives in the Fuzzy Front End

Numerous of authors have suggested different ways to structure the FFE to make it less fuzzy (Gaubinger & Rabl, 2014). Three of the most frequently mentioned models today are the: *Stage-Gate Process, Three phase Front End Model* and *New Concept Development Model* (Gaubinger & Rabl, 2014). Even though the models structure the FFE differently, they agree on and highlight activities such as: *Opportunity Identification, Opportunity Analysis, Idea Generation and Enrichment, Idea Selection* and *Concept Definition*, which are further described below.

Opportunity Identification

Opportunity identification refers to the activity when companies identify potential market opportunities. The activity aims to identify unanticipated business and market related needs. The identification may be performed by a single person solely and is driven by business goals (Koen et al., 2002). Companies tend to begin their work on new product opportunities when they in a semi structured way recognize an opportunity (Khurana & Rosenthal, 1997). Methods used to identify ideas, are primarily related to forecasting and aim to envisioning the future opportunities that can be selected for further development (Koen et al., 2002). Some of the methods that Koen et al. (2002) highlight are: road mapping, technology trend analysis, competitive intelligence analysis, customer trend analysis, as well as market research and scenario planning.

Opportunity Analysis

The identified opportunities are evaluated and a decision regarding whether or not they are worth to proceed with is taken. The time frame for the analysis depends on the choice of sources and the desired level of detail. Naturally, there is a balance

between exhaustive knowledge gathering and stall in the innovation process. A too exhaustive opportunity analysis may result in projects never moving forward (Koen et al., 2002).

According to Frishammar and Florén (2008), the proficiency in early technology assessment has been strongly linked to innovation success, and it is important to consider the technology the product will be based on early on in the innovation process. Furthermore, success turns out to be more likely if the necessary technology is available and reliable (Cooper, 1990). By selecting and partnering with competent suppliers, technology uncertainty can be reduced (Frishammar & Florén, 2008).

Compared to the opportunity identification, a greater effort is required in the opportunity analysis to provide a more detailed picture of the attractiveness of a particular opportunity (Koen et al., 2002). Apart from the previously mentioned methods in the *Opportunity Identification*, Koen et al. (2002) suggest four other methods: strategic framing, market segment assessment, competitor analysis and customer assessment.

Idea Generation and Enrichment

After the *Opportunity Analysis* an idea is born, developed and matured. There are different ways to generate good ideas. They could be results of creative or rational thinking by for example employees, suppliers or customers, generated by single individuals or groups of people (Boeddrich, 2004). A creative organizational culture makes it possible for a firm to fully utilize the talent and creativity of the employees as well as maintaining a steady stream of ideas in the FFE (Murphy & Kumar, 1997).

However, once the embryonic idea is generated, it follows an iterative process where it is examined, studied, discussed and further developed (Koen et al., 2002). For example, it can be further developed by identification of customer needs, market segments, competitive situation and business prospects (Khurana & Rosenthal, 1997). Preferably, techniques used during the iterative process take different creative forms and are used by either individuals or teams. Central to this activity, is the cross-functional internal collaboration, as well as external linkages to customers and users (Koen et al., 2002).

A vital part, in order to develop a robust idea, is to understand both customer and market needs. Several techniques to gain this understanding have been highlighted in literature. However, Koen et al. (2002) suggest the following:

- An organizational culture that encourages validation activities after scheduled time.
- Different initiatives to stimulate and encourage employees to generate and enrich ideas.
- An idea bank that can be easily accessed through the internet and which includes product and service improvements.

- A formal role when coordinating ideas from generation to enrichment.
- A formal process to handle ideas that occur outside the scope of the business.
- A limited amount of measurable goals.
- A frequent job rotation to facilitate knowledge sharing and networking.
- Techniques for communicating e.g. shared technology, throughout the entire firm.
- A diverse team in regards of different cognitive styles
- Early involvement of customers and customer champions

Idea Selection

In general, the actual generation of new ideas is not considered to be a difficult part in the innovation process. Instead, one of the most difficult and critical activities is the selection of ideas. It is clear that this part of the FFE is particular hard, due to the fact that only limited information and understanding of the new project is available. There does not exist a single process that will guarantee a valid selection, hence this part is often carried out in iterative series of activities (Koen et al., 2002).

Koen et al. (2002) state that the selection often starts with an initial scanning of the ideas. The scanning is managed by a single person or a group and is based on limited information. The most attractive ideas from the scanning activity carry on into the next phase, where more information is gathered to develop a robust idea. The developed ideas are then finally prioritized relative to each other and the best ones are selected for further development. The selection of ideas may be based on criteria such as: strategic fit, market attractiveness and technical feasibility (Cooper, 1990).

Preferably, the idea selection should be performed as a formal process, where feedback is communicated to the project teams on a continuous basis. Methods for selecting the right ideas are constantly being developed. More traditional financial methods have been more or less replaced by other methods, such as options theory and risk assessment (Koen et al., 2002). Tests regarding technology, market and competition are carried out. For example, evaluation of the ideas' attractiveness can be made through for example concept testing. Furthermore, the product concept should be clarified. Sometimes a financial analysis is conducted as well as both sensitivity analyses and discounted cash flow analyses, to evaluate an idea further (Cooper, 1990).

Concept Definition

The selected ideas are then developed into more advanced concepts. The aim is to develop the product definition by assessing the technological and economic feasibility. The product definition is an elaboration of the product concept and furthermore includes judgements about the target market, competitive offerings, as well as time and resources required to bring the product to market (Khurana & Rosenthal, 1997). The product concept should not be fixed but changed according

to customer and user need (Khurana & Rosenthal, 1997) as this minimizes the risk of rejection because of product novelty (Frishammar & Florén, 2008).

The concepts are used as a basis when gatekeepers decide which projects that should proceed to the later phases of the innovation process, such as development and commercialization (Koen et al., 2002). In their article, Koen et al. (2002) suggest a number of criteria for the decision basis. The guidelines are presented below:

- Objectives with the innovation project
- The strategic alignment
- The size of the opportunity and financial consequences
- Unmet market and customer needs and potential benefits.
- A concrete business plan
- Risk factors in regard to technology and commercialization
- Sponsorship
- A project plan including resources and timing.

Configuration of the Team in the FFE

An innovation team is frequently mentioned as crucial for innovation success (Bain, Mann & Pirola-Merlo, 2001). According to Stevens and Burley (2003), the personalities of the individuals in an innovation team have been found to be just as important for innovation success, as the innovation process itself. Furthermore, having a homogeneous team consisting of individuals with similar backgrounds and personalities has a negative impact of the chances of having a successful innovation (Rigoglioso, 2006). Instead, having a diverse team with different competences, education and personality may improve the performance by increasing the creativity and the problem-solving within the group (Parens, 1998; Rigoglioso, 2006).

To work cross-functionally and to integrate expertise from all major functions of a firm early in the innovation process, has been proven beneficial in the FFE (Verganti, 1997). According to Frishammar and Florén (2008), these settings promote innovation and could help to overcome resistance to change. Moreover, a cross-functional team has been found valuable in order to keep an idea alive and active. By letting ideas be exposed to review and criticism by people within different departments and different backgrounds the exchange of information may improve the overall knowledge base (Conway & McGuinness, 1986). Moreover, such interactions could assure alignment between the product concept and the overall company strategy (Frishammar & Florén, 2008). Bacon et al. (1994) highlight that it is not sufficient, but necessary to have multifunctional teams to reach innovation success. However, it is critical to have trust and effective communication within the multifunctional team (Bacon et al., 1994).

The fact that no front-end equals another, when it comes to activities, sequences, overlaps and relative time duration, makes flexibility and effective product management essential. Furthermore, a project manager is often involved in the

lobbying for support and resources, as well as in the coordination of technical and design issues (Frishammar & Florén, 2008).

Senior management involvement and support is needed to overcome resistance to change, increase levels of innovation and success. Top management support is important for the alignment of individual activities and the likelihood of product ideas being developed is higher if executive champions have become personally involved in the projects during the FFE (Frishammar & Florén, 2008). However, the commitment of senior management often is limited or not existing in the FFE according to Kim & Wilemon (2002).

Some authors claim that innovation benefits from having a leadership managed by committed enthusiasts also referred to as product champions or sometimes idea visionaries (Frishammar & Florén, 2008). These people are critical in keeping persistent pressure on a firm to act and ensure progress in the project. The role can be taken by different actors in a team, but typically it is a person of power or authority who can promote the idea to stakeholders with the intention to seek and establish commitment (Conway & McGuinness, 1986).

Critical Success Factors in the Fuzzy Front End

In 2008, Frishammar and Florén conducted a literature review to identify critical success factors for corporations in the FFE. Furthermore, the study is a compilation of critical success factors that has been identified in the FFE from 39 peer-reviewed articles, which have been carefully selected and reviewed. These articles were identified after an exhaustive research procedure, which will be described in short below. Initially, all issues of the major technology innovation management journals published between the years of 1997-2007 were browsed, since these are the journals where publications for research regarding the FFE normally can be found. The reason for this activity, was the fact that "fuzzy front end", is not the only term used to describe this initial stage of the innovation process and the authors wanted to gain further insights about possible terms that could be used for this particular matter. The inductive reading resulted in the identification of the following subject-related terms: "Early, "Discovery", "Front end", "Idea", "Concept" and "Predevelopment", which then were used in combinations with the terms: "stage", "process" and "phase", to generate the peer-reviewed articles, which then constituted the basis for the review. The list of articles located through the formal search procedures were complemented by additional ones located by browsing the reference list from the formal literature search. (Frishammar & Florén, 2008)

The result from the study is presented in a table, in which each critical success factor is listed with the appurtenant literature references, see Table 2.

Success factors for managing the fuzzy front end	Obtained from the literature
1. The presence of idea visionaries or product champions	Conway and McGuinnes (1986); Griffiths-Hemans and Grover (200&); Heller (200)
2. Idea refinement and adequate screening of ideas	Boeddrich (2004); Bröring et al (2006); Conway and McGuinnes (1986); Cooper (1988); Cooper and Kleinschmidt (1987); Elmquist and Segrestin (2007); Griffiths-Hemans and Grover (2006); Khurana and Rosenthal (1997); Kohn (2005); Lin and Chen (2004); McAdam and Leonar (2004); Murphy and Kumar (1996;1997); Rosenthal and Capper (2006); Zien and Buckler (1997); Vervon (2006)
3. An adequate degree of formalization	Boeddrich (2004); de Brentani (2001); Gassmann et al. (2006); Khurana and Rosenthal (1997;1998)
4. Early customer involvement	Alam (2006); Bacon et al. (1994); Cooper (1998); Cooper and Kleinschmidt (1987) Gassmann et al. (2006); Langerak et al. (2004); Murphy and Kumar (1997); Vervorn (2006); Zien and Buckler (1997)
5. Internal cooperation among functions and departments	Bacon et al. (1994); Conway and McGuinnes (1986); Gassman et al. (2006); Heller (2000); McAdam and Leonar (2004); Moenaert et al. (1995); Murmann (1994); Kohn (2006); Verganti (1997); Verworn (2006)
6. Information processing other than cross-functional integration and early customer involvement	Bacon et al. (1994); Börjesson et al. (2006)
7. Senior management involvement	Koen et al. (2001); Khurana and Rosenthal (1998); McAdam and Leonar (2004); Murphy and Kumar (1997)
8. Preliminary technology assessment	Bacon et al. (1994); Cooper (1988); Cooper and Kleinschmidt (1987); Murmann (1994); Verworn (2006)
9. Alignment between NPD and strategy	Bacon et al. (1994); Khurana and Rosenthal (1997;1998)
10. An early and well defined product definition	Backman et al. (2007); Bacon et al. (1994); Cooper (1988); Cooper and Kleinschmidt (1987); Dickinson and Wilby (1997); Khurana and Rosenthal (1997); Kohn (2006); Montoya-Weiss and Calantone (1994); Montoya-Weiss and O'Driscoll (2000); Parish and Moore (1996); Seidel (2007); Song and Parry (1996)
11. External cooperation with others except customers	Khurana and Rosenthal (1997); Murmann (1994)
12. Learning from experience capabilities of the pre-project team	Verganti (1997)
13. Project priorities	Khurana and Rosenthal (1997); Murphy and Kumar (1997)
14. Project management and the presence of a project manager	(Khurana and Rosenthal (1997); Nobelius and Trygg (2002)
15. A creative organizational culture	Murphy and Kumar (1997)
16. A cross-functional executive review committee	Khurana and Rosenthal (1997)
17. Product portfolio planning	Khurana and Rosenthal (1997)

Table 2 Success factors for managing the fuzzy front end by Frishammar and Florén (2008)

3.7 Summary of Theory & Conceptual Framework

This section summarizes the Theoretical Background by presenting the conceptual framework, which will form the basis for the data collection and analysis in this paper. The conceptual framework has been developed from the literature review.

Innovation is vital in the workplace since it inhibits faster penetration and improvement of the connection to developing markets for companies (Henderson, 2017). Furthermore, the ability of innovative companies to adapt to globalization and rapid progress in technology tend to result in greater profit and better opportunities to survive in the long-haul (Wadström et al., 2017). In general,

innovation refers to the introduction of something new with the purpose of increasing customer value or solving problems (Mohr et al., 2010). It can be carried out in smaller companies such as startups, but also in larger corporations by for example research and development departments or through corporate venturing (Becker & Gassmann, 2006; Chesbrough et al., 2008; Kohler, 2016). Internal corporate venturing is the act of organizations to take risks pursuing their ideas and innovations as startups, referred to as ICVs, which has been introduced to foster product innovation in larger organizations. Established companies have prerequisites such as resources and structures a startup can only dream of. Nevertheless, in contrast to startups, they often fail to be rapid and creative in their product development processes (Chesbrough, 2014). In this thesis, the innovation process will be referred to as a five-stage process, where the first three stages: *Opportunity identification, Idea management* and *Concept development*, together constitutes the FFE of the innovation process. The FFE is characterized by uncertainty and limited resources. However, it is the most critical phase for the overall success of the innovation (Dornberger & Suvelza G, 2012).

From the literature presented in *3 Theoretical Background*, five main themes critical for general success in the FFE have been identified: *Management of the Idea, Evaluation of the Concept*, *Team Constellation*, *Organizational Context* and *Alignment with Strategy*. Below, follows a presentation of each of the themes.

- ***Management of the Idea*** concerns the activities related to the early phases of the FFE, when products are embryos- opportunities or ideas. The theme aims to identify enablers, ways of working and challenges for the progress of an idea in the FFE.

  As the cost of killing an innovation increases when the process proceeds towards the launch of the product, it is clearly important to screen and evaluate ideas early on (Goldenberg et al., 2001). However, too intensive screening might also kill ideas too early and the selection logic tends to be insufficient when it comes to ideas within areas new to the firm. (Frishammar & Florén, 2008). The ideas are further developed by identification of customer needs, competitive situation and business prospects (Cooper, 1990; Khurana & Rosenthal, 1997; Koen et al., 2002). Therefore, it is important for the company to direct its attention to how information about the external environment is acquired, shared and used (Frishammar & Florén, 2008). Furthermore, technology assessment has been strongly linked to success in the innovation process (Cooper, 1990). By selecting and partnering with competent suppliers, technology uncertainty can be reduced (Frishammar & Florén, 2008).

- ***Evaluation of the Concept*** regards the relevance of the product concept in the FFE. During this phase, validation of the concept is central.

  Validation throughout the innovation process is necessary in order to ensure product-market fit and reduce wastage of resources. In order to manage FFE effectively, it is important to truly understand the nature and the predicted outcome of the FFE (Kim & Wilemon, 2002). Having a clear product concept early on, simplifies this and the judgement of whether or not an opportunity is worth further exploration (Frishammar & Florén, 2008). Due to the uncertain nature of the FFE, it is important to gather market information from both internal as well as external sources on a continuous basis (Alam, 2006). As a result, the product concept should not be fixed but change according to technological feasibility and customer/user need (Khurana & Rosenthal, 1997) as this minimises the risk of rejection because of product novelty (Frishammar & Florén, 2008). By continuously improving product and service quality and by developing innovations that meet evolving customer needs, a market orientation may result in superior sales growth and profitability (Mohr et al., 2010).

- ***Team Constellation*** concerns the human aspect of the FFE and involves people that should be a part of or is needed in the project team.

  There is no doubt that team has a major impact on the success of a product and a well-balance team is vital for innovation success (Bain et al., 2001). Another key factor in the FFE is cross-functional integration and cross-functional teams (Verganti, 1997). Furthermore, as been stated by Frishammar and Florén (2008), it is crucial to have a product enthusiast in the team to increase the chances for success. The product enthusiast, also referred to as the product champion or idea visionaries, is typically a person of power with the goal to promote the idea to stakeholders (Conway & McGuinness, 1986).

- ***Organizational Context*** refers to the organizational climate in which the innovation process occurs, and other prerequisites that might have an impact on the outcome of the idea development.

  The relationship between the degree of formality and performance in the FFE, is nonlinear and too little as well as too much formality might be unfavorable to the company. Some order and predictability to the FFE can reduce uncertainty (Khurana & Rosenthal, 1998; Boeddrich, 2004). Furthermore, senior management involvement and support are needed to overcome resistance to change, increase innovativeness and success (Frishammar & Florén, 2008). In addition, a creative organizational culture makes it possible for a firm to fully utilize the talent and creativity of the

employees, as well as maintaining a steady stream of ideas in the FFE (Murphy & Kumar, 1997).

- ***Alignment with Strategy*** considers the fit between different business strategies relevant to innovation process.

  To increase commitment and motivation as well as the chances for success, it is important in the FFE to align project goals to both the overall and the innovation strategy of the firm. In order to have successful projects, it is important to be able to link business strategy, product strategy and product specific decisions (Khurana & Rosenthal, 1998). Product portfolio planning is also strongly associated with product success in the FFE (Frishammar & Florén, 2008). Furthermore, it is essential to define a clear and transparent innovation strategy, since this inhibits more effective decision making in the FFE by for example clarifying where an organization would like to focus its R&D efforts and where to search for ideas (Gaubinger & Rabl, 2014).

The model presented below, Figure 7, represents the five critical main themes and constitutes the conceptual framework for this master's thesis. This conceptual framework will not be used as a checklist throughout the study, according to what has been mentioned in *2.1 Research Strategy*, but rather as a basis for discussion.

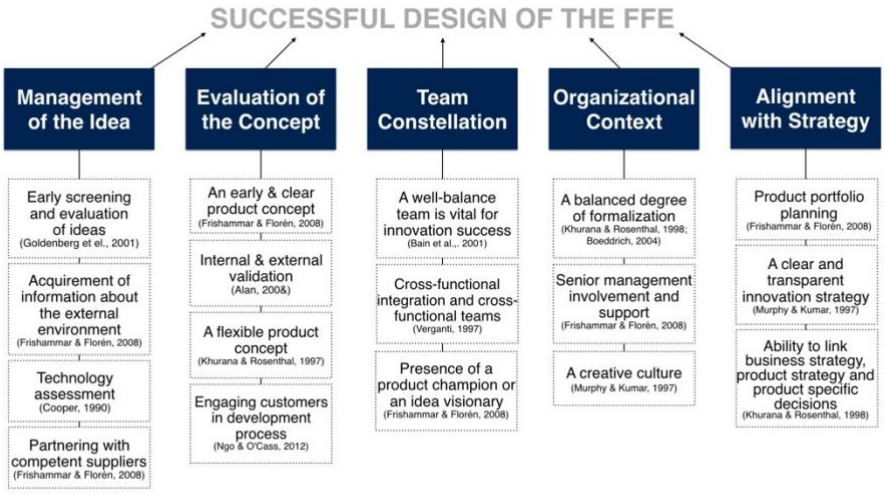

Figure 7 Conceptual Framework

4 Case Study

The Case Study chapter presents the result of the case study. It comprises an introduction to the case organization as well as a description of its innovation work and processes. Furthermore, the opinions of the different ICVs at the case organization related the critical themes identified in the conceptual framework are discussed.

