

CHALMERS



Exploring inhibitors for implementation of ideas with breakthrough innovation potential

- A case study of SCA Hygiene business area

*Master of Science Thesis in the Master Degree Programme,
Management and Economics of Innovation*

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ABSTRACT

Today's fast changing business environment has made breakthrough innovation a necessity for companies. The generation of ideas with breakthrough innovation potential is not experienced as difficult; rather the implementation of the ideas is the hard part. This is also experienced in SCA Hygiene and thereof they initiated this thesis. The literature study suggested a framework with inhibitors for breakthrough innovation capability in large companies that was reframed and used to identify the inhibitors' presence in SCA Hygiene. Depending on the perceived level of presence of the inhibitors, and hence how much they disturb SCA Hygiene's breakthrough innovation capability, they were given a color-label. The inhibitors for breakthrough innovation capability that were identified to be most present in the organization were labeled red and became the focus of an external perspective interview study with ten other large companies. The external perspective interview study showed that several of the other companies experienced similar challenges but it also provided some, together with the literature study, valuable suggestions on what could be done to reduce the level of presence of the inhibitors.

Perceived relations have been found between the identified inhibitors and a reduction in one of them will therefore lead to reduction in several inhibitors, thus a system approach is important to keep in mind. It is suggested that SCA Hygiene should start with explicit pronounce a clearly stated strategy for breakthrough innovation and thereafter continue with reducing the presence of the red-labeled inhibitors. Breakthrough innovation capability is influenced by many factors and thus no universal solution exist; the solution is company specific. Recommendations for SCA Hygiene on what factors they could focus on to improve the implementation of ideas with breakthrough innovation potential are given in this thesis. Several of the suggestions could most likely be valuable for other companies as well.

Key words: Breakthrough innovation, breakthrough innovation capability, inhibitors for breakthrough innovation capability, implementation, ideas with breakthrough innovation potential

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Göteborg, June 2012

Pernilla Ahlm & Johanna Jeppsson

DISPOSITION

Chapter & Title	Description
1. Introduction	<ul style="list-style-type: none"> • Background to the initiation of this thesis • Presentation of SCA Group and SCA Hygiene • Purpose and research question
2. Method	<ul style="list-style-type: none"> • The research strategy, design and method of this thesis are discussed • The process of the research is presented • The quality of the research and reflections on it is expressed
3. Definitions of Breakthrough Innovation	<ul style="list-style-type: none"> • Definitions of breakthrough innovation are reviewed • Reflections on the definitions used in this thesis is expressed
4. Frame of Reference	<ul style="list-style-type: none"> • The literature study includes theory about breakthrough innovation and is outlined in five sub-chapters; implementation, organizational structures, inhibitors, capabilities and uncertainties • Different areas of innovation are expressed
5. SCA Hygiene's Perspective and Work with Innovation	<ul style="list-style-type: none"> • SCA Group description • Innovation definitions used in SCA Hygiene • SCA Hygiene's framework for implementation of breakthrough innovation including; the innovation strategy framework, the stage-gate model <i>PRIME</i>, the idea systems, the patent department and <i>Open Innovation</i> • Organizational structures for breakthrough innovation projects
6. Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene	<ul style="list-style-type: none"> • The overview of the findings regarding the level of presence of inhibitors for breakthrough innovation capability in SCA Hygiene
7. Analysis of Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene	<ul style="list-style-type: none"> • The analysis of identified inhibitors for breakthrough innovation capability in SCA Hygiene • Summary of the analysis
8. External Perspectives on Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene	<ul style="list-style-type: none"> • The empirics from other large companies perspectives regarding the identified inhibitors in SCA Hygiene <ul style="list-style-type: none"> – This empirics focuses on the inhibitors identified to greatly affect SCA Hygiene's breakthrough innovation capability
9. Discussion: SCA Hygiene's Capability for Implementing Breakthrough Innovation?	<ul style="list-style-type: none"> • The discussion about the findings that aims to answer the research question
10. Recommendations	<ul style="list-style-type: none"> • The recommendations for SCA Hygiene on what factors to focus on to improve the implementation of ideas with breakthrough innovation potential
11. Conclusion	<ul style="list-style-type: none"> • Summary of the research done in this thesis

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1. Introduction

This chapter gives an introduction to this thesis and the area of research. The case company SCA Hygiene is introduced as well as the purpose and research question of the thesis.

1.1. Background

Today's fast changing business environment is tough for large companies to keep up with (Assink, 2006). There is acceleration in customer demand and increased speed in product development that has reduced products life cycles drastically. Customers expect new products and services much more frequently than was the situation in the past. (Phillips, 2012 pp. xix-xx) Large companies now have to leave the safe traditional cost-reduction strategies on behalf of strategies more focused on breakthrough innovation (Hamel, 2002). Hence, it is a must to create fundamentally new products and services and be aware of that many of these may not be successful. This is not a straightforward task for companies since it requires new and unfamiliar relationships and partnerships, attraction of new customers, changes in organizational structures, cannibalization of existing products and/or changes in existing business models. (Phillips, 2012 p. 24) In these existing uncertain market conditions, for large companies' survival and long-term growth, breakthrough innovation has become a necessity (Leifer, et al., 2001). O'Connor, et al., (2008 p. 11) formulates the definition of breakthrough innovation that will be used in this thesis:

“Breakthrough Innovation (BI) is the creation of a new platform or business domain that has high impact on current or new markets in terms of offering wholly new benefits *and* high impact on the firm through expansion into new market and technology domains, increased revenues, and ultimately increased profits.”

Radical and disruptive innovation are other definitions that are used for innovation with a high degree of novelty (Assink, 2006). In order to understand each other, it is necessary to have the same vocabulary and mean the same things. In this thesis, breakthrough innovation is used as an all-purpose definition comprising products, services or changes in business models that alter the basis of competition, transform customer experience and/or create new markets. According to Doblin (2012) innovation is often associated with the development of new products, but that is only one area of innovation. An innovation can occur in all parts of a company; within configuration, offering or experience. (Doblin, 2012)

The difficult part dealing with potential breakthrough innovation, where most large companies fail, is in the implementation procedure. Generating the ideas is often not a problem. Companies know how to and are most often good at implementing incremental ideas, but that is not enough to succeed with implementation of breakthrough ideas as it requires other capabilities of a company. (Leifer, et al., 2001) The same goes for SCA Group's business area SCA Hygiene, which is the case study company in this thesis. SCA Hygiene faces the challenges to generate the capabilities needed to implement breakthrough ideas (Interview 1: Järrehult, 2012).

Even though the need to innovate is a necessity, the disruptive innovation capability to develop and implement disruptive innovation is inadequate in many large companies (Hamel, 2002). Assink (2006) defines a company's disruptive innovation capability as:

"The internal driving energy to generate and explore radical new ideas and concepts, to experiment with solutions for potential opportunity patterns detected in the market's white space and to develop them into marketable and effective innovations, leveraging internal and external resources and competencies."

There is no universal solution to create breakthrough innovation capability. The work for large companies to achieve that capability must be continuous and a never-ending activity. (Assink, 2006) The process from an idea with high novelty to an innovation is complex and interactive constituting of searching and selecting, exploring and experimenting, learning as well as unlearning, and continuous fast feed-forward and feed-back loops (Hamel, 2002). Breakthrough innovation capability, according to O'Connor, et al. (2008 p. 20), consists of the three main phases *discovery*, *incubation* and *acceleration*. The phases involve, among other things, conceptualization, business laboratory and experimentation as well as commercialization of the business. Often, the *incubation* phase is least understood for companies and the *acceleration* phase is forgotten as companies are too eager transferring the business to a business unit, which often leads to that the business withers. (O'Connor, et al., 2008 pp. 20, 83-84, 120)

Apple, Google, 3M and Procter & Gamble are often mentioned in discussions about successful innovators. These companies constantly manage to innovate successfully and have illustrated an ability to create new markets, products and services. What differentiates these companies from its close competitors, companies of the same relative size and that compete in the same industries and geographies, which are not as successful innovators is, according to Phillips (2012 p. 13), that: "The firm that have the greatest success innovation over time, regardless of circumstance, markets conditions, leadership, customer demand, have successfully made innovation a part of the expectations, attitudes, processes, and methods that the business follows to get the work done". Moreover, the company culture and communication, company history, way of thinking about risk and uncertainty, ambiguity, evaluation, compensation, and how people are punished or rewarded for the outcomes they generate are critical factors. However, when comparing the innovators named above it is showed that they have in common the capability to innovate consistently over time. In addition, when looking more rigorously into their success, other similarities found are the expectations their cultures have about innovation and how the middle managers as well as front line employees take part in innovation activities. (Phillips, 2012 pp. 2, 13-16, 53, 164)

1.2. Purpose & Research Question

SCA Hygiene is part of the large global hygiene and paper company SCA Group. The group was established 1929 and develops and produces personal care products, tissue and forest products. In 2011, SCA Group was doing businesses in more than 100 countries, had 44 000 employees and the revenue was SEK 106 billion. (SCA Group: Annual report, 2011)

SCA Hygiene wants to be in the front line working with innovation. They have successfully defined processes for how the development of incremental innovation should proceed and the organization is satisfied with the outcome of incremental innovation. On the other hand, when it comes to breakthrough innovation, the organization is facing challenges and sees improvement potential. The

causes of the challenges when working with potential breakthrough innovation are not located. The difficulty that SCA Hygiene experience is not the generation of breakthrough ideas rather it is the implementation procedure of them. That is to be able to manage the idea the whole way to commercial success. (Interview 1: Järrehult, 2012)

This thesis was initiated by SCA Hygiene since they want to improve the organization's breakthrough innovation capability. The purpose of this thesis was compiled, by the authors, to help SCA Hygiene achieve that. The purpose has thereby resulted in to identify the factors in the organization that need to be improved to achieve a higher breakthrough innovation capability, as well as to get an external perspective on the identified factors. Hence, to help SCA Hygiene become better at implementing breakthrough innovation projects the following research question will be answered:

- *What factors could SCA Hygiene business area focus on to improve their implementation of ideas with breakthrough innovation potential?*

To answer the stated research question above, different points of view need to be studied to get an all-embracing understanding. Breakthrough innovation is a difficult type of innovation to explore as there is no general solution for all companies and few best practice cases exist. Sub-questions have been stated to get that all-embracing understanding.