4.1 Introducing the Case Study Organization

Below, follows a brief description of the innovation work at the GHTC. A more extensive description can be found in Appendix B.

The GHTC, has a well-known history within the high-tech industry (Company website, 2018). Innovation is a growing part of GHTC's business and three years ago they started an incubation and acceleration program in Sweden, with the intention to find new businesses for the company (Company blog, 2018). The overall innovation objective for the site is that 50 % of the revenues by 2020 should origin from new businesses. The incubation and acceleration program consists of three funding tracks, hereby referred to as: *Track 1, Track 2* and *Track 3, see* Figure 8. The program offers voluntary inspirational activities- master classes and compulsory support such as business coaches, external mentors and networking to provide the employees with insights in best practice for starting business, ongoing work, feedback on ideas and tools to make the different team grow stronger, as well as an exchange of valuable knowledge (Nilsson, 2017; Company website, 2018).

Below follows a brief introduction to *Track 1* and *Track 2*. For an extensive description see Appendix B.

Track 1

In 2015, the first innovation track, *Track* 1, was developed at the site inspired by lean startup principles, with the aim to find new commercial opportunities for the GHTC. The department has the following focus areas: Technology, User Experience and Business, and focuses on 5G research and Internet of Things. Especially within the fields of industrial, logistics, transportation, connected cities,

health and wellness (Nilsson, 2017; Employee O, 2018). The original goal for *Track 1* is to create new businesses beyond the current business of the GHTC, by incubating new ideas to business and bring these to market, as new GHTC businesses or spin-offs (Company website, 2018). The innovation process of *Track 1* is divided into five stages: *Ideation, Concept, Incubation, Establish Business* and *Launch*, all separated by toll-gates which the project teams have to pass to be allowed to proceed in the process. During the *Ideation* phase the project teams are invited to activities such as workshops and inspirations lectures. However, during the rest of the phases this type of initiatives does not exist.

From the beginning, the innovation process had no formalization at all. Nevertheless, by implementing a stage-gate-process with toll-gates, the degree of formalization increased. The increased formalization was necessary for the GHTC to be able to measure advancements and put pressure on the *internal corporate ventures* (ICVs) to actually deliver some result. However, the management's vision still is to keep the process fairly informal. As for many other companies, the GHTC's goal is to keep costs down in the early phases and therefore a decision to limit the degree of development before the ICVs are more confident that the product could be a success at launch has been made (Employee O, 2018). All ICVs in *Track 1* are internally funded through all phases, however the aim is that they should be self-funded with profit after entering the *Establish business* phase. Today, the teams are put together by the project leader of the ICVs, but if a specific competence is needed, the managers of *Track 1* can help the team to find these. If the right competence is not available internally, external consults are employed half time or full time. Today, discussions regarding whether or not to use a personality test such as Belbin, to detect if teams are missing an important competence are being held (Employee O, 2018).

Track 2

In April 2016, the GHTC launched the second funding track for Europe, *Track 2*, with the purpose to identify new ideas and business opportunities beyond the existing categories and business areas and develop them for commercialization. This track is an initiative from the global headquarter. *Track 2* is open for all employees at the GHTC and is designed to support individuals who are dedicated to innovate, educate the next generation of entrepreneurs and establish an infrastructure and culture that encourage new business (Nilsson, 2017; Company website, 2018). Basically, the only requirement for the ideas entering the second track, is that they are outside existing businesses and ready to be launched within two years' time (Employee O, 2018). According to the GHTC the aim with the process is to:

"Enhance opportunities for new business ideas to be transformed into actual businesses, by supporting individuals with similar entrepreneurial endeavors and by offering the infrastructure required for the start-up" (Company website, 2018).

The process of *Track 2* is similar to the one in *Track 1,* but it includes more pre-activities and formal toll-gates. The funding process is also similar to the one in *Track 1,* but the funding is provided by the global headquarter (Employee O, 2018).

Alignment Work

During the spring 2018 an alignment work of the initial phases of the innovation processes for the different funding tracks of the GHTC was initiated. The idea is to create a common *Ideation* and *Validation* phase for the different tracks, ending with a design sprint. After the design sprint a routing activity occurs, where the review board provides recommendations to the project teams regarding which of the three funding tracks the project preferably should enter for the following innovation phases (Nilsson, 2018).

This alignment work has been approved. However, the aligned innovation journey has not been completed nor evaluated yet. Therefore, this thesis will use the incubation and acceleration program setup that was used in January 2018 as a basis, i.e the outline of the funding tracks described in Figure 8 below.

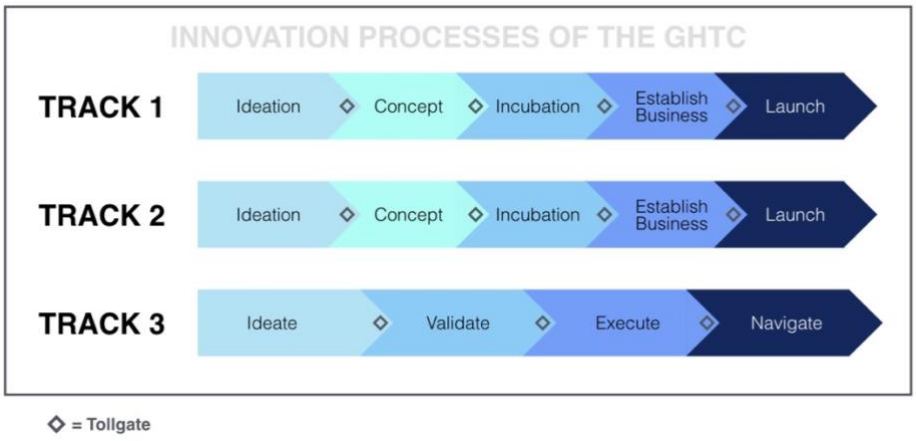

Figure 8 Innovation processes of the GHTC[1]

Introducing the Internal Corporate Ventures

Interviews have been held with seven ICVs, which on the 1st of March 2018 were in the end of the *Incubation* phase or in the *Concept* phase in the innovation processes at the GHTC. For each of the ICVs, an interview has been held with the project leaders: *Concept leader, Business leader* and *Tech leader*. The ICVs belong to different funding tracks and their innovations are of different characters. An overview of the interviewed ICVs is presented in Figure 9.

[1] Notice: Track 3 is outside the scope of this thesis

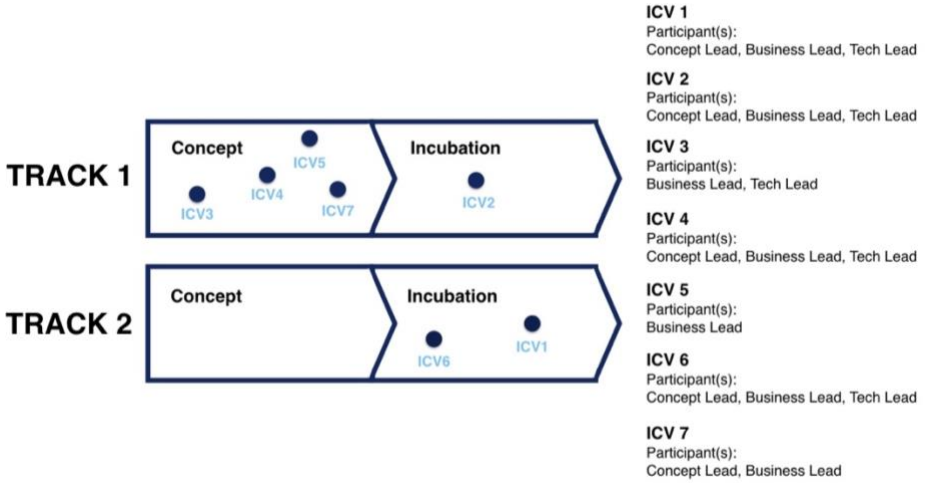

Figure 9 Presentation of the interviewed ICVs

4.2 Critical Themes in the Fuzzy Front End

This section presents the findings regarding each of the critical themes derived from the case study. Opinions and thoughts of the ICVs regarding each theme are presented separately, followed by tables summarizing the key takeaways from the study. However, only the ICVs that explicitly have mentioned a particular takeaway have been listed.

4.2.1 **Management of the Idea**

Nearly all of the ideas from the ICVs have been generated from an inside-out perspective, except the project of *ICV 7*. Some of the ICVs have built their ideas upon existing technologies at GHTC and they explained that technology from other disused projects have been utilized in new ways in their projects. *ICV 1* mentioned the possibility to reuse existing technologies as a valuable benefit for them as an ICV at GHTC. However, the ideas of other ICVs have originated from personal experiences. *ICV 2* discovered their business opportunity by coincidence, through contacts established during previous projects. They had a basic idea and by looking at the market they identified an unmet market need for a specific market segment. Having a clear understanding and knowledge of the market and the industry is something *ICV 7* highlighted as important. Since their project is outside the core business of the GHTC, both *ICV7* and the GHTC lack knowledge about

the industry, which makes initial research particularly important.

"*To successfully learn about an industry, you have to enjoy studying and reading*."
- Leader of ICV 7

Some of the ICVs highlighted partnership as vital for their product development journey. *ICV 7* explained that they have collaborated with a partner since the start and they have used the partnership to grow, to find customers and to gain a better understanding of the market. They have a complementary relationship with their partner, as their partner contributes with market intelligence and *ICV 7* with knowledge of the technology. For *ICV 5*, their cooperation partner has been essential for their manufacturing. In the case of *ICV 4*, they agreed upon partnerships being valuable, since their cooperation partner became their first customer. Hence, they did not have the pressure to go out and sell anything in the beginning. However, this resulted in a lack of selling experience, which they pointed out as a disadvantage of having a partner as first customer early on. *ICV 7* found their corporation partner through networking and emphasized the importance of networking, both when finding the right partner, new customers or new markets. However, they believe networking is outside the comfort zone of the GHTC. *ICV 1* also wished for the GHTC to be more encouraging when it comes to ICVs participating at for example different conferences, and they are skeptical to the current networking at the GHTC. Today, *ICV 1* is under impression that the GHTC only is concerned with the costs related to networking activities and thereby misses the positive outcomes these can generate in the future.

ICV 7 emphasized location, feeling, luck and pursuance as the most vital factors for the success of their project. Moreover, they described the developing process as a constant search for success, which is built on doing the wrong things and even stimulating doing things the wrong way. They highlighted the fact that mistakes make us wiser and stated that if focus always is directed to doing the right things it will take too long time to progress in the process. This is closely related to what *ICV 2* claimed being one of their greatest learnings from their journey. *ICV 2* explained that their product concept has been pivoted several times, and their long and crooked journey has improved their business model as well as increased their knowledge of the market. However, one of their earliest pivots was driven for a too long period of a time, even though they did not really have a case, which made them slow in the beginning of the process. In contrast, *ICV 3* described their journey as relatively clear and straight, probably due to the fact that they since the beginning have focused on a specific product concept and then just changed focus. However, *ICV 3* thinks their innovation journey will become much more crooked later on, when they launch their product on the market and receive feedback.

Summary: Management of the Idea
The most frequently mentioned enablers and challenges are summarized and listed below in Table 3 and Table 4. For a full compilation see Appendix C.

Management of the Idea	
Enablers	*Mentioned by*
Partnership facilitates the product development journey	*ICV 4, 5, 7*
Mistakes make the project teams wiser	*ICV 2, 7*

Table 3 Case Study: Management of the Idea- Enablers

Management of the Idea	
Challenge	*Mentioned by*
Networking is a challenge at GHTC	*ICV 1, 7*

Table 4 Case Study: Management of the Idea- Challenges

4.2.2 Evaluation of the Concept

When asking *how* the ICVs have managed and performed their validation, the answers were similar. The majority of the ICVs- *ICV 1, 2, 3, 5, 6* and *7*, have talked to potential customers to get feedback on their product concepts. *ICV 5* explained that they have had user interviews, participated at different fairs and talked to private persons who have created their own solutions. This has been carried out during different stages of *ICV 5*'s innovation process. *ICV 2* and *7* have met a lot of customers during their innovation journey. They described that they have been pivoting as a result from the conversations with potential customers. *ICV 1* have evaluated their market by talking to people and they have tried to always bring a prototype to these meetings, in order to create trialability for the potential customers. Furthermore, they claimed end user feedback to be critical for success. In order for *ICV 3* to get the most out of the meetings with potential customers, they asked for help from the user experience team at the GHTC, which has great experience from talking with customers. *ICV 6* explained that they have conducted an extensive data collection to get information about the way their competitor's work, their competitive advantages and what is desired by their customers. *ICV 4* on the other hand, had a broad product vision, which they have managed to narrow down after market validation. However, they feel limited by the innovation process at GHTC, as they have not yet got permission to go out and talk to the market. *ICV 2* as well as *1*, highlighted another difficulty related to the validation of the market need. They explained that it has been hard for them to find relevant people to talk to and furthermore the activity has been time-consuming.

Both *ICV 4* and *6,* expressed the difficulty of finding a proper balance between the cost of evaluation and a valuable outcome. They described an extensive validation as valuable, but they also highlighted that there comes a time when it becomes more costly than valuable to continue the validation activity. One of the hardest challenges for *ICV 4* has been to validate their product on the market to the lowest cost possible. They furthermore claimed it to be hard to gain a clear understanding of the industry without having a finished product to show. *ICV 1, 2,* and *4* described that it has been hard to separate the market need from the actual willingness to buy. *ICV 4* explained that in order for them to measure the willingness to buy, they need to find a good way to measure the commitment. According to them, a prototype has facilitated this action, as it has enabled customers to try the product and thereby having clearer opinions about the product idea. *ICV 2,* claimed that it is a problem that customers easily can express an interest in a product, but when it is time for an actual purchase they just as easily back out.

Some of the ICVs highlighted partnership as a supporting factor during the concept evaluation. For example, *ICV 2* has had the chance to co-work with good partners and execute a pilot project with them. This has been valuable for them in further development of the concept. In similarity with *ICV 2*, *ICV 4* has cooperated with a partner to validate their idea. *ICV 4* has experienced great benefits from working with a cooperation partner, since this have resulted in valuable practical experience, which normally would have been hard to get early in the process. They described the opportunity to have such a huge cooperation partner as something almost solely possibly, due to the fact that the ICV belongs to the GHTC.

Some of the ICVs described that the internal evaluation process, i.e. presentations for the management team at GHTC to get funding, has been carried out simultaneous to the market validation process. For example, *ICV 3* explained that a lot of their work today, is to evaluate their idea on the market as well as internally to argue for the activities that are carried out. They described the management group as investors, which they have to persuade to get funding and trust. *ICV 1* and *ICV 4* also highlighted this internal validation process.

ICV 1 described a challenge arising from the fact that people at GHTC mainly focus their work internally. It hinders their chances of working with user interaction. In a dream world, the project leader would like the GHTC to organize a workshop and invite all ICVs to exhibit their projects and then invite potential customers to give high quality feedback. *ICV 1* also promoted that the GHTC should encourage the ICVs to go to different conferences to exchange experiences with other startups or receive valuable feedback from customers. *ICV 3* believes that ICVs at GHTC in some cases do not take their time to understand their market before they start developing a solution. Instead they just try to push out an existing solution on the market.

The majority of the ICVs highlighted some sort of proof of concept to be extremely important when talking to customers. *ICV 3* explained that the development of their proof of concept was the very first thing they started to work with, since they considered this important for the validation activity. *ICV 4* explained that by bringing a prototype to the scene when talking to their customers, they became more trustworthy.

"The customers believed in us making us believe more in the customer feedback"
- Leader of ICV 4

ICV 5 agreed with *ICV 4*, and explained that by showing a prototype, they got a better understanding of the user benefits. They described that a prototype does not have to be more than a piece of plastic, just as long as it can communicate the right feeling. *ICV 7* claimed that the prototype does not have to be a small version of the final product. It could be nothing more than pictures visualizing the different user cases. Nonetheless, they agreed on the importance of having some sort of prototype to be able to describe the product idea properly. *ICV 6* explained their prototype as a critical factor when pitching the product concept internally at GHTC. *ICV 1* illustrated one problem related to the validation of a product or a prototype. They explained that at GHTC, it is expected for an ICV to first come up with a solution and then immediately go out and validate this solution on the market, without a prototype. However, *ICV 1* is of the opinion that it is impossible to get valuable feedback without having any prototype to show. This have been a struggle and continuous discussions between *ICV 1* and GHTC resulted in a middle way between having no prototype at all and having a finish prototype. Nonetheless, they still experience the validation of user benefits, as one of their challenges.

Summary: Evaluation of the Concept

The most frequently mentioned enablers and challenges are summarized and listed below in Table 5 and Table 6. For a full compilation see Appendix C.

Evaluation of the Concept	
Enablers	*Mentioned by*
Talk to potential customers to get feedback on the product concept	*ICV 1, 2, 3, 5, 6, 7*
Be able to show a prototype/proof concept or a finish product when validating an idea with customers	*ICV 1, 3, 4, 5, 6, 7*
The internal validation process for managers at the GHTC is performed simultaneously to the market validation process	*ICV 1, 3, 4*

Table 5 Case Study: Evaluation of the Concept- Enablers

Evaluation of the Concept	
Challenge	*Mentioned by*
To distinguish a need from an actual demand	*ICV 1, 2, 4*
It is difficult to find relevant people to talk with	*ICV 1, 2*
It is time-consuming to find relevant people to talk with	*ICV 1, 2*
To find a balance between cost of evaluation and a valuable outcome	*ICV 4, 6*

Table 6 Case Study: Evaluation of the Concept- Challenges

4.2.3 **Team Constellation**

The team constellation has changed for all ICVs throughout the innovation process. The different teams have been staffed with internal employees and some even complemented with external consultants. However, the main part of the members is employees of the GHTC. For all ICVs, the reason for new recruitments or changes in the constellation, is that different competences and expertise are needed in various stages of the product development.

When it comes to the project leaders of the ICVs, the personal drives for running the ICV varies. For example, the founder of *ICV 1* likes to encounter challenges of different character and to have the pressure to deliver something. Whereas *ICV 4* and *7*, are driven by the opportunity to start something new and come up with new ideas and solutions and not so much the actual development, commercialization and fulfillment of the innovation process. *ICV 7* also highlighted the feeling of contributing with something to the future work of the GHTC and having a work life where each day are different from the other. *ICV 3* on the other hand, meant that the motive force is to work with exciting and complex technology. A concern raised by *ICV 6*, has to do with the project leader, who tends to have great technical knowledge, not being suitable for leading an entire project team, because he/she might not be prepared for the responsibility and all tasks the role implies.

When it comes to the recruitment of new team members, *ICV 3* explained that you as a project leader most often already know who you would like to have in your team and you normally contact these people in person. They moreover stated that if you are looking for a particular competence that cannot be found in the internal employee pool, help can be sought from external consultants. Furthermore, there is a central organization at the GHTC with personnel with sales and business development expertise supporting different projects. *ICV 3* used this resource when they needed to talk to customers. *ICV 2* used external resources for the booking of interviews and to establish contact with the potential target group, which is seen as a time-consuming activity. The fact that many of the ICVs at the GHTC resembles each other, is something that both *ICV 4* and *5* believe is a great advantage, since

you can make use of each other's learnings, competences and previous experience of a certain technology. *ICV 1*, *2* and *4* described that one of the consequences of having small project teams, is that it requires the project leader as well as the other members of the team to take many different roles.

ICV 2 illuminated a challenge of not knowing how long the employees, allocated to the project, will stay, which origins from the fact that the project leader is not the manager for each of the members in the team. They explained that when a resource is taken away from the project it more or less stops until the position has been filled, which is difficult and takes time. According to *ICV 2*, there is a high demand from the GHTC on the ICVs to generate new ideas, which becomes an issue because most of the employees already are staffed on a project. This creates a competition between the ICVs for the resources. *ICV 6* and *1* believe it is difficult to keep resources on the project, because different projects are interested in the same people. Another factor, which has impacted the work of *ICV 1*, is the fact that all members are not working full time on the project, since they are a part of several ICVs. Finding people having time to join the team is described as a challenge by several of the ICVs. Regarding the availability of the right competences, some of the ICVs experience a difficulty when it comes to finding the right person with the right competence in the internal pool of workers. *ICV 2* described the limited amount of resources in the internal pool of workers as one of the greatest challenges, when it comes to staffing teams in an internal incubator. Furthermore, they are of the opinion that not all competences needed to be able to succeed and bring an innovation to market, is available internally. *ICV 1* also experienced this problem as they had to staff their project with employees lacking the right competence and experience. *ICV6* mentioned that you should not underestimate the uncertainty in the process. Everyone working at the GHTC, are not ready for the uncertainty in a startup, but has chosen to work at the GHTC because of the reason that it is safe and stable.

Other challenges related to the team raised during the interviews, were the actual drive for the different projects, the experience of the employees and the possibility to actually include external consultants in the ICVs. *ICV 3* is under the impression that many of the ICVs are not driven to sell and commercialize the innovations but are only interested in solving technically complex software problems. Also, the difficulty of creating a feeling of "this is our business and future" in different ICVs in the context of a large organization affects the outcome. Most of the employees only have experience from working at the GHTC, which is another concerned raised by *ICV 3*, since they tend to be blind to flaws. *ICV 2* believes it is difficult to form a functioning and complete project team today, because of the lack of budget for hiring external consultants. Their solution to this, is to use personal networks and try to convince external people to join.

Summary: Team Constellation
The most frequently mentioned enablers and challenges are summarized and listed below in Table 7 and Table 8. For a full compilation see Appendix C.

Team constellation	
Enablers	*Mentioned by*
The reason for new recruitments or changes in the team constellation, is that different competences and expertise are needed in various stages of the product development	*ICV 1, 2, 3, 4, 5, 6, 7*
The team members need to take many different roles	*ICV 1, 2, 4*

Table 7 Case Study: Team Constellation- Enablers

Team constellation	
Challenge	*Mentioned by*
Limited resources- number of employees	*ICV 1, 2, 6*

Table 8 Case Study: Team Constellation- Challenges

4.2.4 **Organizational Context**

To figure as a startup within a large organization has according to the interviewed ICVs both its advantages and disadvantages.

The access to experts within areas such as user validation, technology and sales, was mentioned as one of the greatest benefits of being an ICV, by *ICV 1*, *3*, *6* and *7*. The great knowledge base and the expertise available at the GHTC is highlighted by both *ICV 3* and *7*. *ICV 6* also emphasized other types of support the ICVs can get from GHTC, such as administrative, legal and security related. Furthermore, *ICV 1* believes that their work has been simplified by support and involvement from senior management. Having a well-known brand behind one's business, can be both beneficial and unfavorable, according to the ICVs. *ICV 1*, *2*, *3*, *4* and *7* described the brand of the GHTC as a great advantage, for example it facilitates the contact with potential customers and partners, booking of meetings and the ability to establish a new business on the market. However, there are aspects to consider when being a part of a well-known organization, since the wrong actions and mistakes might hurt the brand. *ICV 1*, *2*, *4* and *6* mentioned limitations related to security and confidentiality as something restraining the ICVs.

One of the drawbacks of being a part of a larger organization, is the long decision-making chains. *ICV 4* feels like no one knows who should be the one to make some

decisions, and there is always someone directing you to another person. Their problems were pushed up in the organization until they reached a manager who was not familiar with the project. This resulted in *ICV 4* making decisions themselves, and ignoring the process formality, because otherwise they would have ended up killing their idea. Knowing the right people and how to navigate in the organization is crucial according to *ICV 6*, since it makes it possible to avoid the some of the formalization at GHTC. Furthermore, they believe that the manager of an ICV has a great impact on what direction the project will take and what the journey will look like.

Looking at the culture of the ICVs, the ICVs need to be put outside the GHTC in order to build their own culture, since the culture of the GHTC has a strong impact on the ICVs according to *ICV 7*. They also expressed a concern of the employees at the GHTC being a bit older, which tend to result in employees becoming comfortable and less risk taking, two factors which make it difficult to act like a startup. Furthermore, *ICV 7* meant that each of the ICVs have different subcultures, which should be built on taking risks. But, since the project teams need to coordinate their work with a manager, it becomes difficult to be risk taking and achieve the startup mentality. According to them, the culture, large-scaleness and personnel policies make it difficult to create that mentality. Two of the ICVs mentioned the concern of the ICVs in GHTC having too much of an internal focus. *ICV 3* was of the opinion that many of the employees spend all of their time inside the GHTC and are not pressured to look externally. They believe this could become a hurdle, because if you are used to only focus on the internal activities and principles, you will never look outside the company boundaries. According to *ICV 3,* one reason for this could be that few of the employees have worked anywhere apart from the GHTC and therefore lacks experience from startups- neither as an employee or investor. *ICV 3* and *6* would like to have more external input when it comes to validation and decisions regarding future funding.

The word risk was mentioned during most of the interviews, both in terms of the GHTC's view on risk and the risk taking of the ICVs. Both *ICV 3* and *7* were of the opinion that it is a challenge for the GHTC to be agile and to step out of their comfort zone and make decisions that have not been made before. The strong culture of the company is a suggested reason for this. According to *ICV 7*, the precautionary culture, arising from the geographical distance between the global headquarters and the GHTC and cultural differences between the two, might not be the best for rapidly growing ICVs. Some ICVs expressed that you as an ICV do not need to sacrifice anything, nor take the same risks as a startup and more importantly you do not have as much to lose. If your project is closed down, you still get your monthly salary and just join another project team. According to *ICV 2,* the project is not a life's work, but more of an eight to five job with a vacation. According to them, there is a risk that you as an ICV become "Fat and lazy", because of the safety net the GHTC provides and the acceptance to failure. However, *ICV 2* and *4* believe that one of the

benefits of being a startup and being able to take more risks, is that it might be easier to get more funding from external investors and thereby have more money to spend than an ICV.

The ICVs have different experiences and opinions of the innovation processes at the GHTC. *ICV 2* and *6* do not perceive the process controlling, rather that it creates a good structure and clarity in how to proceed with the product development. However, *ICV 6* mentioned examples on when the process slows down the workflow. For example, GHTC works carefully with legal aspects and requirements, which makes the processes a bit slower and thereby might have an impact on the freedom and flexibility of the ICVs. These arguments are supported by *ICV 2*, who believes that one of the differences between being a startup and an ICV in a large organization, is the time that is beings spent on administrative work and process guidelines, such as agreements, applications and signatures. These are time consuming activities for the ICV during the early phases of the innovation process, according to *ICV 2*. Furthermore, they have had customers showing interest in their product idea, but the process has prohibited them from signing any contracts. *ICV 4*, believes that their work has been controlled by the process and the fact that they need to pass different milestones and toll-gates have affected their work negatively. However, they appreciate the processes, but would not mind if they had been more flexible to suit all businesses. Even though the innovation processes at the GHTC are defined with milestones and toll-gates, *ICV 1, 4* and *6* explained that there are ways to work around the principles if you know the right person and how to negotiate.

ICV 2 highlighted the fact that a project driven by an ICV is considered as a product in the project portfolio of the GHTC, which becomes a problem because the project team is not the owner of the resources. On the other hand, *ICV 2* sees advantages with being a part of a larger organization, such as being protected by the GHTC throughout the innovation process and not having any external accounting requirements. Four of the interviewed ICVs, are of the opinion that the GHTC constantly struggles with creating a well-functioning working environment for the ICVs. *ICV 1* described that the processes of the GHTC are optimized for big impact things, that create expectations on all projects being tremendous. This affects what kind of projects that gets to be developed further. The optimization for a larger organization makes, according *ICV 7*, it difficult for the company to try new things and not fall back into old habits and their core business. *ICV 7* sometimes believes it is difficult to innovate within new business areas, since you are somewhat restricted to the frames of the existing structures. According to them, it is not always suitable to use the big company principles, since these might hinder instead of bolstering the work of the ICVs. *ICV 3* believes the processes of GHTC make their work slow and diffuse. *ICV 4* believes that you as an ICV often are limited by the larger organization and discussions arise as a result of conflicting strategies and objectives, which distinguish the ICVs from startups. *ICV 6* stressed the importance

of updating general routines/processes and requirement documents so these can be applied to other businesses than the core business of the GHTC, since the differences between the businesses may vary a lot.

Summary: Organization Context
The most frequently mentioned enablers and challenges are summarized and listed below in Table 9 and Table 10. For a full compilation see Appendix C.

Organizational context	
Enablers	*Mentioned by*
The brand of the GHTC facilitates contacts with potential customers and partners, bookings of interviews and the ability to establish a new business	*ICV 1, 2, 3, 4, 7*
Having access to experts within areas such as user validation, technology and sales	*ICV 1, 3, 6, 7*

Table 9 Case Study: Organizational Context- Enablers

Organizational context	
Challenge	*Mentioned by*
The processes of the GHTC are optimized for the larger organization	*ICV 1, 3, 4, 6, 7*
The brand of the GHTC might cause limitations for the ICVs related to security and confidentiality.	*ICV 1, 2, 4, 6*
The formalization of the process sometimes prohibits the natural workflow and prevent activities from happening at a certain stage	*ICV 2, 4, 6*

Table 10 Case Study: Organizational Context- Challenges

4.2.5 Alignment with Strategy

Many of the interviewed ICVs believe that their work has been affected by the fact that they are small companies within the boundaries of a larger company. For example, *ICV 1* has been able to have their own strategy. However, their work has been controlled by the processes of GHTC. According to them, an ICV have many internal goals to follow, set by GHTC, and continuously new internal and external requirements to fulfill to be allowed to continue to work with their project. *ICV 7* also believes that their innovation strategy has been clearly affected by senior management. According to both *ICV 2* and *7*, there are clear goals from the GHTC on ICVs to quickly establish new customer affairs.

When discussing goals and strategy, all ICVs naturally had different answers. For example, *ICV 2* and *5* both have had a clear goal with their project from the beginning. However, *ICV 2* let their innovation journey decide the outcomes. *ICV 6* stated that it is important to have relatively clear and concrete goals. Their clear

goals have been valuable during their pitching meetings, to indicate how well they have delivered according to what they promised to during the previous meeting, but also to create a well-oiled team. According to *ICV 6* the GHTC should take its time to set up clear and concrete goals with all ICVs to be able to measure activities and prove that the project is heading the right direction.

Summary: Alignment with Strategy

The most frequently mentioned enablers and challenges are summarized and listed below in Table 11 and Table 12. For a full compilation see Appendix C.

Alignment with Strategy	
Enablers	*Mentioned by*
Have a clear and concrete goal from the beginning	*ICV 2, 5, 6*

Table 11 Case Study: Alignment with Strategy- Enablers

Alignment with Strategy	
Challenge	*Mentioned by*
The work of the ICVs are affected by the strategy and management of the GHTC	*ICV 1, 2, 7*

Table 12 Case Study: Alignment with Strategy- Challenges

5 Benchmarking Study

The Benchmarking Study chapter presents the result of the benchmarking study. It comprises an introduction to the external startups that have been interviewed for the benchmarking. Furthermore, the opinions of the different external startups related the critical themes identified in the conceptual framework are discussed.

5.1 Introducing the External Startups

Interviews have been held with nine external startups, which all have reached a "Growth & Expansion" phase in their business development and furthermore are considered to be successful. In this thesis all startups are located in Malmö and Lund. Interviews have been held with the founders of the startups, in order to get an understanding of the company's journey from the idea generation till today, with focus on the initial phases, i.e. the FFE. The external startups are active within different industries and have various experience in terms of how long they have been on the market.

The external startups have been named randomly by using the abbreviation *START*. In Table 13 the companies are presented in brief.

	Founded	Phase	Number of employees	Industry belonging
START 1	2013	Growth & Expansion	10-20	Smart Cities & Smart Buildings
START 2	2016	Growth & Expansion	3	Health & Wellness
START 3	2014	Growth & Expansion	5-15	Smart Cities & Smart Buildings
START 4	2012	Growth & Expansion	6	Logistics & Transportation
START 5	2013	Growth & Expansion	2	Health & Wellness
START 6	2016	Growth & Expansion	5-15	Smart Cities & Smart Buildings
START 7	2010	Growth & Expansion	12	Industrial & Production
START 8	2014	Growth & Expansion	25	Health & Wellness
START 9	2013	Growth & Expansion	50-100	Health & Wellness

Table 13 Presentation of the interviewed external startups

Phase describes the current focus of the startup in their innovation journey. *Number of employees* refers to the number of employees 2017. *Industry belonging* describes what industry the external startup is considered to be a part of, according to the selection criteria see *2 Method*: *Logistics & Transportation*, *Industrial & Production*, *Smart Cities & Smart buildings* and *Health & Wellness*.

5.2 Critical Themes in the Fuzzy Front End

This section presents the findings regarding each of the critical themes derived from the benchmarking study. Opinions and thoughts regarding each theme are presented separately, followed by tables summarizing the key takeaways from the study. However, only the external startups that explicitly have mentioned a particular takeaway have been listed.

5.2.1 **Management of Idea**

There are disparities between the interviewed external startups when it comes to the origin of their ideas. The majority of the ideas were generated as a result from personal observations and experiences of the industry. For example, the business plan of *START 4* originates from a personal need. By studying other industries, they found inspiration to their current solution. Moreover, *START 1*, *2*, *4* and *9* let their idea grow during a longer period of time without having any requirements to quickly generate an innovation.

"If you are looking for a new innovation, it will be hard to find one. One day, you will just by coincidence run across one. "

- Founder of START 2

Two of the startups have developed their ideas from existing technologies used in the industries from which they have experience. For example, the idea of *START 1* evolved by looking at technologies, from which they had previous experience. Furthermore, their current business model was developed through conversations with potential customers. According to *START 1*, existing technologies often provoke questions regarding other areas of usage, and problem identification tend to generate new ideas. In the case of *START 5* and *8*, the ideas were generated based on findings from experts within the particular field of topic. *START 5* described that their idea was a further development of a basic prototype, compiled by some industry experts. The prototype had received good feedback hence, they realized it

could be a great business case. *START 8* built their idea based on an extensive research carried out by an expert.

Having the right partnership early on in the innovation process is, according to many of the external startups, critical for continuous development and success. For example, *START 9* was contacted by a large customer early in the development of their project, who wanted to buy their product and partner up with them. The founder described that due to this partnership, the initial funding was solved as the partner claimed to sponsor all costs related to the development. However, not all of the external startups have had the opportunity to partner up with someone early on. For *START 2*, collaborations have been crucial to be able to survive. However, finding the right partnership has been one of their biggest challenges according to the founder, as there is a great risk of the startup being eaten up by the larger company. *START 4* invested a lot of time initially to identify the right partners. Nonetheless, partnerships have been crucial for them to deliver the right customer value and to be noticed within the industry. Finally, *START 8* explained that by having the right partnerships, they have been able to enter new markets in countries which otherwise would have been difficult.

Almost all of the external startups have, in one way or the other, highlighted coincidence and the networking effect as two crucial factors for their idea generation journey. According to *START 1*, timing, networking and luck have been vital for their success. *START 2* also believes that timing and coincidence are crucial to whether or not the idea will succeed. The idea generation process of *START 3* has been iterative and inputs as well as thoughts from external networking have been important. The founder stated that the coincidence is crucial to when or if you discover a new idea. The business idea of *START 6* has also been developed through networking and coincidence. They met a person with the right technical solution and partnership enabled the generation of the idea.

"A lot of the innovation work depends on coincidence. It is important to constantly be out networking, because suddenly you will meet the person that may be vital for the success of your company. If you meet 100 people there may be 99 useless conversations, but one meeting critical for the future of your product."

- Founder of START 6

START 8 explained that it has been a lot about timing in their idea development. Recently, there has been a lot of changes within their business area and they have been able to take advantage of emerging solutions from competitors. The founder expressed, that if it had not been for the fact that the he/she had a huge interest in the industry, the digitization of the industry and other coincidences, they would not have been where they are today.

"A good goalkeeper is always lucky"

- Founder of START 8

"There are a lot of aspects having an impact on if there will be a solution in the end or not"

- Founder of START 4

All external startups agreed upon the fact that their products and value propositions have changed a lot during their innovation journey. Up till today *START 1* has pivoted several times and most certainly, they will continue to pivot in the future. The founder believes that it is important to achieve a product-market-fit and in order to reach that you have to pivot, since it is not always obvious from the start what the real problem is. *START 4* has done both smaller and larger changes to their initial idea, in order to create a more attractive product. *START 6* has a flexible technical solution, which they have been able to easily change and adopt to feedback resulting in new pivots. The founder highlighted that there are a lot of decisions to be made in the initial phases of the innovation process, but it is important to remember that there seldom exists a clear right or wrong and mistakes make you wiser. One of the learnings of *START 6*, is to pivot fast when the business idea gets rejected by potential consumers. Furthermore, both *START 3* and *9* believe that it is good to build the business model and solution iteratively, instead of building a finished solution from the start, since the environment is constantly changing. *START 7* did not know exactly what they were going to develop. Hence, they let potential customers be a part of the development of the concept. In contrast, *START 9* claimed that they hardly have changed their basic model. The founder explained that he/she initially had a clear perception of how he/she wanted the concept to be developed and has more or less stuck to that perception throughout their entire innovation journey. However, some smaller details have changed after conduction of user studies.

Summary: Management of the Idea

The most frequently mentioned enablers and challenges are summarized and listed below in Table 14 and Table 15. For a full compilation see Appendix C.

Management of the Idea	
Enablers	*Mentioned by*
Pivot several times and build a business model iteratively to find a market fit	*START 1, 3, 4, 6, 7, 9*
The importance of coincidence and timing when it comes to innovation success	*START 1, 2, 3, 6, 8*
The establishment of useful partnerships	*START 2, 4, 8, 9*
The idea was developed during a longer period of time	*START 1, 2, 4, 9*

Table 14 Benchmarking Study: Management of the Idea- Enablers

Management of the Idea	
Challenge	*Mentioned by*
Finding the right partners	*START 2, 4*

Table 15 Benchmarking Study: Management of the Idea- Challenges

5.2.2 Evaluation of the Concept

Primarily, three of the external startups highlighted the importance of performing a thorough market research before entering a new market. In order for *START 4* to develop their business model properly, they had to perform an extensive market research. The founder described that they particularly studied possibilities and difficulties in the marketplace, to gain a deeper understanding of the industry. *START 6* claimed that every time you pivot, it is vital to study the new industry and map out new potential competitors. Even when focus has been on a specific market, the founder stated that they have had other markets under observation. In order to get a clear understanding of the market *START 2* has studied the feedback given to competitors in other countries as well as to product substitutes.