The outcome of the first sub-question A is meant to clarify the several diffuse definitions that are commonly used but not commonly defined within the topic of innovation. This sub-question is essential to answer before digging deeper into considering the main research question to ensure that definitions in the concern area of research are understood and used appropriate. Hence, the question is as follow:

A. What is a breakthrough innovation?

To find the appropriate conditions for SCA Hygiene to consider when implementing ideas with breakthrough innovation potential two additional sub-questions are stated. The purpose of sub-question B1 is to get a deeper understanding of the presence of inhibitors for breakthrough innovation capability in SCA Hygiene. The results from sub-question B1 create the focus in sub-question B2, where other large companies are benchmarked. The sub-questions are as follow:

B1. Which inhibitors to implement ideas with breakthrough innovation potential can be identified in SCA Hygiene?

B2. What learning from other companies when implementing ideas with breakthrough innovation potential can SCA Hygiene draw on to reduce the presence of identified inhibitors in their organization?

2. Method

In this chapter the research strategy, design and method of the study are described and the choice of the used study process is explained. Furthermore, a description of the process of the study and the quality of the research is discussed.

2.1. Research Strategy

Research strategy aims at giving a general orientation. A classification of two main research areas is quantitative research and qualitative research. The quantitative research strategy can be interpreted as emphasizing quantification when data is collected and analyzed. The qualitative research strategy can be interpreted as emphasizing words when data is collected and analyzed. The quantitative research strategy has an accent of testing theories, and is said to have a deductive approach to the theory and research relationship. The qualitative research, on the other hand, has an accent of generating theories. The relationship between theory and research is said to be an inductive approach. The line between the two research strategies is not as clear as it might sound. There are examples of an inductive approach with characteristics from the deductive approach, for example there are inductive studies where theories have been tested. (Bryman, et al., 2011 pp. 26-28)

To be able to answer this thesis’s research question a qualitative research strategy was used. However, instead of the inductive approach another approach was found more suitable, which is the abductive approach. Dubois, et al. (2002) write that abduction is about investigating the everyday language and concepts relationship, something that is similar to the inductive approach. The opportunity to go back and forth between research activities as well as between empirics and theory makes it possible to understand both empirics and theory better. The search for empirical data is directed through the evolving of the framework. There are several ways that the framework can take during the research, since empirical data and theory can be combined in different ways. (Dubois, et al., 2002)

To answer the stated research question in this thesis it was necessary to simultaneously investigate empirics and theory to find an applicable framework. The framework evolved throughout the process of the research and directed the empirical gathering. The stated research question, explained earlier in chapter 1 (Introduction), with sub-questions are illustrated in figure 1 below.

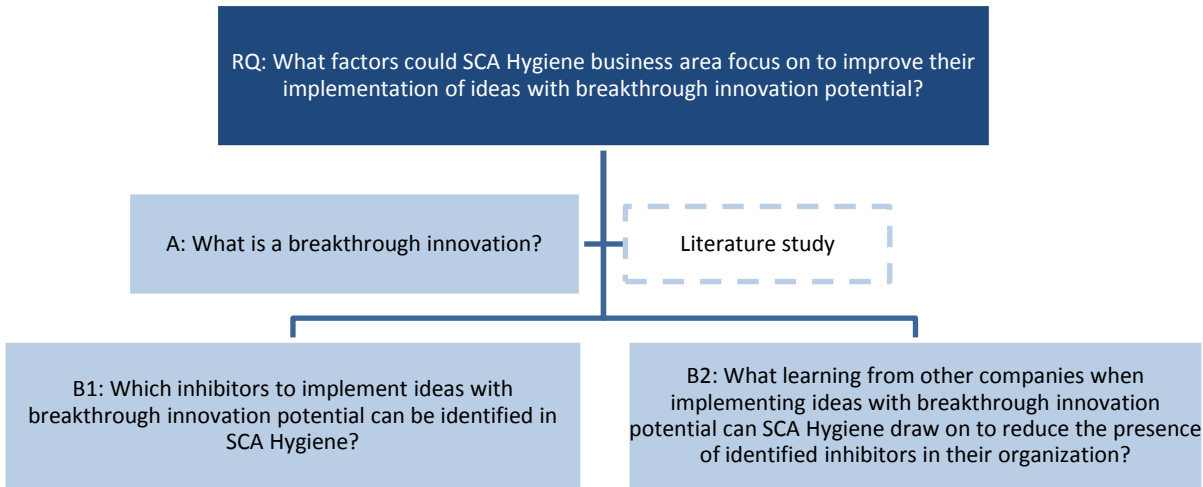


Figure 1. The main research question and its sub-questions
Source: Authors

2.2. Research Design

The structure in which data is collected and analyzed is given by the research design (Bryman, et al., 2011 p. 40). The case study design and the multiple-case study design are used in this thesis.

First a case study design on a single organization, SCA Hygiene, was performed. A case study allows for detailed and intensive analysis of a single case and is concerned with the complexity and nature of the case (Bryman, et al., 2011 pp. 59-63). Since this thesis aimed at understanding a single organization more in depth regarding breakthrough innovation capabilities, the case study design suited well.

Secondly a multiple-case study was performed with ten additional companies. A multiple-case study promotes theoretical reflection on the findings, allows for comparing and contrasting the findings as well as to see what is unique or common among cases (Bryman, et al., 2011 p. 63). Semi-structured interviews were held with the purpose to understand and compare how other large companies work with breakthrough innovation, and hence the multiple-case study design suited well.

2.3. Research Method

The technique in which data for the study is collected is called the research method (Bryman, et al., 2011 p. 41). In this thesis both primary and secondary data has been collected using different methods. According to Boeije, et al. (2005) primary data is: "Original data collected for a specific research goal" and secondary data is: "Data originally collected for a different purpose and reused for another research question". Primary data have the main advantage that the data can be customized to the research question, but the main disadvantage that the data collection procedure is costly and time-consuming. Secondary data have the main advantage that if applicable information within the research area is available, using it can provide information at a far lower cost and with greater speed. The main disadvantage with secondary data is that the data may not be optimal for the research question under consideration or that it can be hard to understand without explicit information on the informants and the context. (Boeije, et al., 2005)

Primarily data have been gathered through semi-structured interviews. Semi-structured interviews, according to Bryman, et al. (2011 p. 467), follow specified topics but have also the benefit of being flexible and giving a possibility to elaborate further on specific topics that the interviewee might bring up. A qualitative interview, as the semi-structured interview is, also has the benefit of getting rich and detailed answers (Bryman, et al., 2011 pp. 466-467). Semi-structured interviews have been used both in the case study and in the multiple-case study in this thesis. A different interview guide has been used for each study, see Appendix A. However, both interview guides were built up through first introduction questions and then in depth questions. The case study's interview guide was tested through a pre-interview to ensure that the questions were understandable and relevant for the research area. The data from the pre-interview is not used in this thesis. The multiple-case study's interview guide was discussed with one of the supervisors in SCA Hygiene to be sure that the questions were understandable and relevant for the research area.

Secondary data have been collected using company specific reports received from our supervisors in SCA Hygiene, documents from SCA Hygiene's Intranet, SCA Group's annual report, academic articles, academic books as well as websites. Secondary data have been used in this thesis to acquire

additional data in some areas and to get data in areas that have not been seen as crucial to go further into during valuable interview time.

2.4. The Process of the Research

The purpose of the thesis was to find the factors that SCA Hygiene can focus on to improve their implementation of ideas with breakthrough innovation potential. Figure 2 below illustrates the outline of the research process of this thesis.

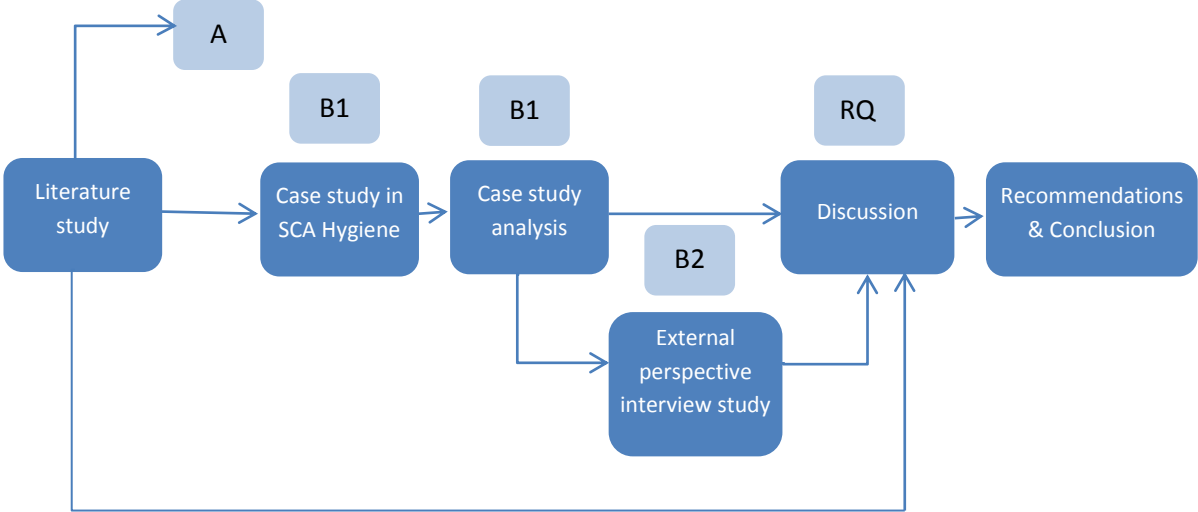


Figure 2. The structure of the research process
Source: Authors

The literature study proposed, among other things, inhibitors for breakthrough innovation capability. These inhibitors were modified and search for in a case study in SCA Hygiene. The case study data was analyzed using relevant parts regarding inhibitors from the literature study. A multiple-case study was then performed to receive inputs from how other large companies deal with the areas of improvements that was found in the case study at SCA Hygiene. Thereafter, the discussion followed by recommendations and conclusion were performed.