All startups have, in one way or another, validated their ideas towards the market. However, how the validation activity has been executed varies. Both *START 1* and *3*, have mainly used networking to find the right customers. *START 3* explained that a customer seldom is a point of return. They recommend others to let the interviewee suggest other participants, hence using a snowballing effect to find potential interviewees. *START 1* has been networking a lot, which has resulted in a lot of conversations with different people. To get such a large amount of feedback early in the process, is according to the founder of *START 1* priceless. Receiving feedback from many customers is also something *START 3* highlighted as important. Furthermore, he/she stated that a startup is founded through family, friends and fools, as these initially will provide valuable feedback as well as capital. *START 1* has also validated their product with others than just customers. They got feedback internally from the team and from potential investors, which have been valuable sources of information. *START 4*, has validated the market need by doing research on the internet and benchmarking against other businesses with similar ideas. *START 5* has had an internal validation processes before the external release of the product resulting in different types of feedback – both from users and from the team. Similar to *START 5*, *START 8* has developed their concept by considering user feedback and the knowledge of the internal team. However, according to *START 2* and *7*, it is crucial to find a proper balance between listening to customers' requirements and sticking to the original purpose of the product.

The majority of the interviewed external startups have used a proof of concept when validating their product on the market. For example, *START 1* explained the importance of having a proof of concept, as it clearly illustrates what the team actually can do. Moreover, the founder described that a proof of concept can be used to either receive valuable feedback, present the idea for investors, or create awareness of the product. In the case of *START 1* and *3*, a prototype was built early on, to have something to show when searching for funding to prove feasibility and build trust among investors. *START 8* has also created a prototype early in their innovation journey and it has mainly been used to test the concept on a number of users to get feedback. In the case of *START 6*, the founder explained that they have been out meeting customers when these experienced the particular need. Hereby, a prototype has been valuable to be able to show how this problem/need can be solved. *START 4* highlighted a challenge related to the ability to clearly explain and present an idea to everyone in a room. However, the founder claimed that a prototype can facilitate this. In contrast to the examples above, *START 2* and *9* have initially presented their vision without showing a prototype. According to the founder of *START 9* they did not feel that it was necessary to show a proof of concept, as they experienced their product to be easy enough to understand just by telling people about it. *START 2* on the other hand, believes that a prototype is necessary in order to show the product concept. However, they did not have the competences to build one in the beginning. The proof of concept of *START 7* was nothing more than a PowerPoint presentation.

START 4, *6* and *7* have all evaluated their product concepts continuously during their innovation journey. To test the concept on the market as soon as possible and then regularly validate it with different users is important according to *START 4*. The founder claimed that in the earliest phases, the validation activity could be executed with for example family members. *START 7* have been talking with customer since day one. *START 6* believes that it is important for a startup to be keen towards the market and to develop the concept based on the preferences of the market. It is also important to be ready to change focus to a new industry when a greater opportunity occurs. Furthermore, it is vital to be able to avoid a tunnel vision and not be attached to a specific market too early, according to *START 6*.

Summary: Evaluation of the Concept

The most frequently mentioned enablers and challenges are summarized and listed below in Table 16 and Table 17. For a full compilation see Appendix C.

Evaluation of the Concept	
Enablers	*Mentioned by*
Validate the product with customers	*START 1, 2, 3, 4, 5, 6, 7, 8, 9*
Importance of a proof of concept to get e.g. funding or feedback	*START 1, 2, 3, 4, 6, 7, 8*

Table 16 Benchmarking Study: Evaluation of the Concept- Enablers

Evaluation of the Concept	
Challenge	*Mentioned by*
To be able to clearly explain and present an idea to everyone in a room	*START 4*
Not having the competences to build a good prototype	*START 2*

Table 17 Benchmarking Study: Evaluation of the Concept- Challenges[2]

5.2.3 **Team Constellation**

Team unity is mentioned as one of the critical factors for success by the majority of the external startups, more specifically: *START 3, 4, 5, 6, 7* and *9*. *START 5* believes this sometimes is more important than the actual idea, and that you with the right team can overcome most of the challenges you encounter.

"As an employee you should not just feel like an employee, but as you are a part of something bigger"

- Founder of START 9

When it comes to the team constellation, almost all external startups have built their teams based on the competences needed at the time. For *START 2*, technical competence was needed to be able to develop their first prototype and *START 5* needed the founders business competence in order to bridge the gap between the developers and the investors. The team of *START 4* has been developed alongside the organization and employees have been brought in to perform specific tasks. In the case of *START 9*, the team was put together with the ambition to contain all the competences necessary for them to create a viable prototype. However, both *START 3* and *6* highlighted that it is not the competence of the employee that is important, but the person's drive and characteristics. In the end, the most important thing is to have the right people in the team and then you can find a role for each individual. Moreover, the majority of the external startups- *START 2, 4, 6, 8, 9*, have included external consultants in their teams, in order to cover for missing competences within the team.

Regarding the recruitment of new employees, two main aspects or ways of working were brought up during the interviews: *the usage of the prototype* and *networking*. Both *START 3* and *8* have used their prototype to communicate their business idea and attract new co-workers. Furthermore, the majority of the external startups - *START 1, 2, 3, 6, 8* and *9*, have found their employees through networking and have

[2] No challenges in regard to "Evaluation of the Concept" have been mentioned by more than one external startup.

emphasized that being at the right place at the right time is important in order to find the right employees- with the right competence and mindset. *START 8* have spent a lot of time at different fairs and events, to be able to show their prototype and network to recruit new employees. However, they explained that the majority of their employees have been found through contacts. To find new channels and recruit outside your network and your inner circle, is something that *START 3* believes is important to be able to create a divers and well-functioning team. They call this "*networking, outside your comfort zone*". *START 2* and *7* also believe that differences in a team are good.

The majority of the interviewees - *START 1, 2, 3, 4, 5* and *9*, explained that the team tends to be small in the early stages of the product development. Hence, all team members need to take multiple roles, even though these are something completely new to them. According to *START 4*, running a company requires a lot of different competences and experiences, but for a larger company it is easier to recruit someone for a specific role or task than for a startup. Therefore, the members of small company need to be prepared to help where it is needed, even though it is within an area other than your main expertise.

The founders of the external startups have various backgrounds and drives. The founders of *START 4* and *8* explained that their main drive is to prove that the business idea works and also to be able to make a difference by solving a problem for their customers. The drive of the founder of *START 9* is to create something from scratch and see the idea grow and develop with help from talented people. Moreover, according to *START 1, 4* and *6,* money and salary should be secondary for the founder. The founder of *START 4* claimed that if money had been the most important thing, he/she would not have become an entrepreneur. Furthermore, *START 1,4* and *6* was of the opinion that as an entrepreneur you need to dare to take risks, even though it might jeopardize your career.

"*After five years, I am really excited to have a great challenge ahead of me, which might become the spine in our organization"*

- Founder of START 4

"I went from having a job to having a hobby!"

- Founder of START 5

Something mentioned during the interviews by the founders of *START 1, 3* and *5*, is that a founder or project leader must enjoy having many roles, take a holistic perspective, be willing to put a 100 % focus on the organization and spend a lot of time developing the business.

"If nothing happens, I lose focus immediately"

- Founder of START 1

However, creating and work as a well-balanced and complete team is easier said than done and for *START 1*, *2* ,*3* and *4*, it has been a challenge to find the right people. Having a well-balanced team constituting of people with different opinions and backgrounds is important according to *START 3*, who states that one common mistake is to only recruit people from your own network and people who are similar to you. The founder of *START 3* believes that this could create biases. *START 2* prefers to be a diverse team, even though this sometimes has been hard. The complexity arising for the diversity has been crucial for their success, since the team members have complemented each other. However, for *START 5* it took a longer time for the team to accept the business idea, due to different opinions and backgrounds. *START 1* has used networking to find the right people and believes that their good reputation and personal brand has been an advantage for them compared to other startups. Another solution to the difficulty of finding suitable team members, used by *START 4*, is to take support and help from stakeholders, such as owner and the board. The fact that not all people are capable to handle the insecurity in a startup, is something *START 6* emphasized during the interview. In their team, only the ones that are driven by and appreciates the uncertainty have stayed and the rest have left the startup.

Summary: Team Constellation

The most frequently mentioned enablers and challenges are summarized and listed below in Table 18 and Table 19. For a full compilation see Appendix C.

Team Constellation	
Enablers	*Mentioned by*
It is important to have a united team	*START 3, 4, 5, 6, 7, 9*
In the initial phases, employees need to take multiple roles	*START 1, 2, 3, 4, 5, 9*
Usage of networking to recruit new employees	*START 1, 2, 3, 6 ,8 ,9*
Usage of external consultants	*START 2, 4, 6, 8, 9*
Competence and need have been the starting point in the building process of the team	*START 2, 4, 5, 9*

Table 18 Benchmarking Study: Team Constellation- Enablers

Team Constellation	
Challenge	*Mentioned by*
Finding the right people for a well-balanced team	*START 1, 2, 3, 4*

Table 19 Benchmarking Study: Team Constellation- Challenges

5.2.4 **Organizational Context**

All external startups, apart from *START 9,* have been or still are a part of an incubator. Almost all external startups, apart from *START 2* and *7*, describe the access to a great network of people and the possibility to meet new people, as the main advantages of being a part of an incubator. According to *START 3* and 6, this opens up for potential investments or new possibilities and the network can be used to access certain knowledge or to recruit new people. *START 1* described that the environment in which they get to work in today, exhibits a cool and inspiring environment, as well as interesting meetings. Other advantages of being a part of an incubator is according to *START 4* the ability to get support, help with idea generation, finding investors and more importantly an opportunity to exchange ideas with others. The fact that you get to meet people who are going through a similar journey as yours and the opportunity to exchange ideas, are highlighted as some of the greatest benefits by *START 4, 5, 8* and *9,* since this opens up for new business ideas. Furthermore, it implies that several people are driving the projects forward, hence you never have to be alone in the innovation process. As been mentioned earlier, *START 9* has not been a part of an incubator or an accelerator. The founder never wanted to be a part of an incubator, because he/she thought it would have limited their development and drive, as a result of the degree of formalization. Instead, *START 9* has had its office in a cellar, which according to the founder contributed to a creative environment. In combination with working according to trial-and-error principles, he/she believes the environment created dynamics, efficiency and short decision-making chains in favor of the startup. Moreover, both *START 7* and *9* highlighted the advantage of all team members sitting in the same room.

According to *START 6* and *7*, a startup does not have the same pressure and requirements to show short term results as a larger corporation. Even though a startup strives to reach black numbers, there is an understanding for things taking time. Furthermore, the two external startups meant that you as a startup does not have a brand to defend, which implies an increased flexibility and adaptivity. *START 6* highlighted that the risk of being a startup is not just an economical but also a career risk.

Time is a resource many of the interviewed external startups mentioned as scarce in the beginning of the innovation process. Initially, both the founders of *START 2, 4, 5* and *9* had another job alongside starting up the business, making the startup a part-time job performed during late evenings.

Challenges related to the startup setting mentioned by some of the interviewees are: the uncertainty regarding the survival of the company and the bureaucracy. *START 7* has experienced a constant pressure to survive. According to *START 1, 5* and *9,* a startup faces demanding bureaucracy from for example the Swedish Tax Agency,

which is a time-consuming activity, preventing the company from being able to perform fast development.

"*If you are analyzing and thinking too much, there is always someone running past you"*

- Founder of START 9

Regarding the degree of formalization in the innovation processes of the external startups, *START 5* and *9* were of the opinion that it is important to find a balance between having a formalized process with all activities mapped out and no guidelines or plans on how to proceed at all. It might be dangerous to spend too much time on processes and business-related activities, such as business models, in early stages since this may limit the creativeness and flexibility. According to *START 5* it is important to have some kind of performance indicators to clarify the process.

The startup setting is flexible according to *START 1, 6* and *9,* which makes it okay to experiment and be fast-moving. Moreover, *START 2* and *5* stressed the importance of being able to make your own decisions and impact everything you do.

"If we get an opportunity in South Africa, we just go for it!"

- Founder of START 5

START 4 also describes that the startup culture is characterized by flexibility, openness and acceptance, which makes room for changes. This is something that *START 6* supported, and they further emphasized the importance of a culture in which failure is accepted and with an understanding for failure being a part of the process. They were also of the opinion that having the energy to change focus and recover after a failure is a challenge of many startups. Another cultural aspect for success, lifted by *START 9*, is to have an openness towards each other's differences-opinions and thoughts.

"*Google has numerous of projects in their graveyard and only a handful products, and that is what it all is about!"*

- Founder of START 9

One of the most difficult, but also one of the most critical things for a startup, highlighted by the majority of the interviewed external startups, are funding. Especially *START 2, 4* and *8* highlighted the search for funding as challenging. *START 3, 6* and *8* also mentioned the importance of funding to be able to recruit new employees. *START 6* could not offer their employees any salary due to limited monetary resources. *START 3*, on the other hand, paid salary to their first employees, but from the founder's own pocket. Whereas, *START 8* made the decision to only

recruit new employees when they got funding. Moreover, *START 1, 2, 4* and *9* also highlighted challenges in regard to scarcity of monetary resources.

"*It is 400 times more difficult to get venture capital than getting accepted to Harvard"*

- Founder of START 8

START 4 described that the speed with which capital is provided, has an impact on how fast you are able to move forward and how the business model can be outlined. If you do not get funding you will not be able to develop the product or pay your employees, which stress the importance of funding according to *START 2*. However, they regard the seeking for funding as a time-consuming activity, which is not preferable.

"*As a startup you always have an axe above your head"*

- Founder of START 2

Not having enough capital makes, according to *START 4*, it impossible to fix all problems at once. Moreover, *START 4* explained that once funding has been received you need to start proving something and be able to show your progress, learnings and the next step. Receiving funding also implies that the daily work becomes more affected by stakeholders. *START 4* further highlighted that the more investors you have got, the higher impact they get and the less control the founders get. Their way of dealing with this challenge is to only accept investors they like.

Summary: Organizational Context

The most frequently mentioned enablers and challenges are summarized and listed below in Table 20 *and* Table 21. For a full compilation see Appendix C.

Organizational context	
Enablers	*Mentioned by*
It is important to get funding	*START 1, 2, 3 4, 5, 6, 8, 9*
The main advantage of being part of an incubator is the access to a great network of people and the possibility to meet new people	*START 1, 3, 4, 5, 6, 8, 9*
Be willing to work late hours	*START 2, 4, 5, 9*

Table 20 Benchmarking Study: Organizational Context- Enablers

Organizational Context	
Challenge	*Mentioned by*
Monetary resources are a scarce resource in the beginning of the innovation journey	*START 1, 2, 3, 5, 6, 8, 9*
Time is a scarce resource for the founders	*START 2, 4, 5, 9*

Table 21 Benchmarking Study: Organizational Context- Challenges

5.2.5 Alignment with Strategy

When it comes to strategy, *START 2* believes it is important for the whole team to work in the same direction and towards the same objectives. According to them, it is particularly important to have a clear vision and a clear goal, especially when there are people with opinions and who would like to influence the work. Since the start, *START 4* has had a common starting point, which has constituted the foundation for their work. On the other hand, neither *START 7* or *9* have had an expressed strategy, rather informal ones. For the founder of *START 9*, it is more about running as fast as you can. He/she believes in the philosophy of not thinking too much, but just keep moving forward. According to him/her it is better to understand that focus will change all the time, due to changes in customer and market preferences, which makes it important to be dynamic and not limited by a long-term strategy.

"In a dream world, the world we are going to, we will have annual sales providing us a cash flow large enough to invest in other areas"

- Founder of START 5

On the contrary, *START 1, 8* and *9* believe it is important to have goals, but they were of the opinion that the goals rarely are fulfilled. *START 9* stated that the ability to present goals and financial data mostly are for the sake of investors. According to him/her it is not about being able to reach financial targets, but about the potential of the idea. Furthermore, *START 1, 2* and *4* highlighted the impact investors have on the direction of the startup's work. They all believe that it is important to follow the strategy as new investors are brought in, as well as being careful with bringing in the right investors. *START 4* for example has only chosen investors which they like and would like to have with them on their journey.

Summary: Alignment with Strategy

The most frequently mentioned enablers and challenges are summarized and listed below in Table 22. For a full compilation see Appendix C.

Alignment with Strategy	
Enablers	*Mentioned by*
It is important to stick to the strategy as new investors are brought in, as well as being careful with bringing in the right investors	*START 1, 2, 4*
When it comes to strategy, it is important to have well-known goals	*START 1, 8, 9*

Table 22 Benchmarking Study: Alignment with Strategy- Enablers

No challenges have been mentioned in regard to *Alignment with Strategy*.

6 Analysis

In the Analysis chapter the findings from the case study and the benchmarking study are analyzed in regard to the critical main themes in the Conceptual Framework, chapter 3.7 Conceptual Framework. Comparisons with previous research conducted in the field will also be presented. The aim with this chapter is to identify key enablers for reduced ambiguity in the Fuzzy Front End, by using the analysis model described in 2.4 Data Analysis.

According to the conceptual framework, see *3.7 Summary of Theory & Conceptual Framework*, the critical main themes in the *Fuzzy Front End* (FFE) that will be discussed and analyzed are: *Management of the Idea, Concept Evaluation, Team Constellation, Organizational Context* and *Alignment with Strategy*. The purpose with this thesis is to compare differences and similarities between *internal corporate ventures (ICVs)* and *external startups.*

In the following sections the different critical main themes will be analyzed separately.

6.1 Management of the Idea

Idea Generation
When it comes to the generation of ideas this study shows similarities between the ICVs and the external startups. For both parties the ideas have mainly arisen from personal experiences and re-usage of existing technologies. However, something distinguishing the two, is that the external startups also have been looking at other industries for inspiration. Methods such as market research and trend analyses are being highlighted in literature as helpful in the idea generation in order to decrease the fuzziness in the FFE (Koen et al., 2002), which emphasizes the relevance of awareness of other markets. Moreover, many of the external startups explained that the idea generation must be allowed to take, and preferably should take, long time. This is an aspect not mentioned by any of the ICVs, which are part of a funding track with deadlines and time restrictions at the GHTC. Koen et al. (2002) state that the desired level of detail will impact the time required for the opportunity analysis. This indicates that too tight time restrictions in the beginning might result in the absence of detailed mapping of the market, making the FFE fuzzier. Hence, it could

be preferable for GHTC, if striving towards a less ambiguous FFE, to unstrain time restrictions in the beginning and let the idea generation take time. However, it is a balance between having a too exhaustive knowledge gathering and actually stalling the innovation process (Koen et al., 2002).

Partnership

Partnership is a factor being highlighted by both the ICVs and the external startups, as an important enabler when it comes to management of the idea. This is supported by the Frishammar and Florén (2008), who state that external cooperation with others except customers is a critical success factor in the FFE. Furthermore, they claim that by selecting and partnering with competent suppliers, technology fuzziness can be reduced. However, how to make use of and the intention for partnership varies between the two parties. The usage of partnership by external startups, has to do with getting access to and take advantage of a potential partner's resources, for example money, technology, marketing capacity. Whereas, the ICVs have used their partners as customers, to test their product ideas and to get access to market knowledge. It therefore seems like the external startups use their partnerships to seek what the ICVs already have access to, as being a part of a larger organization. Furthermore, one difficulty raised by several of the interviewed external startups, was to find the right partners, which according to Zhang and Doll (2001) can be seen as supply fuzziness in the FFE. Owing to the brand of the GHTC, finding partners have not been an issue for the ICVs. Since partnership is seen as something important by both the external startups and the ICVs, GHTC could use its brand to establish more partnerships, thus this may provide a competitive advantage for the ICVs. As been mentioned above, the ICVs use their partners to gain market knowledge, which is something that could be used even more if the brand is used till its full potential. On the other hand, one of the ICVs highlighted that partnership may result in a lack of selling experience, which is an aspect that should be considered. The partnership can furthermore be used to gain faster insights in new business areas, which is desired by the ICVs who are under time pressure due to requirements of the GHTC. However, it is important to remember to not solely use partnership to gain market intelligence, but also to actively be out talking with customers and get selling experience.

Networking

Networking is an enabler especially mentioned by the external startups for better management of ideas. One of the external startups claimed that a specific meeting with a particular person could turn out to be crucial for whether or not an innovation becomes a success, but also for the future direction of the development process. Interestingly, networking is only mentioned by one of the ICVs as a key component in the innovation process. Potentially, this could be due to the internal focus of the ICVs. As mentioned above, networking is considered to have a positive impact on innovation success (Ritter & Gemünden, 2003). Thereby it could decrease both the customer and the technology fuzziness in the FFE. However, networking is also

mentioned as a challenge by the ICVs, who are of the opinion that it is difficult to network outside the GHTC. Since networking is considered to be an important enabler by foremost the external startups and a challenge for the ICVs, this is an area that the GHTC could direct focus to in order to investigate what advantages they could exploit, and how these could improve the work of the ICVs. For example, one of the ICVs expressed a desire to participate at different startup events and fairs, which are great networking activities according to the external startups. This is something that could be worth further exploration by the GHTC.

Pivoting

In accordance with literature, pivoting is common for a startup (Edison et al., 2016), and a typical way to develop and further refine ideas into product concepts in the FFE. The external startups, as well as one of the ICVs, are of the opinion that pivoting is necessary to increase the likelihood of success. One of the external startups promoted to have a flexible product idea, which later on can be developed through validation to ensure product-market fit. This product flexibility is not emphasized by the ICVs, who tend to already have a solution which they try to fit in to a certain market. This indicates that some ICVs are trying to get a product-market fit before investigating if there exist an actual problem- a problem-solution fit, which is interesting since the innovation processes at GHTC are built on lean startup principles. Hence, this should implicate that pivoting is a part of the innovation processes of the ICVs. Koen et al. (2002) suggest a number of methods for efficient idea generation, which together forms an extensive initial market research, and according to lean-startup principles the first step in the innovation process is to ensure a problem-solution fit (Edison et al., 2016). Hence, it seems important to investigate the actual problem and need of a specific market before trying to achieve a product-market fit. Due to the uncertainty in the FFE, it is important to ensure that there is a real need for the product being developed. Since, mistakes in the FFE according to theory might be costly in later stages (Reinersten, 1994; Bacon et al., 1994; Smith & Reinertsen, 1998). Pivoting therefore seems like an important activity related to product success.

6.2 Evaluation of the Concept

Validation with Customers

Looking at the theme *Evaluation of the Concept*, both the ICVs and external startups agree on the importance of validating a product or concept, especially towards the market and potential customers. Moreover, talking to potential customers is the most commonly mentioned enabler by the ICVs and also a frequently mentioned enabler by the external startups. This is in line with the literature, claiming that engaging customers in the development of new innovations provides benefits for the innovative company (Ngo & O'Cass, 2012) as fuzziness in the front end often is

related to customer preferences (Zhang & Doll, 2001). However, one ICV experienced that the GHTC has restricted their chances of doing this. This could potentially be a negative consequence of the innovation process at the GHTC. The degree of formalization and specified activities, as well as toll-gates the project teams are expected to follow, might not always be the best for the situation of an ICV. Both ICVs and external startups claimed that their validation process has occurred during different stages of the innovation process. However, the external startups more clearly highlighted the importance of conducting some sort of validation on a continuous basis. Furthermore, they also state that validation has been carried out from the beginning of their innovation journey. This is in line with Goldenberg et al. (2001), who describe early screening and evaluation of ideas as important, since the cost of killing an innovation increases when the process proceeds towards the product launch. Moreover, in accordance with theory (Koen et al., 2002), it seems vital to have a robust idea to further develop and in order to get one, early customer involvement is necessary and might even contribute to more robustness.

Internal and External Validation

Literature highlights that the validation activity should be carried out both internally and externally, to get input on an idea from various sources (Alam, 2006). This is supported by some of the ICVs, as well as the external startups. However, when referring to the internal validation, the ICVs and the external startups refer to different things. Some of the external startups have performed an internal evaluation within the startup team, before conducting an external validation towards the market. On the other hand, when the ICVs talk about internal validation, they refer to the internal evaluation with the gatekeepers at GHTC. This is also mentioned by Chesbrough (2014), who states that an ICV not only has to pivot to get market acceptance, but also pivot within the corporation to obtain permissions, protection and resources needed for further development. Some of the external startups, in contrast to the ICVs, highlighted that it could be preferable to validate an idea with other external sources than just potential customers. It seems to be valuable to validate with others than customers in order to get different viewpoints and perspectives. For example, family and friends have been used to initially validate the ideas, before spending too much time or money on validation towards customers. Moreover, this could be seen as a cheap way of getting input on an idea early on, which potentially could decrease the customer fuzziness. However, the security regulations of the GHTC to some extent limit what can and cannot be said about an innovation, which could make it difficult for the ICVs to share their thoughts and ideas with people outside the organization early on. What should be considered by the GHTC, is if it sometimes could be beneficial to deviate from their formal structures in the early phases to facilitate the validation for its ICVs. According to theory, this initial phase might profit from more flexibility and informality, even though formalization may facilitate transparency, order and predictability in the process (Khurana & Rosenthal, 1998).

Balance in the Validation Activity

One of the most frequently mentioned challenges by the ICVs and the external startups, has to do with some kind of balance in the validation activity. However, what balance the two parties refer to differs. According to some of the ICVs, it is hard to find a proper balance between cost of evaluation and valuable outcomes. Nevertheless, the external startups highlighted another challenge with finding an appropriate balance between listening to customers' requirements and sticking to the original purpose of an idea. The fact that neither the external startups nor the ICVs have mentioned what the other party highlighted, could be an indication of a different focus between the two parties. The external startups see their customers as their foremost future revenue stream, whilst ICVs know that they will continue to get their salary from GHTC in the future, no matter outcome of their ventures. A reflection made by the authors, is that this potentially could imply that the external startups get higher incentives to talk with customers, as it becomes a more personal drive related to the personal risk they expressed during the interviews. This is supported by literature. KPMG (2014) states that ICVs tend to have more of a business focus on continuity and expansion, whereas startups tend to have stronger and often personal drive to success. Furthermore, the external startups lack the non-tangible assets that the ICVs have got, which makes it critical for them to develop a product which constitutes the value the customers look for. This supports the importance of performing validation on a continuous basis expressed by the external startups and could be a potential explanation to why they do not express the same concern for this being a resource consuming activity as the ICVs did.

Networking

The compilation of the benchmarking study reveals the usage of networking, to find relevant customers to validate the concept with, as one of the most mentioned enablers. As an example, one of the external startups explained that they have used networking and moreover the snowballing effect to get in contact with the right customers. However, networking has not been mentioned by any of the ICVs in regard to the concept evaluation. The two most commonly referred to challenges by the ICVs, both originates from the activity of finding relevant people to talk to. The first challenge underlines the fact that it is hard to find relevant people to talk to, which could be related to the lacking networking activities. The second emphasizes that it is a time-consuming activity. Interestingly, the time pressure once again is lifted by the ICVs, which makes the authors wonder if the restrictions and deadlines in the innovation process at GHTC are too tight, implying that the desired positive effects from these, such as enhanced progress, are not experienced. Furthermore, the attitude of an ICV towards the evaluation activity and their incitement to talk with customers once again could be questioned. It seems like something considered to cause more harm than good and just being an activity that the ICVs must perform because the process description says so. As the external startups are not experiencing the same challenges as the ICVs, networking could be a potential solution to find the right customers and hence decreasing the customer fuzziness.

Furthermore, it could be a faster way to reach a larger number of people. The internal focus of the GHTC, expressed by one of the ICVs, might make the barrier to network externally higher. However, what should not be forgotten is that the interviewed external startups are operating in an environment, which makes networking both easy and a natural part of their everyday business, not requiring the same effort as it would for an ICV to participate at for example a startup fair.

Proof of Concept or Prototype

The most obvious similarity in regard to the concept evaluation, is the presence of a proof of concept or a prototype. This is a factor considered to be one of the most critical enablers for decreased customer fuzziness, by both the ICVs and the external startup. This is also in accordance with literature (Frishammar & Florén, 2008). Likewise, the ICVs and the external startups more or less agreed on how the proof of concept can be used and highlighted that it has been used for increasing the trustworthiness, better description of the product or to gain better more valuable feedback of the product etcetera. Hence, it could be seen as a tool to decrease the customer fuzziness. However, some of the external startups also mentioned their prototype as vital when seeking funding from investors. This has not been mentioned by any of the ICVs. Even though a proof of concept is highlighted as something crucial by the greater majority of the ICVs, one of the ICVs believed that GHTC has limited their chances of developing one. According to Employee O (2018), the GHTC does not want to perform any development before being confident that the product launch has the potential to be successful, to avoid unnecessary costs. None of the external startups have experienced the same challenge of not being allowed to create a prototype from the start. This could be due to the fact that they are the owners of their innovation processes and are not restricted by any limitations of a larger corporations. However, according to theory, a minimum viable product does not necessarily need to be anything physical related to high costs, but just an artefact visualizing the value and idea of the product, making it easier for customers to understand its value (Still, 2017). This is supported by both the ICVs and the external startups, who were of the opinion that a proof of concept does not have to be anything more than a piece of paper describing the product or a PowerPoint presentation. What is most important, is to have something to show to help describe the product. Since prototype is highlighted as something important by both the ICVs, external startups and theory, the GHTC should consider finding ways to generate resource-efficient prototypes, since they otherwise may end up with products not desired by the market.

Partnership

One thing only used by ICVs in the concept evaluation is partnership. Partnership has been used by the ICVs to get their first customer. This indicates that they have used their partnerships to decrease the preference fuzziness, which is mentioned by Zhang and Doll (2001) as one fuzziness contributing to ambiguity in the FFE. The usage of partnership in concept evaluation is not mentioned by any of the external

startups, which the authors find interesting. One possible explanation, is that external startups do not have the same intangible resources as the ICVs has a part of the GHTC, which could simplify the establishment of a partnership. Furthermore, the activity of establishing partnership becomes costly both in terms of time and money, which are limited resources for external startups in early development. Nonetheless, none of the external startups have mentioned partnership as something they would like to have in order to perform a better market validation. This is contradictory to literature, stating partnership as something that could be crucial for a startup (Richman, 2015).

6.3 Team Constellation

Diverse Team
Regarding the constellation of a team, some of the external startups highlighted the importance of differences in backgrounds and characteristics of the team members and the necessary complexity arising from the diversity. This is supported by theory that states a diverse team may improve the performance by increasing creativity and the problem-solving within the group (Parens, 1998; Stanford Business, 2006). These two team characteristics could be important in the FFE to overcome challenges regarding customer fuzziness. Having a diverse team is not just an advantage, it is also mentioned as a challenge by the external startups due to different opinions and views on specific matters. Interestingly, the necessity of having a diverse team is not mentioned by any of the ICVs. However, the fact that the GHTC has noticed the situation of homogeneous ICVs, and has evaluated methods for increased team diversity, strengthens the impression of diversity being important. Therefore, it seems relevant for the ICVs to realize the advantages of having a diverse team and not only recruit from their internal network.

Expert Competences and Multiple Roles
Highlighted in the interviews with the ICVs, is the central sales and business department, which supports several of the project teams with their expertise. This is an advantage for the ICVs who get access to expertise within areas that most of the teams are lacking. But it can also be seen as a disadvantage because of the fact that the sales and marketing people are involved in several projects, which implies a disrupted focus. A reflection from the interviews, is the fact that members of a startup are willing to take different roles and perform the task that needs to be done, even though it is outside their comfort zone and main expertise. This could be a result of the limited resources in the initial phases of the product development requiring the team to solve problems internally. The ICVs on the other hand, have solely mentioned the need of the founder to take multiple roles. This could be due to the fact that the ICVs have access to numerous of resources at the GHTC. It could therefore be easier and less demanding for them to ask someone else or use an expert

resource, rather than trying to solve an issue internally within the team. This could be both an advantage and a disadvantage, since the usage of experts ensures quality, but this also implies a lower and incomplete knowledge base within the team. This makes them dependent on these experts, which might be unfavorable for the ICVs if a specific expert for some reason are not available when a problem arises. Since the nature of the FFE is uncertain and unpredictable problems may occur, it could be valuable to have both quick access to support and team members willing to take different roles.

Recruitment

A similarity between the external startups and the ICVs, is that the need for specific competences constitutes the main reason for recruiting new employees, thereby impacting the team configuration. In addition, some external startups expressed personal characteristics and drive as important in the recruitment of new team members. This aligns with thoughts lifted by Steven and Burley (2003), who claim that the personalities of the individuals in an innovation team is as important as the process itself. For example, they suggested that it is about finding the right person for the job with the right attitude and mindset. These other types of characteristics to consider in new recruitments are not lifted by the ICVs. However, all team members have chosen to be a part of a project team instead of continuing with their old tasks. This indicates a willingness to be a part of the creation of a new venture, which could be seen as the "right" mindset.

How to recruit employees and where to look for new ones, varies between the external startups and the ICVs. The external startups mentioned prototyping and networking as two vital tools in new recruitment. They highlighted the importance of recruiting outside your network and "inner circle". This could enhance the possibilities to create a well-balanced and diverse team, which increases the chances of overcoming challenges in the FFE. Networking is something only mentioned by one ICV, therefore this is something that should be considered by the GHTC. The ICVs are encouraged to recruit from the limited internal pool of workers, which implies relatively homogenous teams. The external startups however, are not limited to recruit from certain resources, which gives them greater selection opportunities. Moreover, one of the challenges highlighted by the ICVs, is to find the right person inside the GHTC, as not all competences necessary can be found internally. Another concern expressed by one of the ICV is the lack of experience from other workplaces than the GHTC in the internal pool of workers. This internal limitation of the ICVs could potentially impact the chances of the ICVs to compile the best team possible. Furthermore, it indicates that the benefits of operating as an ICV within the boundaries of a larger company just as easily could be seen as a limitation. As literature state, ICVs have access to resources and capabilities of the parent company (Chesbrough, 2014), however when they experience these resources to be limited, the benefit becomes a disadvantage. The fact that ICVs experience a great accessibility of internal experts at GHTC within areas such as user validation proves the benefits of being an ICV. However, it could also lead to a lacking external

perspective and possibilities to get new insights and new knowledge. Hence, the pool of human resources at GHTC could be both a limitation- when referring to the pool of potential project employees, and a benefit- when referring to the supportive network of experts at GHTC.

The Founder

According to literature, the founder and entrepreneur of a startup often is necessary for business success (Anthony, 2012). Furthermore, Frishammar and Florén (2008) state that innovation benefits from having a leadership managed by committed enthusiasts, keeping persistent pressure on the startup and ensure progress in the project and survival in the FFE. Both the external startups and the ICVs agreed on the fact that the project leader need to take multiple roles and the external startups agree with literature on the leader's importance for the outcome of the business. The fact that different challenges occur throughout the innovation process, implies that the leader needs to be adaptable and flexible, as different characteristics may be desirable in different stages of the innovation journey to tackle the problems that arise related to specific activities. However, the two startup-like companies highlighted different characteristics of the leaders. For example, external startups described characteristics such as: enjoying having a holistic perspective, dedicating all its focus on the business, be willing to prove their business idea, making something from scratch and see it grow. They also expressed that money should be secondary and that the founder need to be willing to take risks. Some of these characteristics are described by the leaders of the ICVs as well, such as the interest in creating something new. However, there are project leaders in ICVs who expressed that they are only driven by creating new businesses, and not interested in the actual development nor the commercialization of the product. Another similarity between the two parties, is the fact that the idea owner or founder often becomes the leader of the business. Some of the founders of the ICVs have mentioned, they do not believe that they are suitable for being project leaders and moreover they do not find any drive or motivation in commercializing an idea. Instead their main interest is to come up with new innovative ideas. This is something that the GHTC should consider before letting the idea owner become project leader. Perhaps, it could be preferable to take advantage of idea visionaries and let them come up with new innovative ideas and then encourage other employees, more suitable for leading projects, take over the development and commercialization of ideas.

Team Unity

The majority of the external startups mentioned team unity as an important enabler for success and some even believed that this is more important than the idea itself. This is supported by Bacon et al. (1994), who state that it is important to have trust and effective communication within the team. Nonetheless, a challenge regarding team unity for the ICVs, is that some team members are part of several teams, which implies disrupted focus and uncertainty regarding whether a project will be able to proceed due to the risk of losing a particular employee to another project. The fact

that you as an ICV do not know how long employees will be allocated to your specific project seems problematic. Thereby, the GHTC should consider letting the employees be a part of only one team at the time, in order to increase the possibility to achieve team unity. However, the internal pool of workers is too small to staff all upcoming and ongoing project. Therefore, in order to staff the projects with full-time employees, the GHTC could either increase their internal pool of workers, limit the number of ongoing projects in the funding tracks or increase their budget for recruitments of external consultants.

Risk Averseness

The fact that the employees in the ICVs have fixed salaries and are a part of the safety net of the GHTC, might have an impact on the drives and mindsets of the ICVs. During the interviews with the external startups, the willingness to embrace risks was emphasized as important for the teams. On the other hand, one of the ICVs stated that not all team members in the project teams at the GHTC are open for the risk taking often associated with startups. Furthermore, some employees have actively chosen to work for a larger organization to avoid that uncertainty. As been mentioned in literature, the FFE is characterized by uncertainty and ambiguity (Koen et al., 2002), which makes risk taking a part of the daily work. Therefore, the risk averseness and the unwillingness to take a personal risk, will influence the decisions taken in the FFE, which might impact the possibility for an ICV to create a successful innovation. Furthermore, some of the external startups mentioned that taking a personal risk has created a desperation, which has been crucial for them to be able to overcome challenges during the innovation journey This is in line with what KPMG (2014) states, when claiming that startups tend to have a stronger and more personal drive to success. The risk taking of the ICVs are somewhat affected by the risk averseness of the parent company. Hence, in order for the ICVs to become more willing to take risks, the GHTC could encourage, and even force the ICVs to become more risk taking, by for example change strategies and the environment of an ICV.

6.4 Organizational Context

There are differences between the organizational context of the external startups and the ICVs, both when it comes to such as environment, culture and climate, processes, structures and access to resources. These differences seem to impact the performance and likelihood for success in the FFE.

Incubator

The fact that the majority of the interviewed external startups are part of an incubator, makes it possible for them to take part of advantages similar to the ones the ICVs experience as being a part of the GHTC. The external startups mentioned networking opportunities, inspiring environments and possibilities to exchange

ideas with people who are in the same situation, as the greatest advantages. This is similar to the advantages experienced by the ICVs. However, they have not emphasized the networking opportunities which external startups highlights as the foremost enabler. Interestingly, this result indicates that the largest differences between external startups and ICVs highlighted by literature, such as resources and scale (Weiblen & Chesbrough, 2015; Kohler, 2016), are not as big when a startup is a part of an incubator.