2.4.1. The Literature Study

A literature study was performed to generate a basic understanding in the research area. The literature study made it possible to answer sub-question A, concerning what a breakthrough innovation is and how it relates to other similar definitions. Sub-question A was answered, in the chapter Definitions of Breakthrough Innovation, through an analysis of relevant parts in the literature study. This was processed by the authors together with one of the supervisors in SCA Hygiene. This was seen as important to start with to be sure that the definition was clearly understood as well as to give the possibility to communicate it and understand how other definitions relate to it during the interviews as well as during the search for secondary data.

The literature study started the process of answering the sub-questions B1 and B2. The identified inhibitors for breakthrough innovation capability from the literature constructed a framework that was used in the case study as a guideline to identify the presence of those inhibitors in SCA Hygiene. The literature study was also used when discussing the research question in the end of this thesis.

2.4.2. The SCA Hygiene Case Study

The purpose of the SCA Hygiene case study was to answer sub-question B1, and thereby get a deeper understanding of SCA Hygiene's work regarding breakthrough innovation and the inhibitors for breakthrough innovation capability that might be present in the organization.

Data Collection

Data was collected through semi-structured interviews with 14 employees in SCA Hygiene. The interview guide was compiled with help from the framework of inhibitors for breakthrough innovation capability. The focus in the interviews was to understand which inhibitors that are present as well as to what extent they are present within SCA Hygiene.

The interviewed employees were from different levels and parts of the organization. The two supervisors in SCA Hygiene gave advice on respondents to start interviewing and thereafter those respondents were asked to give advice on further respondents. A careful guidance of the advices was done to be sure that the distribution of respondents became suitable. The respondents were chosen to get a wide understanding of how the employees, from different levels and parts in the organization, perceived the inhibitors for breakthrough innovation to be present or not. The interviews were all performed through a personal meeting. There were two interviewers present, one had the responsibility of leading the interview and the other had the responsibility to transcribe what the respondent said.

A supplementary study was performed in parallel to acquire secondary data. The purpose of that study was to gather data in concerned areas and to obtain data in areas that was not in focus during the interviews. Sources used was company specific reports received from our supervisors in SCA Hygiene, documents from SCA Hygiene's Intranet, SCA Group's annual report, academic articles, academic books as well as websites.

Analysis & Interpretation

The data generated in the case study interviews, with help from the framework, and the attained secondary data were used to analyze the presence of the respective inhibitor in SCA Hygiene's organization. The supervisors in SCA Hygiene asked for a qualitative analysis by the authors of the perceived presence of the inhibitors. One of three labels was therefore used to demonstrate the perceived presence of each inhibitor. Green label indicated that the inhibitor is not identified to be present, yellow label indicated that the inhibitor is present to some extent and red label indicated that the inhibitor is present to a great extent. The breakdown of the inhibitors in different labels made it possible to focus the multiple-case study on the inhibitors that was identified in SCA Hygiene, consequently the inhibitors that were perceived as a challenge in the organization and had been given the label yellow or red.

2.4.3. External Perspective Interview Study

The purpose of the multiple-case study was to understand how other large companies work within the areas that SCA Hygiene has found challenging, and thereby answer sub-question B2. A summary of the interviews can be seen in Appendix B. The aim was also to see if it was possible to bring the other companies successful work procedures with breakthrough innovation projects back to SCA Hygiene in order to improve their breakthrough innovation capability.

The analysis of the case study in SCA Hygiene labeled inhibitors green, yellow or red depending on their perceived presence in the organization. The semi-structured interviews in the multiple-case study were constructed around the inhibitors that were given the label red. Questions about the inhibitors that were given the label yellow were to the extent that they were found relevant also included in the interviews.

Data Collection

In the multiple-case study eleven representatives from ten large companies were interviewed. The representatives had different positions in their organizations but all of them were involved in their organization's innovation work in some manner. The majority of the companies were chosen from the supervisors, both from Chalmers and SCA Hygiene, networks. The authors themselves located some of the companies. Requirements on the interviewed companies were that they should be mature and established with a long history and a R&D department. The companies should also be characterized with a higher level of bureaucracy, which is associated with large companies or organizations that are part of a large corporate.

The semi-structured interviews in the multiple-case study were, all except from three, performed over telephone. The remaining three interviews, thanks to the geographical location, were performed through a personal meeting. The same procedure as in the case study with the two interviewers was followed. These interviews were with the permission from all respondents sound recorded and transcribed afterwards.

2.5. The Quality of the Research

The quality of the research is measured in the terms reliability and validity. Reliability aims at answering to what degree the study can be replicated. Since qualitative studies depend on a social setting, which is not possible to reproduce, the reliability of a qualitative study is in general perceived as low. (Bryman, et al., 2011 pp. 41, 395) This study is also dependent on a social setting, which makes the reliability lower. However, the data from the interviews, both in SCA Hygiene and in the multiple-case study, were gathered with help of interview guides which makes it possible to replicate them. However, the interviewees are treated confidentially which would make it impossible for another researcher to replicate the study. Nevertheless, an established framework has been used which makes it possible to perform an equivalent study, thus without the same result. The reliability of the study is perceived as rather low.

The second term that the quality of the research is measured through is validity. The external validity is commonly measured in qualitative research. It measures if the study's results can be generalized and applied to other contexts than the one specific for the study. Since qualitative studies often use case studies and smaller samples, the external validity could often be a problem in these studies. (Bryman, et al., 2011 pp. 43, 395) This thesis aimed at finding the factors that SCA Hygiene should focus on, and hence did not aim for a result that could be generated to other social settings. Thus, the multiple-case study increases the degree of external validity of the research by comparing the found results in SCA Hygiene to other social settings. The external validity is therefore perceived to be moderate.

Reflections of the Research Quality

There are some limitations of this thesis. First and foremost, the analysis and discussion is conducted after how the authors have perceived it to be. Several interviews, both in SCA Hygiene and in the

external companies, have been performed to minimize this limitation. However, it cannot be excluded that it might have an impact. One intervention that could have minimized the limitation even more would be to perform several interviews on each of the external companies. But limited time and resource restriction made it unmanageable to perform additional interviews.

Another intervention that could enhance the results would be to ask questions regarding all the identified inhibitors in SCA Hygiene to the external companies. The interviews were performed with focus on the red-labeled inhibitors, even though the yellow-labeled inhibitors were mentioned in relation to them. The limited interview time did not allow for going deeper into the context of all the identified inhibitors.

There is a risk that the respondents have taken on a “company role” and not wanting to criticize their own company. The effect of such a limitation it hopefully minimized through starting the interviews by telling that both the representative and the company will be confidential in this thesis.

3. Definitions of Breakthrough Innovation

This chapter clarifies related definitions that are commonly used in the concerned area of research. A review of different definitions are first presented and then followed by an attempt to explain how they are perceived to correlate when used in this thesis.

3.1. Review of Definitions

There are almost as many definitions of innovation as there are persons trying to define it. The widely use of different typologies have resulted in that one specific definition can be used for different areas of innovation and that one innovation type can be classified with several different definitions. (Garcia, et al., 2002) However, as emphasized in the introduction it is important to use a common language when discussing innovation.

It is important to understand the difference between idea, invention and innovation. An idea is produced through creativity, and is the start of what can become an innovation (Morris, 2011). It is important not to mix up idea with innovation. Many companies do that, which result in that when they want to improve their innovation process they just end up with randomly generated ideas. (Morris, 2011). Two definitions of an idea are:

“Any conception existing in the mind as a result of mental understanding, awareness, or activity.”
“A plan of action; an intention:”

(Dictionary.com)

An invention can become an innovation if it returns economic value, but as long as it does not provides any value it is an invention (Garcia, et al., 2002). A definition of an invention is:

“A discovery that goes no further than the laboratory is an invention”

(Garcia, et al., 2002 p. 112)

Innovation should be seen as a process, a result and an attribute. The process is when ideas are developed and turned into something valuable. It should be of value for the user and create a competitive advantage for the company, and thereby be of economic value. The innovative result is what the innovation process should lead to in form of new products, new ways of working, new strategies, new business models and new ventures. The innovation attribute is what characterizes it, its innovativeness, like its distinctiveness, originality and usefulness as well as the value it provides. (Morris, 2011) Tidd, et al. (2005 pp. 10-12) explain it in a similar way with different words and say that innovation could be seen as a change having two dimensions. The first one is what area of change it is and the second one is what type of novelty it holds. A definition of an innovation is:

“Innovation is the implementation of new ideas with sustainable commercial impact.”

(Research & Technology Executive, 2011)

There are several different kinds of degrees on how novel an innovation is. Some changes are minor and more incremental, even though they could still be classified as innovation, while some are of a more radical kind. (Tidd, et al., 2005 pp. 10-12) Radical innovation is one definition used for innovation with a high degree of novelty (Assink, 2006), and innovation of more radical kind possess higher levels of uncertainty than what incremental innovation do (O'Connor, 2008 p. 325). According to Tidd, et al. (2005 pp. 10-12) the most radical ones can even change the basis of the society. Järrehult (Järrehult, PPT: Managing Incremental and Radical Innovation Simultaneously) describes a model created by Paul Hobcraft, see figure 3 below. The x-axis describes the level of novelty of the offer for your company and the y-axis describes to whom you are offering it.

Customer/Market	Non-customers	Identify new customers, tailor products/services/BMs to adoption barriers.		Create new markets
	New to You	Expand existing products/services and BMs to new customers new customers/markets.	Expand the value chain.	Change the basis of competition.
	Existing	Retain, acquire customers, improve pricing scale and improve efficiencies.	Expand products/services and BMs to existing customer/market base.	Transform customer experience.
		Existing	New to You	New to Business branch
Products/Services/Business Models				

Figure 3. A model, interpreted from Järrehult, that describes innovation of different degrees of novelty
Source: Minor modification from Järrehult (PPT: Managing Incremental and Radical Innovation Simultaneously)

Different definitions used for innovation with different degrees of novelty can be seen in table 1 below.

Minor and incremental innovation	"... are innovations with a lower degree of novelty." (Tidd, et al., 2005 pp. 11-12)
Incremental innovation	"A series of small improvements to an existing product or product line that usually helps maintain or improve its competitive position over time. Incremental innovation is regularly used within the high technology business by companies that need to continue to improve their products to include new features increasingly desired by consumers." (BusinessDictionary.com) "Other changes in products and processes like changes which are "insignificant," minor, or do not involve a sufficient degree of novelty. Novelty refers to the aesthetic or other subjective qualities of the product." (Popadiuk, et al., 2006)
Radical innovation	"Radical innovation results in new products or services delivered in entirely new ways." (Epstein, et al., 2006 pp. 38-39) "Radical innovation is defined as either of the following: <ul style="list-style-type: none"> • Having an entirely new set of performance features • Improvements in known performance features of five times or greater • A significant (30 percent or greater) reduction in cost" (Leifer, et al., 2000 p. 5)
Radical innovation versus semi-radical innovation	To be classified as a radical innovation it should be a significant change in the business model, meaning in one or more of the three levers value proposition, value chain and target customer. It should also be a significant change in the technology, meaning in one or more of the three levers product and service, process technology and enabling technology. If there is a small change in either the business model or the technology and a significant change in the other the innovation is called semi-radical. (Epstein, et al., 2006 pp. 40-41)
Breakthrough innovation	"Creating new-to-market product, service and/or business model families expected to fundamentally alter the growth of the business and to provide new platforms for growth." (SCA: Definitions related to Innovation, 2011) "The creation of a new platform or business domain that has high impact on current or new markets in terms of offering wholly new benefits and high impact on the firm through expansion into new market and technology domains, increased revenues, and ultimately increased profits." (O'Connor, et al., 2008 p. 11)
Disruptive innovation	"A process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves 'up market', eventually displacing established competitors. An innovation that is disruptive allows a whole new population of consumers access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill. Because companies tend to innovate faster than their customers' lives change, most organizations eventually end up producing products or services that are too good, too expensive, and too inconvenient for many customers. By only pursuing "sustaining innovations" that perpetuate what has historically helped them succeed, companies unwittingly open the door to "disruptive innovations"." (Christensen, 2009)

Table 1. Different definitions of innovation

Source: See in the table

3.2. Reflections on Definitions

With the model above by Paul Hobcraft as a base and the above-mentioned definitions an effort to put the definitions in relation to each other for clarification is done below. Figure 4 shows the relationships which afterward are explained.

Customer/Market	Non-customers	Semi-radical	Semi-radical	Radical Breakthrough Disruptive
	New to You	Semi-radical	Semi-radical	Semi-radical Breakthrough Disruptive
	Existing	Incremental	Semi-radical	Semi-radical Breakthrough Disruptive
		Existing	New to You	New to Business branch
Products/Services/Business Models				

Figure 4. Correlations of used innovation definitions in this thesis

Source: Developed from Järrehult (PPT: Managing Incremental and Radical Innovation Simultaneously)

Incremental innovation is talked about as having a lower degree of novelty (Tidd, et al., 2005 pp. 11-12) and being improvements to, for example, existing products. The changes are made to desire the customers. (BusinessDictionary.com) Incremental innovation consequently concerns small changes in a company's existing products to meet the desire of already existing customers. Hence, incremental innovation is placed in the model's lower left square.

Innovation with a higher degree of novelty that has different definitions is a bit difficult to separate from each other. The definition for radical innovation by Epstein, et al. (2006 pp. 38-41) say that the offering should be something entirely new. It should be a significant change in one or more of the three levers product and service, process technology and enabling technology. In the model this means that radical innovation matches the column *New to biz branch* in the x-axis, since a significant change is interpreted as not just new for the company. Regarding the way a radical innovation is delivered it is said to be in an entirely new way. It should be a significant change in the business model, meaning in one or more of the levers value proposition, value chain and target customers. (Epstein, et al., 2006 pp. 38-41) This is interpreted as including the *Non-customers* row in the y-axis, since it is a significant change and not just an expansion of what is present. Radical innovation is therefore placed in the model's top right square. The definition by Epstein, et al. (2006 pp. 38-41) also say that if the change in either of the axis is small and the other is significant, it is called semi-radical innovation. For the model this means that, except for the incremental square in the lower left corner, the rest of the squares would fulfill the definition of being semi-radical.

The definitions for breakthrough innovation talk about new platforms or business domains that should offer wholly new benefits and have high impact on the company (O'Connor, et al., 2008 p. 11)

as well as new-to-market products, services and/or business model families (SCA: Definitions related to Innovation, 2011). Breakthrough innovation is therefore interpreted as only including the column *New to biz branch*. The column *New to You* is excluded since the definition regards new platforms or business domains and not just something that is new for the company. Breakthrough innovation should have high impact on current or new markets (O'Connor, et al., 2008 p. 11) and therefore all three rows on the y-axis are included. As a result, the breakthrough innovation definition is positioned in the rightmost column in the model.

The third definition for innovation with a high degree of novelty is disruptive innovation. The definition of disruptive innovation states that the new product or service becomes accessible to consumers that before could not access it due to lack of money or skills (Christensen, 2009). This is interpreted as in the x-axis only including the column *New to Biz branch*. The other two columns are excluded since the product or service was not accessible before from either by the company or by any of its competitors. The definition says that the new product or service becomes accessible to new consumers (Christensen, 2009), but it does not exclude the existing customers to change to the new product/service as well. Therefore all three rows on the y-axis are included. To sum up, the disruptive innovation definition is positioned in the rightmost column.

4. Frame of Reference

This chapter includes the literature study of relevant theories within the area of research. Concerned areas are theory within the three perspectives; system thinking, inhibitors and capabilities for breakthrough innovation capability. These perspectives have been chosen since they are found to complement each other and to give different points of view.

4.1. System Thinking Perspective on Breakthrough Innovation Capability

The system thinking perspective includes several different viewpoints and emphasizes the importance of seeing the bigger picture. This section includes theory about the development of breakthrough innovation projects by using the *Innovation Master Plan Framework* and the *D-I-A Process*. Theory about organizational structures and the *Cynefin framework* is also included. The *Cynefin framework* contributed with insights regarding the importance of knowing in which situation you are in and how you should react in it. Finally, the importance of managing uncertainties and be aware of the different areas of innovation is outlined.

4.1.1. The Innovation Master Plan Framework

The development of innovation projects is not a straightforward task and is often risky, expensive and unpredictable. As Morris (2011 p. 1) writes: "... even when we think we do know what we're doing, the results from the innovation process frequently fail to live up to our expectations". Moreover, the innovation project successes from companies such as Apple, Procter & Gamble and Toyota is not due to magic, it is the result of that they follow a well-organized innovation procedure. Success with innovation projects requires the right mindset, a long-term commitment to realize the potential and a well-defined concrete and specific innovation framework. Furthermore, meaningful progress will only be reached when managers adopt the mindset that their organization must and will innovate, when their words and actions genuinely reflect that mindset, and when they realize how to do it in action. (Morris, 2011 pp. 1-2, 296-297)

Innovation should be a strategic asset to organizations. The innovation work can be improved by adopting a systematic approach that contains the best tools. But also, and maybe even more important, by develop an approach that goes beyond tools to deal with the bigger issues that helps organizations to deal with the large scale risks and opportunities. By improving the innovation work a virtuous cycle of innovation will start, see figure 5 below. That is, when an organization gets better at innovation, by having a good plan that is implemented well, it will lead to more success in the market in the form of competitive advantage, brand enhancement, revenue and profit. This will give the organization more resources that can be used to further make the organization better at innovation. It will also have a positive influence on the innovation culture of thinking and the innovative results within the organization. (Morris, 2011 pp. 1-2)



Figure 5. The virtuous cycle of innovation
 Source: Minor modification from Morris (2011 p. 3)

Morris (2011) has developed the *Innovation Master Plan Framework*, see figure 6 below, that have the purpose to help organizations' to master innovation projects. The framework is vital for progress with innovation projects as it helps to achieve a structure for accumulating knowledge as well as collecting and combining key discoveries into understandable and actionable tasks. However, as the development of innovations is complex, the framework is simple and manageable. (Morris, 2011 pp. 10-11)

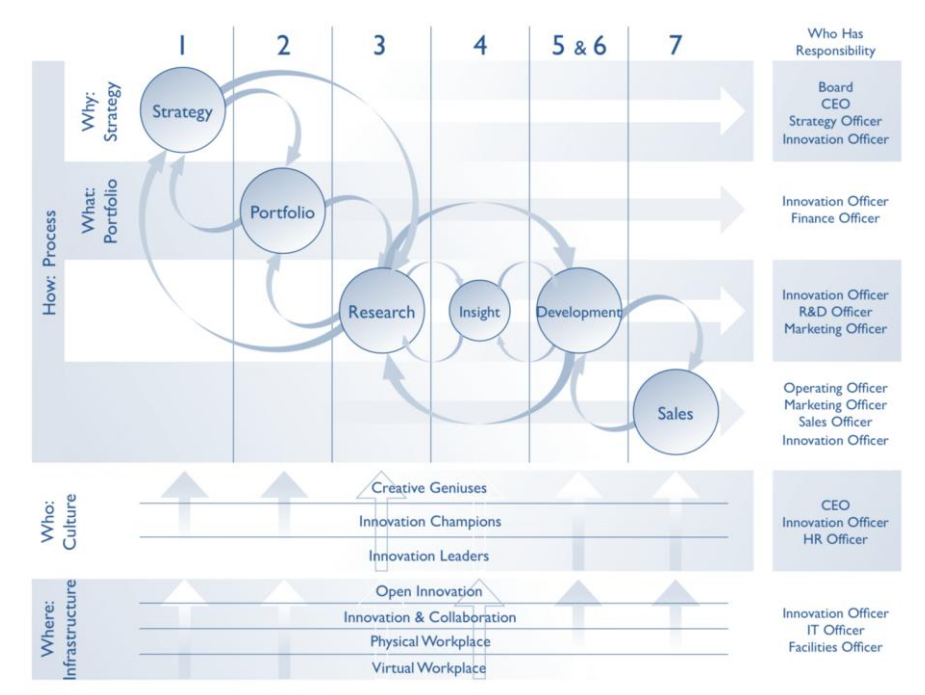


Figure 6. The Innovation Master Plan Framework
 Source: Minor modification from Morris (2011 p. 295)