The Startup Environment

The external startups described the startup environment as dynamic, efficient and creative. Furthermore, flexibility, openness and acceptance are characteristics that are used to describe the culture. The FFE is referred to as the structured chaos (Brown & Eisenhardt, 1995), which indicates that the phase could be rapidly changing. Hence, these characteristics could be factors making the front-end fuzziness easier to deal with. This is supported by Frishammar and Florén (2008) stating that flexibility and effective product management is essential for better management of the FFE. In general, the flexibility in a larger organization is limited due to structures and hierarchies (KPMG, 2014). Therefore, it may be a challenge for the GHTC to succeed with designing a creative and dynamic environment for its ICVs. In regard to acceptance, some of the external startups emphasized that their team members have been willing to work late hours in order to make the startup succeed. Interestingly, one of the ICVs expressed that the work conducting by the ICVs are an eight to five job. Hence, it could be interesting for the GHTC to investigate what impact that mindset might have on the innovation success. One of the external startups mentioned the fact that all team members were sitting in the same room, as important for the creative environment. At the GHTC all team members in an ICV sit together, however the central sales and business department have their desks in a separate area of the office. Perhaps, this prohibits the teams from achieving and take advantage of the positive effects from sitting together mentioned by the startups.

Well-known Brand

A well-known brand is an organizational aspect that distinguishes the external startups from the ICVs. The lack of a well-known brand is something many of the external startups believe make them more flexible and able to have a more adaptive way of working. Furthermore, it makes it okay for them to experiment and be fast-moving. These characteristics align with the lean startup approach, which according to Still (2017) is favored by adaptiveness and effectiveness, which as mentioned is important in the FFE. On the other hand, the ICVs experienced great advantages arising from the brand of the GHTC, for example it has become easier to establish relations and contacts with partners and an easier launch of products. But, in accordance with KPMG (2014) who claims that conditions in the organization may hold back the ICVs, the brand could also limit their work because of secrecy and confidentiality. Therefore, it could be valuable for the organization to further evaluate how they can make use of their brand the best way possible, to enhance the

chances for success for their ICVs in the FFE and moreover, limit the disadvantages coming with it. For example, the GHTC could use their brand to establish partnerships, find customers to talk with in the validation process, create opportunities for networking and arrange meetings with experts. Furthermore, they could consider loosening up the confidentiality and security aspects.

Risk

In regard to the culture and mindset of the different startup-like companies, the view on risk and the risk averseness is one of the greatest differences between the external startups and the ICVs. The fact that external startups do not have a well-known brand, was mentioned as a contributor to be able to take more and greater risks. The ICVs on the other hand, who act in the name of the GHTC, sometimes feel limited in their actions. Some ICVs believe that the culture of the GHTC, of not taking risks, impacts the risk averseness of the project teams. The fact that the ICVs do not have to jeopardize their personal brand or job to the same extent as the external startups, could potentially make them more willing to take risks. However, the result of this master's thesis denotes that this is not the case for the ICVs at GHTC. The external startups seemed more accepting and open towards the uncertainty of the FFE and trying new things. Furthermore, this indicates that the GHTC's avoidance of getting a bad reputation is more important than letting the ICVs take risks. This could potentially be a factor impacting the likelihood for the success of an ICV in the innovation process. Furthermore, Tukiainen (2004) claims that even though an ICV fails to become successful of its own, it could still contribute with other positive outcomes for the firm. The corporate venturing could for example be seen as a possibility for the GHTC to take more risks. Hence, GHTC should perhaps not put too much weight on the ICVs being successful, but rather see the ICVs as an opportunity for them to take risks outside their core business.

Owning Resources & Decision-making Chains

The ICVs highlighted challenges such as not owning one's resources and long decision-making chains, creating problems for the ICVs, such as delays and lack of control. The need to coordinate their work with a manager, is a factor affecting the risk taking of the ICVs and further the opportunity to create a startup-mentality. According to what has been mentioned before, this could contribute to an easiness to deal with the fuzziness. Being able to make their own decisions, as well as being able to impact everything they do, is expressed as an advantage by the external startups. It seems like the GHTC has created too long and formal decision chains for the ICVs, which has affected the work of the ICVs negatively. One of the ICVs explained that their project nearly stopped as a result of the decision chains being too long, ending up in nobody being willing to make the decision. This may be alarming, as it seems to hinder the ICVs ability to be flexible and moreover it decreases their chances of applying startup principles and act like a startup. Literature states that a corporation's optimization for execution might cause

problems when it comes to the search activities required to discover innovation outside current business areas (Weiblen & Chesbrough, 2015; Kohler, 2016).

Both the external startups and the ICVs emphasized the importance of finding a balance in the degree of formalization. This aligns with theory, which states that too much as well as too little formalization might be unfavorable for the company in the FFE (Khurana & Rosenthal, 1998; Boeddrich, 2004). Some of the external startups believed that a formalized process might be beneficial in the later phases of the innovation process, since it provides structure, but in the early phases it should be avoided since it might prohibit creativity and flexibility. Both the long-decision making chains, the owning of recourse and the degree of formalization should therefore be considered by the GHTC in order to increase the robustness in the FFE.

Bureaucracy
Bureaucracy is mentioned by both the external startups and the ICVs as a time consuming and unnecessary activity in the early phases in the innovation process. However, what kind of bureaucracy the parties referred to varied. The bureaucracy the external startups referred to was activities such as reports to The Swedish Tax Agencies. Being a part of the GHTC, implies that this type of bureaucracy does not need to be performed by the ICVs. However, as a part of the GHTC they instead need to perform activities related to permission, protection and to get access to resources, which also becomes time consuming administrative activities. This is also an argument lifted by Chesbrough (2014) and Makarevich (2017). It therefore seems like the advantage of being a part of the GHTC and not having to bother about corporate administration, gets trumped by the activities that arise from bureaucracy and procedures of the larger organization. Once again, the inflexible nature at GHTC is probably not the best for handling the fuzziness in the FFE.

Funding
One of the greatest challenges experienced by the external startups is the constant search for money. The fact that startups often are low on financial resources in the early phases of the innovation process is supported by literature (Hackernooon, 2017). Furthermore, it is mentioned as an enabler for a successful innovation project and crucial for the development opportunities by both parties. But to get funding is difficult. The ICVs, have according to theory access to the resources of the GHTC as mentioned above. But, in accordance with the external startups, some of the ICVs experience difficulties with getting enough funding.

6.5 Alignment with Strategy

Innovation Strategy & Goals
Literature claims that it is important to define a clear innovation strategy, since this enables a more effective decision making in the FFE (Gaubinger & Rabl, 2014; Ries

2017). Still, there are just a minority of the ICVs and the external startups having a clearly defined strategy. Instead, they refer to it as goals. However, Gaubinger and Rabl (2014) explain, that an innovation strategy contains the firm's long-term innovation goals and it could therefore be argued that the ICVs and external startups actually have an innovation strategy. The reasons behind innovation goals are similar between the ICVs and the external startups. Both highlighted that it has been valuable and necessary to have goals when seeking funding from investors respectively the management team. Moreover, some of the ICVs and external startups agreed on that it is valuable to clearly communicate the innovation goals towards the entire team to ensure that everyone is working in the same direction, which is in accordance with what is being stated in literature by Gaubinger & Rabl (2014).

Impact of Investors
External startups highlighted that it is important, when possible, to be selective when bringing in new investors. Having the right investors onboard, makes it easier for the external startups to stick to their strategy. However, it is not possible for the ICVs to be selective when choosing investors, as they operate within the boundaries of a larger company. This implicates that they have to adopt to the existing strategies and processes within the GHTC. What could be seen in the compilation of the case study, is that some ICVs believed that it is problematic that their work is affected by the strategy of the GHTC. Moreover, the literature claims that the old curriculum of running larger corporations do not incorporate well in startup-like companies (Blank & Dorf, 2012). This indicates that it is not always optimal for an ICV to be affected by the strategies of a larger corporation.

6.6 Summary of the Analysis

This section summarizes the analysis and visualizes the main differences and similarities in the FFE by listing enablers and challenges identified in the interviews. Furthermore, key enablers are identified, and challenges experienced by the ICVs that indirect affect the robustness of FFE are presented.

6.6.1 **Main Differences and Similarities**

Table 23 below compiles and distinguishes similarities and differences in enablers and challenges identified in the analysis. To illustrate the relevance and importance of each of the enablers the following parameters are used: the themes in which it has been highlighted, if it has been mentioned as an enabler or a challenge and how often it has been mentioned by each of the sources of information- *Rarely*, *Moderately* and *Often*.

Enablers for a more robust FFE		ICV		External Startup		Theory
Title	Theme	Enabler	Challenge	Enabler	Challenge	Mentioned
Generation of ideas during a long period of time	*Management of the idea*			*Moderately*		x
Usage of partnership	*Management of the idea,*	*Moderately*	*Rarely*	*Moderately*	*Rarely*	x
	Evaluation of the Concept	*Rarely*				x
Usage of networking	*Management of the idea,*	*Rarely*	*Rarely*	*Moderately*		x
	Evaluation of the Concept			*Rarely*		
	Team Constellation	*Rarely*		*Rarely*		
	Organizational Context			*Often*		
Usage of pivoting to develop & refine ideas	*Management of the Idea*	*Rarely*		*Often*		x
Engagement of customers in the product development	*Evaluation of the Concept*	*Often*	*Rarely*	*Often*		x
Validation of ideas from the start	*Evaluation of the Concept*			*Rarely*		x
Validation with others than customers	*Evaluation of the Concept*	*Moderately*		*Moderately*		x
Usage of a proof of concept	*Evaluation of the Concept*	*Often*	*Rarely*	*Often*		x
	Team Constellation			*Rarely*		
A diverse team	*Team Constellation*			*Rarely*	*Rarely*	x
Competences constitutes the main reasons for new recruitments	*Team Constellation*	*Often*	*Often*	*Moderately*		
A well-balanced team in regard to personal characteristics and drives	*Team Constellation*			*Rarely*		x
A team willing to take risks	*Team Constellation*		*Rarely*	*Moderately*		x
Team members willing to take different roles	*Team Constellation*	*Moderately*		*Often*		
Team unity	*Team Constellation*		*Moderately*	*Often*		x
Access to a well-known brand	*Organizational Context*	*Often*	*Moderately*			x
An appropriate degree of formalization	*Organizational Context*	*Moderately*	*Moderately*	*Rarely*		x
Flexibility and adaptiveness	*Organizational Context*			*Moderately*		x
Receive funding	*Organizational Context*		*Rarely*	*Often*	*Often*	x
Clearly defined goals	*Alignment with strategy*	*Moderately*		*Moderately*		x

Table 23 Compilation of main differences and similarities

Figure 10 below compiles the enablers, presented above in Table 23 Compilation of main differences and similarities, in the various intersections of the authors' own model illustrated in *2.4 Data Analysis*.

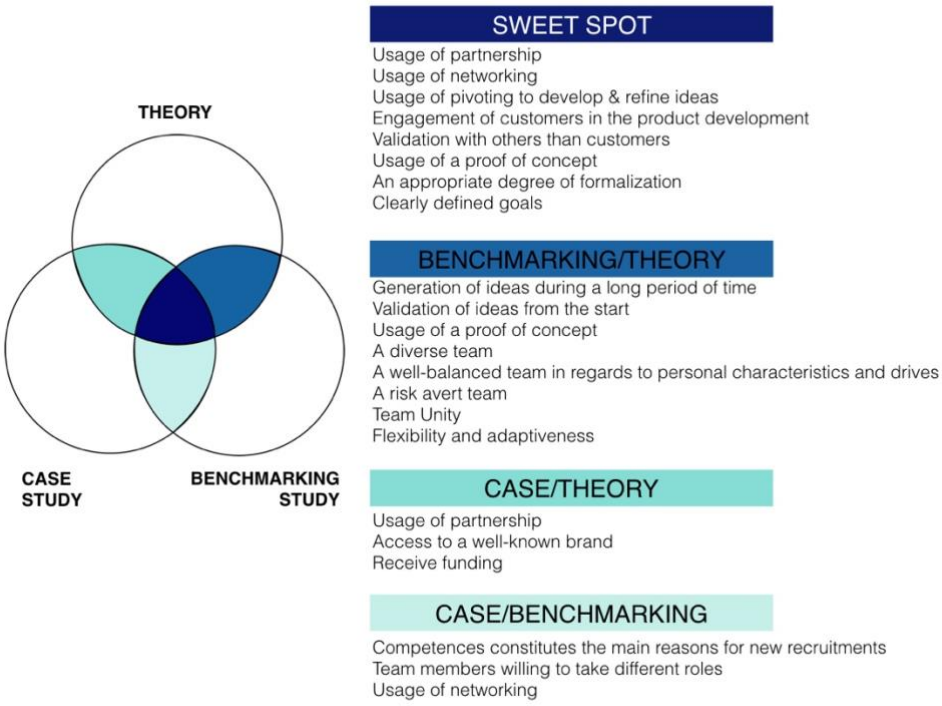

Figure 10 Differences and Similarities in regard to enablers in the FFE

6.6.2 **Identification of Key Enablers**

Figure 11 below illustrates the key enablers for a more robust FFE, identified in the analysis as the enablers that have been mentioned by both of ICVs, external startups and theory, as well as challenges related to these. Furthermore, the key enablers are: *Usage of partnership, Usage of networking, Usage of pivoting to develop & refine ideas, Engagement of customers in the product development, Validation with others than customers, Usage of a proof of concept, An appropriate degree of formalization* and *Clearly defined goals.*

Key enabler	Challenges	
	ICV	External startups
Usage of partnership	Sometimes result in each of selling experience	Hard to find the right partner
Usage of Networking	Outside the comfort zone of GHTC, internal focus	-
Usage of pivoting to develop and refine ideas	-	-
Engagement of customers in the product development	Limited by the GHTC	-
Validation with others than customers	Limited by security regulations	-
Usage of a proof of concept	Limited by the GHTC	-
An appropriate degree of formalization	Long decision-making chains, bureaucracy, time restrictions	-
Clearly defined goals	-	-

Figure 11 Challenges related to the key enablers

7 Conclusion

The Conclusion chapter provides answers to the research questions formulated in chapter 1. Introduction. Furthermore, recommendations to the case organization, based on the findings in this thesis, are presented. Lastly, the conceptual framework, which has been the basis for this research, is discussed as well as suggestions on areas for future research.

The purpose of this thesis was to increase the understanding for how to decrease ambiguity in the *Fuzzy Front End* (FFE) for *internal corporate ventures* (ICV). The research was divided into four phases, where the first phase consisted of a literature review with the main purpose of creating a conceptual framework, which formed the basis for this study- interviews, data compilation and data analysis. The two following phases were a case study and a benchmarking study, which were conducted in order to create a better understanding for the FFE. Lastly, the findings were analyzed, and conclusions were drawn based on findings from literature as well as interviews.

7.1 Answering the Research Questions

In order to fulfill the purpose of this thesis the research questions are answered below.

Research Question 1 and 2: What are key enablers for a less ambiguous Fuzzy Front End? What are challenges related to these key enablers?

In total, eight key enablers have been identified in the analysis as factors contributing to a more robust front end: *Usage of partnership, Usage of networking, Usage of pivoting to develop and refine ideas, Engagement of customers in the product development, Validation with others than customers, Usage of a proof of concept, An appropriate degree of formalization* and *Clearly defined goals,* see Figure 11. These are listed and shortly described below. Furthermore, the potential challenges related to each of the key enabler are mentioned, as well as its contribution to a more robust FFE.

Usage of partnership
This key enabler has been lifted by both the ICVs and the external startups in regard to the critical theme: *Management of the Idea*. It has also been mentioned by the ICVs regarding the theme *Evaluation of the Concept.* Moreover, literature state that external cooperation with others except customers is a critical success factor in the FFE (Frishammar & Florén, 2008) and it may reduce technology and supply fuzziness. The ICVs have used their partners as customers, to test their product ideas and to get access to market knowledge. On the other hand, external startups have used their partnership to get access to and take advantage of a potential partner's resources, for example funding, access to technology and marketing. One challenge lifted by the external startups, in regard to this key enabler, was that it is hard to find the right partners. Moreover, one of the ICVs highlighted that a partnership sometimes can result in lack of selling experience of the project team.

Usage of networking
This key enabler has been highlighted by the external startups in regard to all critical themes except *Alignment with Strategy*. Interestingly, it has only been mentioned by one of the ICVs under the themes *Management of the Idea* and *Team Constellation*. Furthermore, networking also has been suggested by Ritter & Gemünden (2003) as a critical factor for innovation success, which potentially could decrease both the customer and the technology fuzziness in the FFE. The external startups have used networking to develop their ideas, find customers to validate their idea with, recruit new employees and access new knowledge. These application areas are also mentioned by literature (Ritter & Gemünden, 2003). Meanwhile, the ICV that mentioned networking as vital, emphasized the importance of networking both when finding the right partner, new customers or new markets. However, the networking activity at GHTC has been criticized by some of the ICVs who believe that networking is outside the comfort zone of the GHTC.

Usage of pivoting to develop and refine ideas
The ICVs and the external startups agree on the importance of pivoting to develop and refine the ideas, in order to achieve a problem-solution as well as a product-market fit to enhance the likelihood for success in the FFE. Furthermore, this is also highlighted in the literature (Edison et al. 2016). However, the number of external startups believing that pivoting is vital for the success of an innovation is higher than the number of ICVs. Since the innovation processes at the GHTC are built upon lean startup principles, pivoting could be seen as a natural part of the work at GHTC, which could be the reason for it not being mentioned during the interviews with the ICVs. There are no direct challenges stated by either the ICVs or the external startups related to this key enabler.

Engagement of customers in the product development
Both ICVs and external startups have engaged customers in their development process in order to increase the likelihood for success. This is in line with the literature, claiming that engaging customers in the development of new innovations provides benefits for the innovative company (Ngo & O'Cass, 2012). When customers are engaged, somewhat varies between the two parties and in general the external startups have started to talk to customers earlier than the ICVs. One of the ICVs explained, that they have felt limited by GHTC when they have wanted to talk with customers. Hence, this could be seen as a challenge related to this key enabler, which could a have a negative impact on the work in the FFE since you do not encounter the customer fuzziness. According to the authors, the limitation potentially has to do with the degree of formalization of the innovation processes at GHTC.

Validation with others than customers
Both ICVs and external startups have validated their products both internally and externally. However, when referring to the internal validation, the ICVs and the external startups refer to different things. Some of the external startups have conducted an internal evaluation within the startup team before validating the product on the market. Moreover, some external startups mentioned that they initially conducted a validation process with friends and family. On the other hand, ICVs refer the internal validation to the evaluation towards the management group at GHTC to get permission to continue the innovation work. The literature also highlights that the validation activity should be carried out both internally and externally to get input on an idea from various sources (Alam, 2006), which could decrease customer fuzziness. The authors once again suggest the formalization as a potential explanation to the different answers.

Usage of a proof of concept
Both the ICVs and the external startups have used a proof of concept when validating their products on the market. The external startups have also used it in the search for funding and in the recruitment of new employees. The importance of having a proof of concept in the FFE is also highlighted by Frishammar and Florén (2008), since it increases the likelihood for getting relevant and concrete feedback on the product concept, which might decrease the customer fuzziness. Even though a proof of concept is highlighted as something crucial by the great majority of the ICVs, one of the ICVs believed that GHTC has limited their chances of developing a prototype. A challenge experienced by the same ICV, is that GHTC expects you to go out and validate a solution without a prototype and then develop the prototype when a market need has been identified.

An appropriate degree of formalization
The external startups believe that not being restricted to any formal process is beneficial. However, some claim that it would have been good to have some kind

of structure to follow, especially in the later stages of the innovation process. This is in line with what the ICVs and literature (Khurana & Rosenthal, 1998; Boeddrich, 2004) state in regard to formalization of the FFE. To initially have a lower degree of formalization, may contribute to increased flexibility and adaptiveness, making it easier to encounter uncertainties in the front end. Many challenges experienced by the ICVs are directly or indirectly related to this key enabler, namely; long decision-making chains, time restrictions and bureaucracy.