The overall structure of the framework consists of five questions that, when organized and managed in coordination, constitute an innovation system. Across the questions is a procedure of seven stages, and within each stage responsibilities are clearly stated. The five questions are simple but the solutions are much more difficult to answer. The questions and stages are iterative and interdependent. (Morris, 2011 pp. 11-12, 296)

The first question “Why innovate?” is important as innovation must be a natural element within an organization’s strategy. Therefore, step one is about strategic thinking and the definition of specific intents and expectations. (Morris, 2011 pp. 12, 142)

The second question “What to innovate?” points to the necessity of having an innovation portfolio with many different innovation project options, both short- and long-term projects across all areas of innovation. The portfolio should be designed and managed like a tool for disciplined exploration, meaning that some projects will be successful while others will fail. Consequently, step two in the innovation procedure is portfolio management but also metrics. By setting up the right metrics the possibilities of success with innovation projects increase. (Morris, 2011 pp. 12, 142-143)

Step one and two can be thought of as being the preparation stages that together provide a context for everything that follow. It is vital to understand that what we envision today, most certainly, will not be what the organization in reality is going to do in the future. The purpose of the first steps is to set clear directions, but learning as well as changes in the competitive environment during the innovation procedure will change those directions as new threats and new opportunities arise. (Morris, 2011 pp. 12, 143-144)

The third question “How to innovate?” deals with the development procedure of innovation. This procedure should begin with a strategy, meaning that the course have to be determined by the strategic intent. The next step is the creation of the innovation portfolio. First in stage five of the *Innovation Master Plan Framework* is where the creation of ideas begins. (Morris, 2011 p. 13)

The fourth question “Who innovates?” argues that, to accomplish consistent innovation results, all employees must be part of an organization’s innovation culture. It is important to be aware of that culture is created through time and therefore reflects what has been done in the history. Three different, but aligned together as a system, roles must be in place for creating an innovation culture. The first role, the *Innovation Leaders*, sets the foundation for the innovation culture and decides the policies, expectations and targets. The second role, the *Innovation Champions*, should manages the activity of innovation and assist in growing great ideas into business value. The third role, the *Creative Geniuses*, is the one that come up with the great ideas and insights. (Morris, 2011 pp. 13, 212)

The fifth question “Where?” is about the innovation infrastructure that comprises four key innovation elements that can help the innovation procedure. The elements are *Open Innovation* (involving a wider community), *Innovation & Collaboration* (efficient collection of the best ideas, inside and outside the organization), the *Physical Infrastructure* (the place of work where people meet) and the *Virtual Workplace* (helpful communication and collaboration tools). These four elements constitute a system that when they are combined successfully can make a remarkable difference by supporting creative and innovative people as well as teams to achieve much better and more rapid results. (Morris, 2011 pp. 13, 265, 290)

Executives in many companies, in all kinds of industries, have problem to get a sufficient number of good ideas and they all argue that it is because their innovation systems are not working. The common problem that all these companies share is that they lack the understanding of the distinction between idea collection and innovation management. Improvements in the idea system will certainly play a vital part to improve success with innovation but there are other aspects in the innovation procedure that are equally vital. The purpose of the innovation system should be to improve the quality of ideas that are aligned with the organization’s strategic intent, hence not to get as many ideas as possible. As Morris (2011 p. 139) writes: “Ideas are of course the seed of innovation, just as ore is taken from the ground as the raw material of steel, ... But it takes a lot of

preparation work to get raw ore from a mine and transform it into steel, ... It's the same with innovation; we just don't start by collecting raw ideas, because we have a lot of preparation to do first to ensure that we get good ideas. It has to be a system." . Worth mention is that recent studies shows that success in innovation is dependent on the quality of the procedure, not on how much money you spend on R&D. (Morris, 2011 pp. 138-140)

4.1.2. The D-I-A Process

For companies to be able to repeatedly commercialize breakthrough innovation a breakthrough innovation capability is required. O'Connor, et al. (2008 p. 12) describe that this capability makes companies more operating than just relying on hero scientists, strong champions, or mavericks. Instead of hoping for these uncertain additions, companies should build a system that addresses uncertainties and risks. (O'Connor, et al., 2008 pp. 12-13)

Three blocks build up breakthrough innovation capability; *discovery*, *incubation* and *acceleration*. These three blocks should not be seen as a linear process, rather as a system of dependent activities. The interface between the blocks needs to be managed so that the overall function is working properly. (O'Connor, et al., 2008 pp. 18-22)

The purpose in the *discovery* block is to create and identify opportunities. The activities that take place in this block are foundational knowledge in multiple domains, opportunity generation and opportunity articulation. *Discovery* should not be seen as equivalent to invention, creativity or R&D. An invention can be created outside of the company and brought in and adjusted to the company's own preferences. It should neither be mixed with creativity since that is something that needs to be present in all three blocks. Another reason is that creativity often is mistaken for an "Aha-moment", a moment when people come up with ideas. However, those moments are just a small part of the *discovery* block. Finally, *discovery* should not be equivalent to R&D since a discovery could include more than science and technology. (O'Connor, et al., 2008 pp. 51-53)

Many companies tend to focus a lot on the *discovery* block but miss out on *incubation* and *acceleration*. Not many innovations are created in those companies. (O'Connor, et al., 2008 p. 79)

The *incubation* block is about business laboratory. This block is the most time consuming and the most risky, but it gives the opportunity to simultaneously experiment with technology, discovery, business concepts and business models. The experimentation will hopefully lead to a new business model that brings breakthrough value to the market and in so doing also brings value to the company. The experimentation and learning during that time reduces the uncertainties regarding technology and market that always are present when working with a potential breakthrough idea. *Incubation* is not made up of new business development and marketing, both are important functions but more is needed for an incubation competency. (O'Connor, et al., 2008 pp. 81-86, 121)

There are four key activities that are important in the *incubation* block. The first one is that incubation leaders need to legitimize the incubation activities in the whole company. This is due to that it often is foreign activities. The second activity is that these leaders need to support the teams working with the potential innovation. Their work is hard and demanding so they need to have the right coaching, resources and connections. Since the work is related to a great amount of uncertainty there are large risks of failure. In a large company too many failures could be equal to a threat of a person's career. Therefore is also a function of personal support of greatest importance. The third

activity is for the incubation leaders to educate their staff. Finally, it is up to the incubation leaders to monitor the portfolio of incubation projects. (O'Connor, et al., 2008 p. 98)

After the *incubation* block comes the *acceleration* block. The *acceleration* block's role is to make projects strong and robust to survive the competition in the business unit's portfolio. The *acceleration* demands for great investments and is given to projects with expectations to become breakthrough businesses. The activities mission is to reach a critical mass of customers, business opportunities, operating assets and people, to be able to build a business with predictable sales of some level. The necessary infrastructure is built with a management team, marketing capabilities, manufacturing or operations and delivery systems, as well as the associated network of partners. The goal with *acceleration* is to support projects until they are ready to live up to operating units demand on short-term profitability time frames. (O'Connor, et al., 2008 pp. 120-122, 149-150)

Summary of the purpose and activities in the three blocks that build up breakthrough innovation capability can be seen in table 2 below.

Phase	Description
Discovery	<ul style="list-style-type: none"> • Create and identify opportunities. • Activities: <ul style="list-style-type: none"> – Foundational knowledge in multiple domains. – Opportunity generation. – Opportunity articulation.
Incubation	<ul style="list-style-type: none"> • Opportunity to experiment with technology, discovery, business concepts and business models. • Activities: <ul style="list-style-type: none"> – Incubation leaders need to legitimize the incubation activities in the whole company. – Incubation leaders need to support the teams. – Incubation leaders need to educate the staff. – Incubation leaders need to monitor the portfolio.
Acceleration	<ul style="list-style-type: none"> • Make projects strong and robust. • Activities: <ul style="list-style-type: none"> ○ Reach a critical mass of customers, business opportunities, operating assets, and people to get predictable sales.

Table 2. Summary of the purpose and activities in the three blocks that build up breakthrough innovation capability
 Source: Developed from O'Connor, et al. (2008)

The three blocks strive to accomplish different things and the system therefore needs to have to be adapted towards each of the blocks. In other words, companies ought to build a management system for innovations. This management system should have five different elements; *Mandate and Responsibility, Structure and Processes, Resources and Skills, Leadership and Governance* as well as *Metrics and Reward Systems*. It is vital to understand that the management system for innovation is not the same as the management system needed for the mainstream operation. (O'Connor, et al., 2008 pp. 12-13, 66-67)

Even though the different blocks have to have a separate focus in each element, see table 3 below, it is of outmost importance that they are managed as a system. For the management system to deliver on its potential performance the three building blocks' elements needs to reinforce one another. For the blocks to be able to do that the interfaces in between them are an important factor. Breakthrough innovation capability build on that the three blocks are managed with a system-level management and that responsibilities are coordinated. This is achieved through well-functioning interfaces, well-balanced resources and development of capabilities among the blocks. It is also important to keep the breakthrough innovation portfolio in balance. (O'Connor, et al., 2008 pp. 16, 20-21, 151-154)