Clearly defined goals

Both the ICVs and the external startups have been working with goals rather than with a formal strategy. The reasons for having innovation goals are similar between the ICVs and the external startups. They both claimed that goals have been valuable when seeking funding from investors respectively management teams. Moreover, some of the ICVs and external startups agree that it is valuable to clearly communicate the innovation goals to the entire team, which is in accordance with what is being stated in literature by Gaubinger & Rabl (2014). Having clearly defined goals is important since this enables a more effective decision making in the FFE, which potentially could decrease the ambiguity (Gaubinger & Rabl, 2014). Neither the ICVs nor the external startups, have mentioned any challenges directly affecting this key enabler.

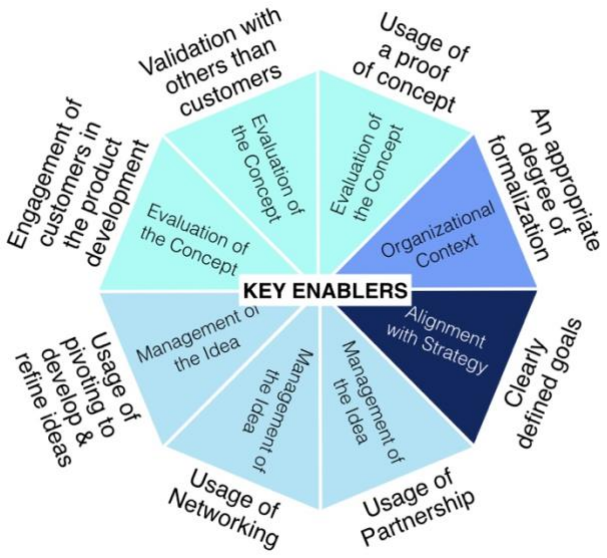

Figure 12 Eight key enablers identified in the analysis

Sub Question 1: What are the differences and similarities between Internal Corporate Ventures and external startups regarding enablers and challenges in the Fuzzy Front End?

During the interviews, differences and similarities between ICVs and external startups in regard to enablers and challenges in the FFE, were identified. The main differences and similarities have been summarized in the analysis, see Table 23 page 83.

7.2 Recommendations to the GHTC

According to the analysis all key enablers are a part of the sweet spot of the model presented in Figure 11, and therefore considered to be important in order to achieve a less ambiguous front end of the innovation process. However, in the recommendations to the GHTC only some of the key enablers will be mentioned. More specifically, the recommendations will focus on the enablers where great differences have been identified between the ICVs and the external startups, in regard to how often the specific enabler has been mentioned, and key enablers which are considered important by both parties but where challenges related to the specific enabler have been experienced by the ICVs. Furthermore, enablers that have been considered especially important by the external startups and theory will be highlighted as areas which the GHTC should be aware of and potentially could direct increased focus on. Even though the key enablers have been identified for the ICVs, recommendations will be provided to the GHTC. This since the ICVs are operating within a larger organization and are thereby limited as well as supported by the parent company. Hence, their ability to work with the key enablers will be dependent on the structure of the GHTC.

An appropriate degree of formalization or more specifically less formality in the early stages in the innovation processes seems necessary in order to not prohibit creativity and flexibility. After interviews with the process owners of the GHTC, the authors have understood that work has been performed in order to find a balance in the degree of formalization. However, there are still four of the ICVs who are of the opinion that the GHTC struggles with creating a functional working environment for the ICVs. There seems to be many challenges related to the formal processes according to the findings in the case study, which in one way or the other affect flexibility and somewhat the creativeness of the ICVs. The fact that the ICVs are a part of the GHTC and thus affected by the procedures of the larger organization, creates challenges related to; bureaucracy, long decision-making chains, time restrictions and risk averseness, for the ICVs. Nonetheless, to find the right balance is apparently easier said than done. Still, the authors recommend the GHTC to continue their work with finding a more appropriate degree of

formalization, suitable for an ICV. They could try to identify areas and parts of the initial phases of the innovation process where the number of mandatory activities or the degree of formalization could be reduced, for example to encourage risk taking. The willingness to take risks is furthermore an interesting aspect. A startup mentality is something that has been lifted both during interviews and in theory and it seems to be associated with team members being risk taking, daring to take advantage of opportunities that arise, trying new things and adventuring. Sometimes taking risks leads to mistakes, but it can also create great opportunities and open up for new ones. During the interviews with the external startups, these things were mentioned as contributing factors to a creative environment, but also a necessity to not risk missing potential success opportunities. The possibility for ICVs to take risks are today partly limited by the requirements of the GHTC, as a result of the fear and precariousness of damaging the brand etcetera. By encouraging risk taking and a freedom to act independently, the GHTC might transfer the mindset to the employees. However, this is not an easy task. The authors believe that the strong culture of the GHTC, described during the interviews, might have an impact on the possibilities to create a startup mentality within the ICVs, which might result in them being more exposed to the fuzziness in the FFE.

Furthermore, the mindset and internal focus of the ICVs have been discussed in the analysis. This is related to the key enablers *Engagement of customers* and *Validation with others than customers*. Regarding the two key enablers, there is a consciousness about the importance of these types of activities. But, in order to fully succeed and take advantage of this type of activities, the authors believe it is crucial for the ICVs to literally get outside the walls of the GHTC. One way of doing this is through networking. The *Usage of networking* is a key enabler only mentioned by one the ICVs, however an enabler highly valued by the external startups. The authors are therefore recommending the GHTC to take advantage of its brand and create networking opportunities for its ICVs, for example by hosting startup fairs or participating at different fairs and meetings. Networking is an enabler that could facilitate many of the development activities and furthermore reduce the internal focus of the GHTC.

The *usage of partnership* is an enabler which the ICVs and the external startups values similarly, but the external startups also see the establishment of partnerships as a challenge. This is not experienced by the ICVs, which mostly seems to be a result of the well-known brand of the GHTC. The usage of partnership to get quick access to certain expertise and knowledge of a particular market is something the ICVs can exploit, since being an ICV often involves innovation outside the core business and core competence of the parent company. Something for the ICVs to be aware of, if they are in a partnership early on, is to not forget the real market validation and the risk associated to solely develop towards a specific partner. To summarize, the authors would recommend the ICVs to take advantage of the brand to both increase the networking activity and to establish partnerships.

The brand of GHTC has been central in many of the internal interviews and both benefits and disadvantages have been highlighted in regard to this. Hence, the authors recommendation to GHTC is to try to increase and expand the advantages and minimize the disadvantages. The authors believe that the possibility to make use of advantages from networking and partnering can increase the benefits of the brand and the disadvantages may be minimized by decreasing the degree of formalization. Moreover, it could be valuable for the GHTC to consider how close to and to what extent the ICVs should be a part of the GHTC or if it is more preferable to manage them as spinoffs.

Interestingly, none of the key enablers derive from the critical theme *Team Constellation*. However, this does not mean the team is insignificant. Looking at the findings from the analysis, it seems like the external startups value the team and especially team unity much more than the ICVs are since they emphasized the team during the discussions. Hence, the constellation of the project teams is an interesting factor for the GHTC to work with, in order to for the ICVs to realize the full potential of having a well-functioning team. Another aspect of the *Team Constellation* is to have a team containing all necessary competences. Interestingly, both theory and the external startups highlight the importance of diversity, but also the different personalities and backgrounds of the team members. This indicates that the efforts by the GHTC to evaluate the team constellations with personality tests seems relevant. Therefore, the authors are of the opinion that the GHTC should consider how they form their teams. Furthermore, the authors believe that the human capital at the GHTC is two-folded. Firstly, there are great expert resources available to support the teams, which is good and a network that should be further developed, since it makes it easier for the project team to easily access support, without having to spend time on the activity. But on the other hand, the human resources available to staff the project is a disadvantage. The limitation to recruit employees from the internal pool of workers, both makes it difficult to find the right competes and to create an optimal team. To encounter the challenges, the authors believe that the *usage of networking* could be a potential solution. Networking could contribute to unlikely meetings with key people, who then could be recruited to the teams.

To summarize, the authors recommend the GHTC to focus on creating an appropriate degree of formalization, make use of the brand of the GHTC in partnering with relevant actors and use networking to a larger extent in order to increase the external awareness, take advantage of opportunities and increase the possibility to create well-balanced teams.

7.3 Discussion of the Conceptual Framework

As been mentioned in *3.7 Summary of Theory & Conceptual Framework*, the critical themes constituting the basis from this thesis have been developed from literature with findings from larger corporations. When applying the framework on startup-like companies it has been crystallized which of the themes that are relevant for these smaller organizations.

During the data collection the theme *Alignment with Strategy* barely has been mentioned by the interviewees, which has made it hard to further analyze enablers and challenges within the theme. Hence, it seems to lack relevance for the startup-like companies. The interviewed external startups generally do not have a strategy which the new business idea has to be aligned with. The same accounts for the ICVs. However, the ICVs need to consider the strategy of the GHTC, which has been mentioned in the analysis above.

The remaining four themes all seem relevant and important in the FFE. Furthermore, it has become clear that the theme *Organizational Context* functions like a hub, since many of differences and similarities identified during the interviews can be mapped into an intersection between *Organizational Context* and another critical theme. This is likely, since the major differences between an ICV and an external startup have to do with the fact that an ICV is operating within the boundaries of a larger organization. Hence, this insight is in line with the authors initial expectations.

During the data collection some aspects were mentioned related to more than one theme, for example, networking, partnership and proof of concept. It could therefore be argued that these aspects should constitute their own themes in the conceptual framework. They could even be regarded as more suitable to constitute the basis for the interview guides, than the current critical theme *Alignment with Strategy*. Hence, it would be interesting to redo the study with these themes and see if and how they would impact the result.

7.4 Future Research

After conducting this master's thesis, the authors have started to reflect over whether or not the FFE really exist in startup-like companies. During the interviews with the external startups, it was hard to get a clear understanding of the beginning and the end of the FFE in their innovation journey. The findings indicated that the ambiguity has been periodic and various reasons for the fuzziness have occurred during different stages. Hence, it would be interesting to further explore the FFE in startup-like companies to evaluate if the FFE really exists in smaller, fast-scaling companies.

Moreover, even though there is a trend of larger companies using initiatives like corporate venturing to find new ways to innovate, the authors are skeptical to if it really is possible to run projects as startups within the boundaries of the parent company. This due to established structures, hierarchies, bureaucracy and formalization, which hinders ICVs from being as flexible and adaptive as an external startup. Further, if it is the optimal way to conduct innovation in a larger organization or if ICVs should be driven as for example spinoffs to the parent company. The structures, formality, security issues and culture of a larger organization may prohibit the entrepreneurial spirit of an ICV, making it impossible for an ICV to truly become agile and risk taking, which is something that might be necessary in the startup world. Hence, it could be an interesting topic for further research.

Since this master's thesis has used semi-structured interviews, when collecting empirical data, it has increased the spread and variation in the answers. Hereby, some of the enablers could potentially be considered important by more ICVs or external startups, than the ones mentioning the factor during the interviews. Therefore, it would have been interesting to perform a second round of more structured interviews with inspiration from the findings of this thesis, to further quantify the result of this study.

Finally, during the interviews the enablers regarding timing and coincidence were mentioned by some of the interviewees. These aspects could be considered difficult to manage and control therefore they were not further commented in this paper. However, it would have been interesting to investigate what impact these factors actually have on the innovation journey and moreover whether these somehow could be managed.

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Oral Sources

Case Study

Case Study Background

Evert Nilsson, Supervisor, Senior Project Manager, Business Performance, GHTC, 2017-12-21
Employee O, Process Expert, Track 1 and 2, Interview 2018-03-28
Employee K, Process Expert, Track 3, Interview 2018-04-05

Case Study Interviews
Concept lead, Business lead & Tech lead, ICV 1, GHTC, Interview: 2018-03-19
Concept lead, Business lead & Tech lead, ICV2, GHTC, Interview: 2018-03-20
Business lead & Tech lead, ICV3, GHTC, Interview: 2018-03-20
Concept lead, Business lead & Tech lead, ICV 4, GHTC, Interview: 2018-03-21
Business lead, ICV 5, GHTC, Interview: 2018-03-21
Concept lead & Tech lead, ICV 5, GHTC, Interview: 2018-03-22
Concept lead, Business lead & Tech lead, ICV 6, GHTC, Interview: 2018-03-26
Concept lead & Business lead, ICV 7, GHTC, Interview: 2018-03-28

Benchmarking Study
Founder, START 1, Interview: 2018-03-15
Founder, START 2, Interview: 2018-03-21
Founder, START 3, Interview: 2018-03-23
Founder, START 4, Interview: 2018-03-27
Founder, START 5, Interview: 2018-03-27
Founder, START 6, Interview: 2018-03-27
Founder, START 7, Interview: 2018-03-27
Founder, START 8, Interview: 2018-04-09
Founder, START 9, Interview: 2018-04-11

Other
Company website, Published: 2018, Accessed: 2018-04-26
Company blog, Published: 2018, Accessed: 2018-05-0

Appendix

Appendix A Interview Guide for ICVs and External Startups
Appendix B Extensive Introduction of the Case Organization
Appendix C Empirical Findings from the Case Study
Appendix D Empirical Findings from the Benchmarking Study

Appendix A Interview Guide for ICVs and External Startups

Öppningsfrågor

Vad är din roll/position i företaget?
Titel, uppgifter, ansvarsområden, anställningstid

Hur skulle du i korta drag beskriva ert företag/projekt?
Företagets ålder, antal anställda/medlemmar

Du såg ju mailet, vad är dina tankar kring detta?

Kan du beskriva er affärsidé?
Affärsidé, befintlig status i innovationsprocessen, uppfattning kring innovationsprocessens inledande faser, kännetecken etc.

- *Om du skulle berätta från början till slut, hur kom ni fram till denna idé?*
- *Hur kom ni fram till detta?*
- *Hade ni någon process ni följde i dessa inledande faser?*

Huvudfrågor

Tema 1: Idéhantering
Faktorer: Förfining av idéer, urval, teknologiska tillgångar, externa samarbeten

- Innebörd?
- Utmaningar?
    - Hantering av utmaningar?
- Kritiska faktorer för framgång?
- I en drömvärld, vad hade ni gjort annorlunda?

Tema 2: Utvärdering av koncept
Faktorer: Involvering av kunder, framtagning av produktdefinition

- Innebörd/Uttryck?
- Utmaningar?
    - Hantering av utmaningar?
- Kritiska faktorer för framgång?
- I en drömvärld, vad hade ni gjort annorlunda?

Tema 3: Teamkonstellation
Faktorer: Tvärfunktionell kompetens, sammansättning, projektledning, visionärer

- Innebörd/Sammansättning?
- Utmaningar?
    - Hantering av utmaningar?
- Kritiska faktorer för framgång?
- I en drömvärld, vad hade ni gjort annorlunda?

Tema 4: Organisatorisk sammanhang- intern och extern miljö
Faktorer: Involvering från ledning, kreativ organisationskultur, formaliseringsgrad av innovationsprocessen

- Innebörd/Uttryck/Faktorer?
    - Betydelse?
- Utmaningar?
    - Hantering av utmaningar?
- Kritiska faktorer för framgång?
- I en drömvärld, vad hade ni gjort annorlunda?

Tema 5: Överensstämmelse med strategi
Faktorer: Överensstämmelse, stöd, efterlevnad, tydlighet

- Innebörd/Uttryck/Andra strategier?
    - Hur arbete med överensstämmelse?
- Utmaningar?
    - Hantering av utmaningar?
- Kritiska faktorer för framgång?
- I en drömvärld, vad hade ni gjort annorlunda?

Avslutande frågor
Berätta lite om vad vårt syfte är

- Nu när du vet vad vi har pratat om, är det något mer du vill lyfta relaterat till detta?
- Är det något av det vi talat om idag som du skulle påstå var extra viktigt för er framgång

Appendix B Extensive Introduction of the Case Organization

Track 1

In 2015, the first innovation track, *Track* 1, was developed at the Swedish site of the GHTC, inspired by lean startup principles, with the aim to find new commercial opportunities for the company. The department has the following focus areas as main goals for the projects: Technology, User Experience and Business, and focuses on 5G research and Internet of Things. Especially within the fields of industrial, logistics, transportation, connected cities, health and wellness (Nilsson, 2017; Employee O, 2018). The original goal for *Track 1* is to create new businesses beyond the current business of the GHTC, by incubating new ideas to business and bring these to market, as new GHTC businesses or spin-offs (Company website, 2018).

The innovation process of *Track 1* is divided into five stages: *Ideation*, *Concept*, *Incubation*, *Establish Business*, *Launch*, all separated by toll-gates, which the projects have to pass to be allowed to progress. During the *Ideation* phase the project teams are invited to activities such as workshops and inspirations lectures. However, during the rest of the phases this type of initiatives do not exist. Employee O (2018), explained that from the beginning, the innovation process had no formalization at all. Nevertheless, by implementing a stage-gate-process with toll-gates, the degree of formalization is increased. The increased formalization was necessary for the GHTC to be able to measure advancements and put pressure on the internal corporate ventures (ICVs) to actually deliver some result. However, the management's vision still is to keep the process fairly informal (Employee O, 2018). During the earliest parts of the process, i.e. during *Ideation* and *Concept* phase, the focus is to increase the degree of maturity of the projects and define product propositions and business models etcetera. When entering the *Incubation* phase the focus is redirected to verify the product concept. However, the ICVs are still not allowed to sell their products, since the GHTC is a large corporation that risks paying compensation for damages if selling something that is not completely ready to be sold. Moreover, the *Incubation* phase is inspired by the lean startup principles as the build-measure-learn approach is used. As for many other companies, the GHTC's aim is to keep the costs down in the early phases and therefore limit the degree of development, before the ICVs are more confident that the product could be a success at launch (Employee O, 2018). The toll-gates are managed by gatekeepers who decide whether a new innovation should progress to the next stage or be rejected. For *Track 1*, the head of the innovation track has the ultimate responsibility to accept or reject ideas. However, the toll-gate decisions normally are taken by *Track 1's* entire management group (Employee O, 2018).

All ICVs in *Track 1* are internally funded through all phases, however the aim is that they should be self-funded with profit after entering the *Establish business* phase. The funding activity is arbitrarily but is carried out at the toll-gate meetings. During these meetings, the ICVs are supposed to give a status report on the previous work and a plan for future work, including requests for funding. The request is overlooked by the gatekeepers, who also decide whether or not the request should be accepted. The aim is that the meetings should occur on a continuous basis every three month, but the frequency has historically varied for the different teams. The reason why the frequency was set to three months was to avoid that the management group loses control of the projects and their progress. If the ICVs are running out of money before the next toll-gate meeting, the team could ask for more before the formal meeting (Employee O, 2018).

Today, the ICVs are recruiting their own teams, but if they are looking for a specific competence the managers of *Track 1* are willing to help the team to find these. If the right competence does not exist internally, external consults are employed half time or full time. Today, discussions regarding whether or not to use a personality test such as Belbin, to detect if teams are missing an important competence are held. These tests have not been used very much, but the intention with using them is to build efficient teams, which according to *Track 1* requires the right mix of people with the different competences (Employee O, 2018).