	Discovery	Incubation	Acceleration
<p>Mandate and Responsibility</p> <p>The purpose and what the block is responsible for.</p>	<p><i>Responsibility:</i> To be the engine of breakthrough innovation opportunity generation.</p> <p><i>Mandate:</i> Should be decided with respect to alignment and time horizon.</p>	<p><i>Responsibility:</i> To nurture a portfolio of business opportunities.</p> <p><i>Mandate:</i> Clarify whether and how breakthrough business could be created.</p>	<p><i>Responsibility:</i> To manage the relationship with the rest of the organization. Help the breakthrough business gain critical mass. Educate about the work.</p> <p><i>Mandate:</i> To jump-start growth of the business opportunities.</p>
<p>Structure and Processes</p> <p>How it is organized and the related processes.</p>	<p><i>Structure:</i> Centralized.</p> <p><i>Processes:</i> Opportunity generation and articulation.</p>	<p><i>Structure:</i> Tightly linked to, but not part of, R&D. Unaligned and multialigned opportunities need to be handled in a dedicated group under the corporate-level umbrella.</p> <p><i>Processes:</i> Learning plans, options thinking, early market participation and early harvests, teaching as well as identifying new applications.</p>	<p><i>Structure:</i> Very varied, you only need to be aware of the pros and cons of what you chose.</p> <p><i>Processes:</i> Focus on execution and responding to inquiries.</p>
<p>Resources and Skills</p> <p>The resources and skills related to the innovation system.</p>	<p><i>Resources:</i> Corporate resources.</p> <p><i>Skills:</i> Scientific power, market vision and strategic insight. Need to be able to look at problems in different ways.</p>	<p><i>Resources:</i> Corporate resources for unaligned and multialigned opportunities.</p> <p><i>Skills:</i> Project team: opportunistic, flexible, experimenting, creative, interpersonal skills. Incubation staff: coaching and guiding.</p>	<p><i>Resources:</i> Greater amount of money as well as personnel for a business infrastructure.</p> <p><i>Skills:</i> Skills needed for managing high-growth business.</p>
<p>Leadership and Governance</p> <p>How decisions are made and by whom.</p>	<p><i>Leadership:</i> Often is the Chief Technology Officer (CTO) responsible in close partnership with Chief Strategic Officer (CSO)</p> <p><i>Governance:</i> Many alternatives; big platforms with portfolios, smaller bets, investment in university research. Or combinations of these.</p>	<p><i>Leadership:</i> Senior leader that can set the tone of new business creation and not just technology creation.</p> <p><i>Governance:</i> A board of business units and corporate constituents.</p>	<p><i>Leadership:</i> The leader must have business development experience, political and communications skills to battle for resources, status and prestige as well as ability to influence.</p> <p><i>Governance:</i> Which opportunities to accelerate and for how long time. When it is time to move it needs to be decided to where.</p>
<p>Metrics and Reward Systems</p> <p>How performance is measured and the people in the system are rewarded.</p>	<p><i>Metrics:</i> Number of patents, number of new platforms, learning among others.</p> <p><i>Reward Systems:</i> In relation to their contribution to anyone of the above mentioned.</p>	<p><i>Metrics:</i> Learning, and lowering the risks.</p> <p><i>Reward Systems:</i> N/A</p>	<p><i>Metrics:</i> Growth in sales and inquiries of portfolio business, reduced traceability, spillover to other platforms, uplift, number of business moved to operating units, impact of new businesses on strategic intent, perceived value on acceleration group.</p> <p><i>Reward Systems:</i> N/A</p>

Table 3. The management system for breakthrough innovation
Source: Summary developed from O'Connor, et al. (2008)

4.1.3. Organizational Structures for Breakthrough Innovation Projects

Tushman (2004) has, through a study, identified four different organizational structures that companies tend to use for their breakthrough activities versus their mainstream work; *functional design*, *unsupported teams*, *cross-functional teams*, and *ambidextrous organizations*. Figure 7 below illustrates the different structures.



Figure 7. Different organizational structures for breakthrough activities versus mainstream work
 Source: Minor modification from Järrehult (PPT: Managing Incremental and Radical Innovation Simultaneously)

The *functional design* structure is when the breakthrough activities are totally integrated with the work in the line. The structure *unsupported teams* is when breakthrough activities are set up independently outside the mainstream organization and management hierarchy. The set up structure *cross-functional teams* is when breakthrough activities are performed within the mainstream organization with persons from the various lines but outside the existing management hierarchy. The *ambidextrous organization* structure is when breakthrough activities report to the same top senior management as the mainstream organization but have their own processes, structure and culture. (Tushman, 2004)

Tushman (2004) has found that breakthrough activities were considerably more successful in *ambidextrous organizations* than in the other. In a study of 15 initiatives using the *ambidextrous organization* structure more than 90 percent of the teams succeeded. The results from the study of the success rate from the other setups were; *functional design* succeeded in 25 percent of the cases (two out of seven) and the *cross-functional teams* (nine initiatives) and unsupported teams (four initiatives) did not succeed in any case. Another interesting finding was that the performance improved greatly when organizations shifted from the other to the *ambidextrous design* and that the performance reduced when cases shifted from ambidextrous to one of the other. Furthermore, the study showed that the mainstream organization’s performance was not affected when breakthrough activities were conducted in the *ambidextrous organization* structure. In some cases the mainstream organization’s performance even increased, which indicate low disturbance. On the contrary, the mainstream organization’s performance weakened in the other cases. (Tushman, 2004)

4.1.4. The Cynefin Framework

The *Cynefin framework* is a decision-making framework that recognises the causal differences that exist between system types (Snowden, 2010). Cynefin literally means habitat or place and refer to the fact that people are rooted in many difference paths which influence what you do and where you

are but you are not aware of it (Snowden, 2011). The use of the *Cynefin framework* can help managers sense which situation they are in so that they can take both better decisions as well as avoid the complications that arise when their preferred management style causes them to make mistakes (Snowden, et al., 2007). Therefore, the framework proposes approaches to decision-making and leadership in complex situations. An important notification that distinguishes the *Cynefin framework* from categorization models is that the framework does not precede the data; instead the data precedes the framework. (Snowden, 2011)

The *Cynefin framework* is developed to help sort issues into five contexts. Three basic systems; *ordered systems*, *complex system* and *chaotic system* are taken into consideration. *Ordered systems* are further divided into *complicated* and *simple*. Moreover, an additional category is included that is called *disorder*. (Snowden, 2011) See figure 8 for an illustration of the framework.



Figure 8. The *Cynefin framework*
Source: Minor modification from Snowden (2010)

The *Simple* domain is when relationships between cause and effect exist and are predictable as well as repeatable. The decision-model is sense, categorise and respond. You can see what is coming and make it fit to previously determined categories. Best practice is applied in this domain, meaning that there is only one legitimate way to do things. (Snowden, 2011)

The *Complicated* domain is when relationships between cause and effect exist but are not self-evident and therefore require expertise or analytic work. The decision-model is sense, analyse and response. Good practice is applied, meaning that several different ways of doing things exist of which all is legitimate as long as the right expertise is available. (Snowden, 2011)

The *Complex* domain is when relationships between cause and effect are only obvious in hindsight and with unpredictable as well as emergent outcomes. The decision-model is probe, sense and respond. Emergent practice is applied, meaning that new way of doing things must be found since it is novel. It may be some combination of old things but it is different and unique. (Snowden, 2011)

In the *Chaotic* domain no relationships between cause and effect can be determined. The decision-making model is act, sense and respond. If you enter it consciously it is for innovation but if you enter it accidentally you have to stabilize the position quickly. Novel practice is applied meaning that any practice will be completely novel in terms of the way things work. That gives a very easy way of deciding how you need to work but it gives a divergent applicability. (Snowden, 2011)

The last domain is *Disorder* which is the central order that is key. This domain is when you do not know which domain you are in and most of the time we are in this domain. The trouble of being here is that we will perceive the situation according to our personal preferences. (Snowden, 2011)

One of the main functions of the *Cynefin framework* is to help people to be aware of that depending of which situation you are in you should think and analyse differently, rather than one-size-fits-all. The purpose with the framework is also to allow people to say: “Hang on a minute, it is complex and therefore we probe” or to say: “Hang on a minute, that is complicated so which expert should we bring in”. (Snowden, 2011)

Another key aspect of the *Cynefin framework* that often is missed is that the boundary between the *Simple* and *Chaotic* domains is different from the other boundaries; it can be seen as a cliff. Falling over that cliff will lead to crisis. The principle here is that if you are in the *Simple* domain and start to think and believe that things are simple and ordered, believe in your own mistakes and that past success means that you are secure for failure you will effectively move toward the *Chaotic* domain. All the other boundaries are there for transitions but for this boundary between the *Simple* and *Chaotic* domains you fall over the edge and recovery is very, very expensive. Therefore you should manage in the *Complex* and *Complicated* domains and only move a very small amount of activities down into the *Simple* because being there is actually hardly vulnerable. (Snowden, 2011)

4.1.5. Uncertainties

Radical innovation is risky and often results in more failures than successes. Even though several managers are aware of the necessity of radical innovation, few of them actually understand the progression through which it develops. According to Leifer, et al. (2000 pp. 11-12) uncertainty is inevitable when working with radical innovation projects, and four types of uncertainty must be reduced. (Leifer, et al., 2000 pp. 3-4, 11-12) The four types are listed in table 4 below.

Uncertainty	Description
Market	<ul style="list-style-type: none"> •Relates to, among other things, how well customer needs and wants are fulfilled and understood, the form of interaction to use between the customer and the product, methods of sales, distribution and revenue model, the relationship to competitors’ products, and so forth.
Technical	<ul style="list-style-type: none"> •Concerns about the underlying scientific knowledge’s completeness and correctness, the technical specifications of the product, manufacturing reliability, and maintainability, and so forth.
Organizational	<ul style="list-style-type: none"> •Emphasis the conflict between the ordinary organization and the unit working with the radical innovation project. •Include organizational resistance, lack of continuity in support, inappropriate expectations and metrics of senior management and of the receiving operating unit, and concerns about the needed capabilities within the project team, among others.
Resource	<ul style="list-style-type: none"> •Relates to both financial resources and competencies. •Includes concerns about the needed and available funding and competencies, which missing competencies and resources to develop internal and which to acquire through partnership, and what method to use for managing partnerships.