Track 2

In April 2016, the GHTC launched their second funding track for Europe, *Track 2*, with the purpose to identify new ideas and business opportunities beyond the existing categories and business areas and develop them for commercialization. This track is an initiative from the global headquarter. *Track 2* is open for all employees at the GHTC and is designed to support individuals who are dedicated to innovate, educate the next generation of entrepreneurs and establish an infrastructure and culture that encourage new business (Nilsson, 2017; Company website, 2018). Basically, the only requirement for the ideas entering the second track, is that they are outside existing businesses and are ready to be launched within two years' time (Employee O, 2018). According to the GHTC the aim with the process is to:
"Enhancing Opportunities for new business ideas to be transformed into actual businesses by supporting among individuals with similar entrepreneurial endeavors and also by offering both internally and externally, the infrastructure (HR, capital, know-how) required for the start-up of the new businesses." (Company website, 2018).

The process of *Track 2* is similar to the one in *Track 1*. In the *Ideation* phase there are some more pre-activities and the toll-gates are more formal. But the goal is to make the two processes perfectly aligned. During this innovation process, the ICVs are allocated a mentor- an external expert within the specific business area, and an internal coach. The purpose with such initiatives is to avoid that the ideas become

stuck and inspire the teams to think in new and different ways. Moreover, the ICVs are offered the same master classes as the ICVs in *Track 1* and *Track 3*, as well as other supportive activities such as non-generic workshops, where teams get support with their issues and help to prepare themselves for the upcoming funding meetings (Employee O, 2018). In *Track 2* there is a major toll-gate when the ideas progress from an idea to an intensive incubation and the toll-gate is characterized by an audition. Before the audition the submitted ideas are cut down to a number of finalists that get the opportunity to pitch their ideas for a jury consisting of both two internal senior managers at the GHTC and two external persons with for example start-up experience or background within funding. Before the pitching, the teams will go through various classes of pitch training, presentation methods and presentation practice to prepare them for the audition. The project teams that pass the audition and thereby gets funding, will continue to crystallize their ideas and the ones being rejected will be reviewed again to see if there is a better setting for them to grow outside *Track 2* and progress in *Track 1* or *Track 3* instead (Employee O, 2018). During the other toll-gates, the owner of *Track 2* globally is the gatekeeper that decides the future for the project. These toll-gates occur every three to six months, just as for *Track 1*. If an ICV is rejected the projects are recycled for potential future use and the team members return to their ordinary jobs (Employee O).

The funding process is also similar to the one in *Track 1*, but with the difference that the funding is provided by the global headquarter. The total funding provided to the teams varies depending on what the ICVs would like to accomplish until the next tollgate. Hence, it is not a standardize amount of funding that is being allocated to the projects (Employee O).

The lead for the project will be promoted to line manager after the business is validated and before entering the commercial phase. The leader does not necessarily have to be the initial idea owner, but that is most often the case. The title the lead gets promoted to is not fixed, but the person will have the full responsibility for the business and the team, similar to a CEO in a small company (Employee O, 2018). The GHTC would like the teams to be small in the initial stages and a limitation to five persons in each team has been set. However, it is up to the project teams to recruit their team and the senior managers to help finding the right competences when necessary. The senior managers start looking internally to staff the teams, but when it is required they may also look externally for the right consultants. The ICVs are also allowed to recommend external persons for the senior managers to recruit (Employee O).

Track 3

In December 2017, the GHTC launched a new strategic initiative, *Track 3*, to accelerate innovation and bring new ideas to market, while continuing to support

the smartphone business (Nilsson, 2017). The starting point for this initiative was internal interviews with 15-20 employees within the department of *Track 3* and managers, regarding problems and how they would prefer to work with innovation. The findings were: the process is too cumbersome to be creative, the employees were not able to focus on innovating due to their workload, the employees required more trust in the teams and less micromanagement and last but not least the employees wanted to have more fun. Then, an online research on how these findings could be handled was made. With this initial research in mind, principles for the new innovation journey were decided (Employee K, 2018). The six agreed on principles were the following:

1. *Transparent*- meaning that the idea selection is made in an open environment and not by managers behind locked doors.
2. *Light weight*- the innovation process should be easy and simple, with a low degree of formalization. Anyone should be able to come up with new ideas and present them.
3. *Co-create:* the product development should be supported by management
4. *Fail fast*- the culture should be characterized by an acceptance to failure and killing ideas that are not supported or promising should be encouraged.
5. *Many small bets*- instead of having just one but big idea, there should be small ideas that can fail fast
6. *Journey not a process*- the word journey should be used instead of process to encourage experiment on all levels.

The vision and goal for *Track 3* is to strive towards the site's innovation strategy 2020 and get closer to reaching the target of 50 % of the revenue coming from new businesses. Furthermore, the main goal is to come up with new ideas and potential new businesses, centered around or related to software (Employee K, 2018).

The formal innovation process in *Track 3* consists of four different phases, namely: *Ideate, Validate, Execute* and *Navigate*. The *Ideate* phase consists of idea generation and an idea funnel, with the purpose to inspire employees to submit new ideas. Furthermore, different types of inspirational activities such as talks and various possibilities to network are provided to the employees. Hopefully, these activities will stimulate the employees to submit ideas to the site's idea inbox. However, the goal with these activities is not to generate lots of new ideas immediately, but to create cross pollination and encourage networking within the company. All ideas entering the journey are submitted through the idea inbox. Then, there is a demo, arranged by an innovation group, on a monthly basis, where the idea owners of the first ten submitted ideas get the opportunity to present their ideas to coworkers. At this point there is not any selection between different ideas. Once the ideas have been presented at the demo, there is a popularity vote where the three ideas receiving the most likes by peers get to continue forward to the next step of the innovation

process, more specifically *Validate*. Furthermore, the review board has the authority to promote ideas that did not receive the most "likes" to enter the next phase, if they are of the opinion that there are other ideas apart from the ones receiving the most "likes" that have business potential (Employee K, 2018). The *Validate* phase is a design sprint inspired by Google. The aim with this phase is to be able to answer the questions: *Will people use it? Do we have the money? Can we make it?* The objective is to find the sweet spot between human, business and technical aspects. The design sprint last for three to five days, depending on how much time the different teams have got. The teams consist ideally of three to five people, chosen by the idea owner alone or with help from the innovation group. There are not any special criteria for the team to fulfill regarding the team constellation. The purpose with the design sprint, and furthermore the *Validate* phase, is to clarify the idea, differentiate the idea, create an initial prototype and then present the concept to customers to get feedback. During the sprint the team gets to talk to experts within the new business area, to get feedback or support and the teams are also taught tools and methods on how to validate their ideas. After the sprint, the team decides if they want to kill their idea or continue the development process. If they decide to continue, the product concept is presented to a review board, who can either accept, reject or send back the idea. Sending back ideas is the option used when the board isis of the opinion that something is unclear and when they believe that the idea needs further investigation and should be sent into the design sprint again. An idea is allowed to revisit the design sprint twice.

If the idea is accepted, i.e passes the toll-gate for investment, the team gets funding and moves into the *Execution* phase. At this toll-gate the idea owner asks for funding for the number of employees he/she would like to have allocated to the project. There is no upper limit for the number of employees in the team (Employee K, 2018). The *Execution* phase is an iterative process of a build-measure-learn-loop, according to lean startup-principles. The team continues to work and further refine their product concept during a three to six-month period. Then, they present their work, progress and future plan to an investment board in a status meeting, which will decide if the team gets extended funding. During this phase the project team is provided with two sponsors, one from the department from which the project is driven and one from another department, who support and help the team to develop the product concept to a business. *Track 3* does not have a specific budget for each project that is initiated, but each employee keeps its monthly salary during the innovation journey. So, when seeking for funding the team asks for resources in terms of a number of employees and sometimes money for validation activities. When the investment board and the team are of the opinion that the product idea has fulfilled the requirements of the *Execution* phase and thereby passes the specific evaluation criteria for the toll-gate, the project proceeds to the last phase, the *Navigation phase*. In this phase, the product strategy is formulated, and the project might develop into a new business unit (Employee K, 2018).

Appendix C Empirical Findings from the Case Study

Below follows a full compilation of enablers and challenges mentioned during the interviews with the internal corporate ventures at the GHTC.

Management of the Idea

Management of the Idea	
Enablers	*Mentioned by*
Partnership facilitates the product development journey	*ICV 4, 5, 7*
Mistakes make the project teams wiser	*ICV 2, 7*
Focusing on a single product concept from the beginning facilitates the development	*ICV 3*
The location, feeling, luck and pursuance is important for project success	*ICV 7*

Table I Case Study: Management of the Idea- Enablers

Management of the Idea		
Challenge	**Examples of enablers being used**	*Mentioned by*
Networking is a challenge at GHTC		*ICV 1, 7*
Partnership can result in lack of selling experience		*ICV 4*

Table II Case Study: Management of the Idea- Challenges

Evaluation of the Concept

Evaluation of the Concept	
Enablers	*Mentioned by*
Talk to potential customers to get feedback on the product concept	*ICV 1, 2, 3, 5, 6, 7*
Be able to show a prototype/proof concept or a finish product when validating an idea with customers	*ICV 1, 3, 4, 5, 6, 7*
The internal validation process for managers at the GHTC is performed simultaneously to the market validation process	*ICV 1, 3, 4*
Having a supporting partnership during the concept evaluation	*ICV 2, 4*
Be able to show a prototype/proof concept or a finish product when validating an idea internally to get funding	*ICV 6*
Conducting market research on competitor's work, their competitive advantages and what is desired by customers	*ICV 6*

Table III Case Study: Evaluation of the Concept- Enablers

Evaluation of the Concept		
Challenge	**Examples of enablers being used**	*Mentioned by*
To distinguish a need from an actual demand		*ICV 1, 2, 4*
-	Establish a good way to measure the commitment to a product	*ICV 4*
-	Having a prototype which enables trialability	*ICV 4*
It is difficult to find relevant people to talk with		*ICV 1, 2*
It is time-consuming to find relevant people to talk with		*ICV 1, 2*
To find a balance between cost of evaluation and a valuable outcome		*ICV 4, 6*
Too much of an internal focus at the GHTC		*ICV 1*
The ICVs are expected to have validated solution before starting to build a prototype		*ICV 1*
Not allowed to talk to customers according to process of the GHTC		*ICV 4*
Some ICVs try to push out an existing solution before having an understanding of the market		*ICV 3*

Table IV Case Study: Evaluation of the Concept- Challenges

Team Constellation

Team constellation	
Enablers	*Mentioned by*
The reason for new recruitments or changes in the team constellation, is that different competences and expertise are needed in various stages of the product development	*ICV 1, 2, 3, 4, 5, 6, 7*
The team members need to take many different roles	*ICV 1, 2, 4*
Resemblance between the ICVs contributes to great synergies and sharing of learnings, competences and previous experience	*ICV 4, 5*
The usage of external resources for time consuming activities	*ICV 2*
Everyone in the ICV teams are not ready for the uncertainty associated with a startup business	*ICV 6*
The support from the central sales and business department	*ICV 3*
Use personal networks and convince external people to join	*ICV 2*

Table V Case Study: Team Constellation- Enablers

Team constellation		
Challenge	**Examples of enablers being used**	*Mentioned by*
Limited resources- number of employees		*ICV 1, 2, 6*

Table VI Case Study: Team Constellation- Challenges

Organizational Context

Organizational context	
Enablers	*Mentioned by*
The brand of the GHTC facilitates contacts with potential customers and partners, bookings of interviews and the ability to establish a new business	*ICV 1, 2, 3, 4, 7*
Having access to experts within areas such as user validation, technology and sales	*ICV 1, 3, 6, 7*
The processes of the GHTC provides a good structure and clarity in how to proceed with the product development	*ICV 2, 4, 6*
There are ways to work around the process	*ICV 1, 4, 6*
As a part of the GHTC, the ICVs do not have any external accounting requirements	*ICV 2*

Table VII Case Study: Organizational Context- Enablers

Organizational context		
Challenge	**Examples of enablers being used**	*Mentioned by*
The processes of the GHTC are optimized for the larger organization		*ICV 1, 3, 4, 6, 7*
The brand of the GHTC might cause limitations for the ICVs related to security and confidentiality.		*ICV 1, 2, 4, 6*
The formalization of the process sometimes prohibits the natural workflow and prevent activities from happening at a certain stage		*ICV 2, 4, 6*
Too much of an internal focus		*ICV 3, 6*
It is difficult for the GHTC to be agile and step out of its comfort zone		*ICV 3, 7*
Not getting enough funding		*ICV 2, 4*
ICVs have to coordinate their work with a manager which makes it hard to take risks		*ICV 7*
Employees at the GHTC area bit older, which tend to lead to employees becoming comfortable and less willing to take risks.		*ICV 7*
Internal administrative work at GHTC and process guidelines, such as agreements, decisions and signatures are time consuming activities		*ICV 2*
Increased complexity, since as a part of a larger organization you need to have a product concept attractive to both the market and the organization		*ICV 4*
Risk of becoming "Fat and lazy" because of GHTC's safety net		*ICV 2*
The project leader of an ICV does not own the resources		*ICV 2*
Long decision-making chains		*ICV 4*

Table VIII Case Study: Organizational Context- Enablers

Alignment with Strategy

Alignment with Strategy	
Enablers	*Mentioned by*
Have a clear and concrete goal from the beginning	*ICV 2, 5, 6*

Table IX Case Study: Alignment with Strategy- Enablers

Alignment with Strategy		
Challenge	**Examples of enablers being used**	*Mentioned by*
The work of the ICVs are affected by the strategy and management of the GHTC		*ICV 1, 2, 7*

Table X Case Study: Alignment with Strategy- Challenges

Appendix D Empirical Findings from the Benchmarking Study

Below follows a full compilation of enablers and challenges mentioned during the interviews with the external startups.

Management of the Idea

Management of the Idea	
Enablers	*Mentioned by*
Pivot several times and build a business model iteratively to find a market fit	*START 1, 3, 4, 6, 7, 9*
The importance of coincidence and timing when it comes to innovation success	*START 1, 2, 3, 6, 8*
The establishment of useful partnerships	*START 2, 4, 8, 9*
The idea was developed during a longer period of time	*START 1, 2, 4, 9*
Retrieve external input by using networking to generate an idea	*START 1, 3, 6*
Build a flexible technical solution that can easily be adopted to different pivots	*START 6*
Take advantage of emerging solutions from competitors	*START 8*
Mistakes make you wiser	*START 6*
It is important for the founder to have a huge interest in the industry	*START 8*
Invest a lot of time in finding the right partner	*START 2*

Table XI Benchmarking Study: Management of the Idea- Enablers

Management of the Idea		
Challenge	**Examples of enablers being used**	*Mentioned by*
Finding the right partners		*START 2, 4*

Table XII Benchmarking Study: Management of the Idea- Challenges

Evaluation of the Concept

Evaluation of the Concept	
Enablers	*Mentioned by*
Validate the product with customers	*START 1, 2, 3, 4, 5, 6, 7, 8, 9*
Importance of a proof of concept to get e.g. funding or feedback	*START 1, 2, 3, 4, 6, 7, 8*
Performed internal validation alongside external with customers	*START 1, 5, 8*
A continuous validation of the product concept	*START 4, 6, 7*
Conduct a thorough market research	*START 2, 4, 6*
Validation with others than customers eg. potential investors or family	*START 1, 3, 4*
Usage of networking to find the right customers to get feedback from a large amount of people	*START 1, 3*
The importance of testing/validating the product concept as soon as possible	*START 4, 7*
Finding a proper balance between listing to customer and sticking to original purpose	*START 2, 7*
To change direction according to received feedback	*START 6*

Table XIII Benchmarking Study: Evaluation of the Concept- Enablers

Evaluation of the Concept		
Challenge	**Example of enablers being used**	*Mentioned by*
To be able to clearly explain and present an idea to everyone in a room		*START 4*
Not having the competences to build a good prototype		*START 2*

Table IXX Benchmarking Study: Evaluation of the Concept- Challenges

Team Constellation

Team Constellation	
Enablers	*Mentioned by*
It is important to have a united team	*START 3, 4, 5, 6, 7, 9*
In the initial phases, employees need to take multiple roles	*START 1, 2, 3, 4, 5, 9*
Usage of networking to recruit new employees	*START 1, 2, 3, 6 ,8 ,9*
Usage of external consultants	*START 2, 4, 6, 8, 9*
Competence and need have been the starting point in the building process of the team	*START 2, 4, 5, 9*
Money and salary should be secondary for a founder	*START 1, 4, 6*
The willingness of an entrepreneur to take risks	*START 1, 4, 6*
As a founder you need to enjoy having many roles, take a holistic perspective and have a 100% focus on the organization	*START 1, 3, 5*
Usage of prototype to recruit new co-workers	*START 3, 8*
A person's drive and characteristics are more important than its competence in the building process of the team	*START 3, 6*
Differences between the characteristics of the team members are good for the product success	*START 2, 7*
Recruit outside your network and inner circle	*START 3*
It is important to have a well-balanced team with team members complementing each other	*START 2*
Having support and help from stakeholders to find suitable team members	*START 4*

Table XX Benchmarking Study: Team Constellation- Enablers

Team Constellation		
Challenge	**Example of enablers being used**	*Mentioned by*
Finding the right people for a well-balanced team		*START 1, 2, 3, 4*
-	Look outside your current network	*START 3*
-	Take advantage of stakeholders support	*START 4*
Different opinions and views on specific matters related to the diversity of a team		*START 2*

Table XXI Benchmarking Study: Team Constellation- Challenges

Organizational Context

Organizational context	
Enablers	*Mentioned by*
It is important to get funding	*START 1, 2, 3 4, 5, 6, 8, 9*
The main advantage of being part of an incubator is the access to a great network of people and the possibility to meet new people	*START 1, 3, 4, 5, 6, 8, 9*
Be willing to work late hours	*START 2, 4, 5, 9*
The startup setting is flexible making it okay to experiment and be fast-moving	*START 1, 6, 9*
Being able to make own decisions and being able to impact everything you do	*START 2, 5*
Startups do not have the pressure and requirements to show short term results	*START 6, 7*
Startups do not have a brand to defend	*START 6, 7*
Important to find a balance in the degree of formalization	*START 5, 9*
Networking opens up for potential investments or new possibilities	*START 3, 6*
Favorable to have all team members working in the same room	*START 7, 9*
An acceptance to failure	*START 6*
A creative environment together with trial-and-error working principles created dynamics, efficiency and short decision-making chains	*START 9*

Table XXII Benchmarking Study: Organizational Context- Enablers

Organizational Context		
Challenge	**Example of enablers being used**	*Mentioned by*
Monetary resources are a scarce		*START 1, 2, 3, 5, 6, 8, 9*
Time is a scarce resource for the founders		*START 2, 4, 5, 9*
-	The founders are willing to work late hours	*START 2, 4, 5, 9*
A startup face demanding bureaucracy from for example the Swedish Tax Agency		*START 1, 5, 9*
To get funding from investors		*START 2, 4, 8*
The economical and career risk		*START 6*
To have the energy to change focus and recover after a failure		*START 6*

The seeking for funding is a time-consuming activity		*START 2*
Survival of the company		*START 7*
When receiving funding, the investors get more impact		*START 4*

Table XXIII Benchmarking Study: Organizational Context- Challenges

Alignment with Strategy

Alignment with Strategy	
Enablers	*Mentioned by*
It is important to stick to the strategy as new investors are brought in, as well as being careful with bringing in the right investors	*START 1, 2, 4*
When it comes to strategy, it is important to have well-known goals	*START 1, 8, 9*
The whole team striving towards the same objectives	*START 2*
Keep moving fast and be flexible instead of being limited by a expressed strategy	*START 9*

Table XXIII Benchmarking Study: Alignment with Strategy- Enablers