Table 4. The four uncertainties

Source: Summary developed from Leifer, et al. (2000 pp. 11-12, 18-19 & 21) and O’Connor, et al. (2008 pp. 88-89)

There are numerous of uncertainties when working with radical projects. The probability of success with radical projects would be much higher if a number of uncertainties could be reduced from the

start. Each radical innovation project will be subject to its own setup of uncertainty and the intensity of uncertainty will vary within any project over time. To succeed with radical innovation projects it is necessary to reduce the uncertainty within all four dimensions, something that is complicated by the fact that the uncertainties interact with one another. Hence, the appropriate radical innovation project management tools, used to deal with the uncertainties, must be chosen to suit each specific project. (Leifer, et al., 2000 pp. 22, 60, 185)

The uncertainties related to radical innovation projects can be reduced. Grouping uncertainties into market, technical, organizational and resource is the first step that enables a basis to start investigating and identifying different ways to resolve the uncertainties. The next step is to rank them according to critically of timing to be able to make choices concerning allocation of resources and time to work with them. It is vital to continuously check the level to which each uncertainty has been reduced, reprioritize uncertainty reduction and to add new uncertainties that have emerged. It is important to learn that there are mechanisms to use for reducing the resource and organizational uncertainties but which often are devalued in relation to the technical and market uncertainties. (Leifer, et al., 2001 pp. 62, 185)

4.1.6. Different Areas of Innovation

Innovation could occur in several different areas of a company. Doblin (2012) divides it in three innovation categories; *Configuration*, *Offering* and *Experience*. The *Configuration* category includes four innovation areas; *Profit Model*, *Network*, *Structure* and *Process* (Doblin, 2012). The areas are explained in table 5 below.

Innovation area	Description
Profit Model	Change the way you make money, for example the way you collect money from the customers.
Network	The creation of value through connections with others
Structure	Your talent and assets alignment
Process	The way the work is done, through signature or superior methods

Table 5. The Configuration category
 Source: Developed from Doblin (2012)

The *Offering* category includes two innovation areas; *Product Performance* and *Product System* (Doblin Inc., 2008). The areas are explained in table 6 below.

Innovation area	Description
Product Performance	Feature and functionality distinguishing
Product System	Products and services that are complementarities

Table 6. The Offering category
 Source: Developed from Doblin (2012)

The *Experience* category includes four innovation areas; *Service, Channel, Brand* and *Customer Engagement* (Doblin, 2012). The areas are explained in table 7 below.

Innovation area	Description
Service	Create value for the consumer or customer in relation to the offering
Channel	How the offering reaches the market
Brand	How you communicate your offerings to the market
Customer Engagement	The fostered interactions

Table 7. The Experience category
 Source: Developed from Doblin (2012)

4.2. Inhibitor Perspective on Breakthrough Innovation Capability

A company’s disruptive innovation capability is often negatively affected by several, both internal and external, key inhibiting factors. Assink (2006) have identified five barrier clusters of interrelated and partly-interdependent inhibitors; *Adoption Barrier, Mindset Barrier, Risk Barrier, Nascent Barrier,* and *Infrastructural Barrier*, see figure 9 below. Large companies can improve their development of disruptive innovation by better understand these inhibiting factors. However, a Deloitte Research study pointed out that there is a big gap between intention and actual disruptive innovation capability. The possibility for a company to eliminate these inhibitors depends on the inhibitors nature. (Assink, 2006)

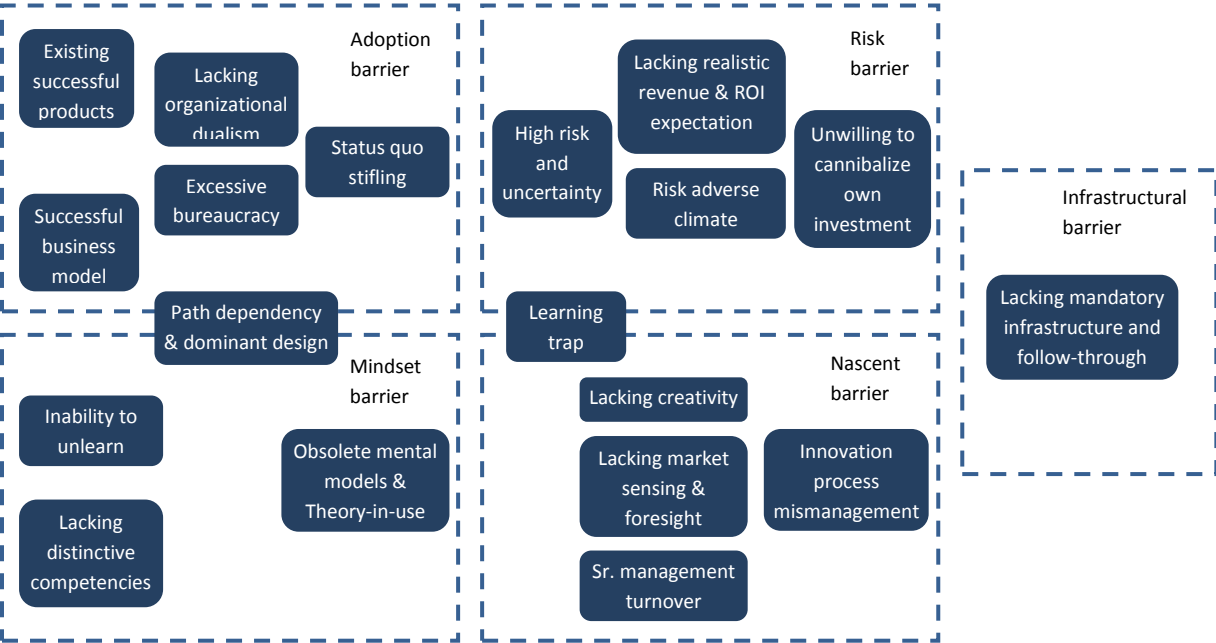


Figure 9. Barrier clusters of interrelated and partly-interdependent inhibitors for disruptive innovation capability
 Source: Minor modification from Assink (2006)

Adoption barrier cluster

The *Adoption barrier* cluster comprises factors that limit a company to focus on incremental innovation and are based on organizational rigidity. Existing successful products, technologies or business models limit the motivation to work with risky initiatives. Hence, large companies, often lack the organizational dualism to simultaneously work with consistency for incremental innovation,

and flexibility and experimentation with disruptive innovation. Large companies are often synonymous with excessive bureaucracy as they have various rules and procedures how to do things. The next inhibiting factor is stifling of the status quo, meaning that deviations from the standard are not appreciated in many large companies. This leads to that experimentation with disruptive innovation is limited. The last inhibiting factor in this cluster is path dependency and dominant design, which is also part of the *Mindset barrier* cluster. The inhibitor includes the fact that many companies become trapped in what they do well and find it hard to try new things. (Assink, 2006)

Mindset barrier cluster

The *Mindset barrier* cluster is about the inability to unlearn obsolete mental models. Inability to unlearn can be present on both the individual and organizational level and means that old logic and assumptions are not challenged and therefore not substituted with new. Many large companies' core competencies become core rigidities or even core in-competencies when it comes to the development of radical innovation. The current core competencies inhibit the attempts to acquire new necessary competencies, which lead to lack of distinctive competencies. Another inhibitor in this cluster is obsolete mental models, which means that individuals and organizational beliefs about why things are done the way they are done do not adapt according to the changing environment. The theory-in-use, the implicit knowledge system of the company, is defined by Assink (2006) as knowing how, but not necessarily why, things are done the way they are done. Hence, when the mental models become obsolete it affects that theory-in-use also becomes an inhibitor. (Assink, 2006)

Risk barrier cluster

The *Risk barrier* cluster deals with inhibitors connected to the company's attitude towards taking business risks, fed by a risk-adverse climate and senior management deficiency to distinguish between meaningless risk and meaningful risk. When companies aim at radical innovation the appearance of fundamental uncertainties, high risk and uncertainty, is inevitable. Furthermore, in the early phases of a disruptive innovation, it is not possible to predict its future success, which makes it tough to gain long-term internal support and resources. Furthermore, this makes it difficult to make realistic revenue and return on investment (ROI) expectations. Developing a radical idea requires a probe-and-learn company culture as well as senior management support and trust. The concept of learning trap, defined by Assink (2006) as a tendency to keep doing the same thing even in situations where it is no longer effective, is a key inhibitor for disruptive innovation. If companies prefer the current stable environment with effective routines and processes in favor of working with future disruptive innovation, the learning trap is almost unavoidable. Also, many companies that are market leaders are not keen to develop radical innovation since they are unwilling to cannibalize own investment. (Assink, 2006)

Nascent barrier cluster

The *Nascent barrier* cluster is about sub-optimal innovation process management. Large companies with standardized business routines lack the motivational capacity to encourage creativity among employees with innovative break-the-rules ideas. Instead, inward-focus and the "not invented here" syndrome is often apparent making large companies fall into the learning-trap mention above. Another key inhibitor for radical innovation is market sensing and foresight. Often, the market for radical innovation does not yet exist in the development phase, which makes conventional market research impossible. This is also why Assink (2006) writes: "Innovators image the future, then invent it". The knowledge of how to effectively manage the innovation development process and which

individuals to involve is often inadequate in many large companies. Hence, mismanagement of the innovation process is another barrier for radical innovation. Senior management turnover during disruptive innovation projects creates considerable challenges for the projects. Specifically, changes in management influence commitment continuity. (Assink, 2006)

Infrastructural barrier cluster

The *Infrastructural barrier* cluster includes the inhibitor lack of mandatory infrastructure for disruptive innovation. According to Assink (2006) infrastructure can be separated into three parts: upstream, midstream and downstream infrastructure. The upstream part is about the technical novelty, including things like missing standards, processes or production equipment. The midstream part is about the development of an innovative business model for a new technological innovation, meaning that a tight co-operation between the R&D and marketing teams of radical innovation is crucial. The downstream part brings up the market aspect, including things like market acceptance, accessible distribution channels, alliances and exogenous infrastructure. (Assink, 2006)

Barrier related to incentive systems

Additional to Assink's inhibitors, Phillips (2012) writes about the importance of linking innovation projects with evaluation. Motivating employees with evaluation program that reward innovation results is essential. Incentives are needed to generate disruptive products, even for really creative employees. Although employees may be aligned to do innovation work, humans are rational actors who work to optimize their evaluation criteria. Employees' minds are focused on undertaking work that results in rewards and avoiding work that may lead to critics. In many companies, employees are often working on part time with innovation activities but their evaluation criteria remains tied merely to their regular "daily" duties. This implies that, to sustain an innovation focus in a company, evaluation metrics must contain more weight on innovation activities. Managers would focus much more on innovation over business as usual if their compensation plan rewards it. Google is a great example of a company that give idea givers, whose ideas lead to products or services, a stake in the rewards. Hence, the innovators in Google witness a direct result of their efforts in their wallets or stock awards. (Phillips, 2012 pp. 113-114)

4.3. Capability Perspective on Breakthrough Innovation Capability

O'Connor (2008) emphasizes a management system with seven elements that need to be treated as a system for companies to gain major innovation dynamic capability. O'Connor (2008 p. 316) says: "Capabilities are the business processes needed to configure assets in advantageous ways". The seven elements are listed and summarized with a short description of its purpose in table 8 below.

Element	Description
A clearly identified organizational structure	<ul style="list-style-type: none"> ❖ An identified team or entity allows for: <ul style="list-style-type: none"> • Structures and clear reporting relationships • Experience to be accumulated • Eagerness to develop their practices • Development of competencies • Competitive advantage over start-ups
Internal and external interface mechanisms	<ul style="list-style-type: none"> ❖ External linkages <ul style="list-style-type: none"> • Important knowledge sources ❖ Internal linkages <ul style="list-style-type: none"> • Roles - tight coupling • Strategy - tight coupling • Resources, networks and administrative systems - loosely coupling • Learning processes - decoupled
Exploratory processes	<ul style="list-style-type: none"> ❖ Process management and gating does not allow for exploratory innovation, only for exploitative innovation.
Requisite skills	<ul style="list-style-type: none"> ❖ Teams constituting of highly multifunctional individuals with entrepreneurial characteristics. ❖ A coaching relationship is of importance.
Appropriate governance and decision-making mechanisms and criteria	<ul style="list-style-type: none"> ❖ Governance over the portfolio ❖ Governance over specific projects within the portfolio ❖ Governance over the major innovation system
Appropriate metrics	<ul style="list-style-type: none"> ❖ Activity- and performance-based metrics
Cultural and leadership context	<ul style="list-style-type: none"> ❖ Investments in strategic thinking ❖ A vision regarding the company's competencies ❖ Investments in the needed technology and human capital

Table 8. The seven elements for major innovation dynamic capability
 Source: Developed from O'Connor (2008)

The first element is *a clearly identified organizational structure* that pronounced is responsible for major innovation. Through the use of an identified team or entity in the company it allows for structures and clear reporting relationships, which is necessary for creating the discipline and creativity that needs to be present for breakthrough innovation to occur. The use of an identified organization also allows for experience to be accumulated even though the routines are simpler and the structures are less present than in the mainstream organization. Moreover, the persons working in the identified organization are more eager to develop their practices since they are evaluated on its result. This separate organization allows for development of competencies protected from the mainstream organization's routines and rules, but at the same time they can benefit from the parts in the mainstream organization that are of interest, which is a great benefit and competitive advantage over start-ups. (O'Connor, 2008)

The second element is *internal and external interface mechanisms*. Even though an identified group is of importance there are benefits from interacting outside the group, interplay between old and new. The external linkages such as informal personal relationships, relationships driven by promotion criteria as well as formal alliances are often important knowledge sources. (O'Connor, 2008) External

collaboration is included as learning together with, learning from previous endeavors and effective sharing and transfer of knowledge internally (Börjesson, et al., 2011). The internal linkages have to be treated differently depending on the aspect of it. There should be a tight coupling between the identified structure and the mainstream organization regarding roles. The role of the major innovation system in a company must be understood by all persons in the mainstream organization. The same goes for a company's strategic intent; a tight coupling should be maintained in order to reach a major innovation capability. However, coupling with resources, networks and administrative systems should be handled loosely. A project will somewhere in time be a part of the mainstream organization and it is therefore important to build an acceptance. At the meantime it is important that core rigidities are not allowed to affect and that the mainstream organization can buffer from innovators' failures. One way to avoid that is through the decoupling of processes. (O'Connor, 2008)

Exploratory processes are the third element for a major innovation management system. It elucidates the fact that the mainstream organization can benefit from process management, which favors exploitative innovations. Gating is said to generate new products quickly, but that it do not deliver any long-term competitive advantage. (O'Connor, 2008) Börjesson, et al. (2011) write that innovative products are not generated from established product development processes. To benefit of a major innovation capability more exploratory processes are needed as well as a learning oriented environment (O'Connor, 2008).

The fourth element is *requisite skills*. It enhances the importance of the use of employees that are broadly skilled and flexible with an entrepreneurial characteristic. Instead of cross-functional teams it is better to use teams constituting of highly multifunctional individuals. A coaching relationship is of importance. (O'Connor, 2008)

The fifth element is *appropriate governance and decision-making mechanisms and criteria*. Theories concerning systems have shown that major innovation systems need to operate distant from equilibrium if they should produce a creative, innovative and continually changing behavior. The major innovation dynamic capability ought to be a disequilibrium-seeking entity within the larger company in which a constant flow of negative and positive feedback ought to direct the system. Three levels of governance should be taken into consideration to allow for that. (1) *Governance over the portfolio*, meaning that even though all projects are high-risk projects a diversification strategy needs to be present. (2) *Governance over specific projects within the portfolio*, meaning that individual projects may need a unique governance board with specific knowledge of the market or technology, which in the next step reports to the portfolio governance board. (3) *Governance over the major innovation system*, meaning that in order to have major innovation capability you cannot stand still. Reflections and reconfigurations should be everyday tasks. (O'Connor, 2008)

Appropriate metrics is the sixth element and consider the fact that the innovative part of the company needs to be evaluated on different metrics than the operative part. For example, for a project with high uncertainty commercialization is often not in sight. Activity- and performance-based metrics are suggested as better options. (O'Connor, 2008)

The seventh and last element is *cultural and leadership context*. Since everything is part of a system it is important that an organization's culture and leadership recognize the importance of the major innovation system. Major innovation should be valued as a key component of a company's efforts, be seen as caretakers of the company's future health and understood that risk is inherent in the work

with them. This culture and leadership context can be shown through investments in strategic thinking about the future health of the company, a vision regarding the company's competencies as well as through investments in the needed technology and human capital. (O'Connor, 2008)

Important to remember is that these seven elements are part of a management system. O'Connor (2008) states four requirements that ought to be met to prove that the elements comprise a system and not merely a list; (1) the system must be built by interdependent elements and be identifiable, (2) the sum of the elements must be greater than each individual elements contribution, (3) the system must interact with its surrounding, and (4) the major innovation system should have a unique part of the greater system. (O'Connor, 2008)

5. SCA Hygiene's Perspective and Work with Innovation

This chapter focuses on empirics from SCA Hygiene. SCA Group, which SCA Hygiene is an organizational part of, is described and common definitions regarding innovation in SCA Hygiene are stated. SCA Hygiene's framework for implementation of breakthrough innovation and the organization's innovation strategy as well as ways of working with it is defined.

5.1. SCA Group Description

SCA Hygiene is an organizational part of the global hygiene and paper company SCA Group. The group develops and produces personal care products, tissues and forest products. Up until the middle of January 2012 it also included a packaging solution business area. (SCA Group: Annual report, 2011) SCA Group was established in November 1929 when around ten forest companies merged. At that time, the group had around 6 500 employees and annual sales of approximately SEK 100 million. SCA Group was listed on the Stockholm Stock Exchange in 1950. In 1975, through the acquisition of the Swedish personal care company Mölnlycke, the first step into becoming a company in the hygiene industry began. Consumer goods were introduced and tissues, diapers, feminine hygiene and incontinence products became part of the product portfolio. Through the introduction of consumer goods the sales increased by 40 percent. Acquisitions became a strategic choice for SCA Group to grow either by increasing the product range, gain market shares or to expand into new geographical areas. (SCA Group: SCA's history, 2012)

In 2011, SCA Group was doing businesses in more than 100 countries under many brands and had facilities in around 60 countries with 44 000 employees. The revenue 2011 was SEK 106 billion out of which approximately 75 percent came from the European market. SCA Group's sales by region and the main markets can be seen in figure 10 and figure 11 below. (SCA Group: Annual report, 2011)

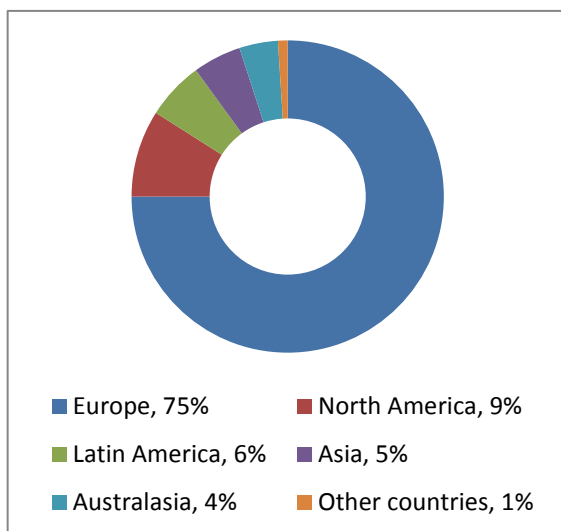


Figure 10. Sales by region, 2011

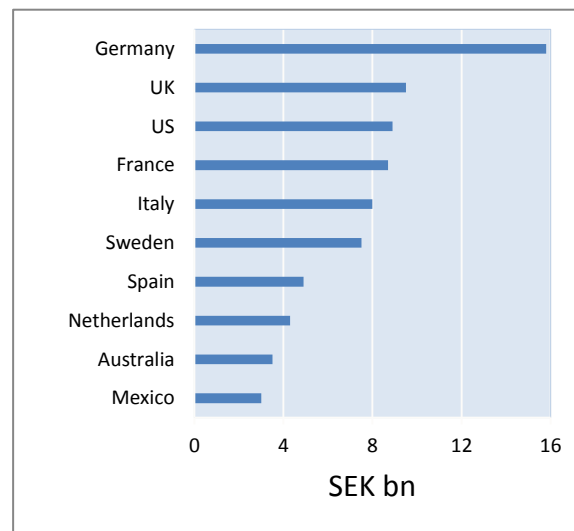


Figure 11. Largest markets, 2011

Sources: Minor modification from SCA Group: Annual report (2011)

SCA Group’s mission is: “To provide essential products that improve the quality of everyday life” and the company’s vision is: “To be recognized as the leading provider of value for customers, shareholders and employees in its field” (SCA Group: Mission, vision and core values).

A number of reorganizations have been implemented in the last couple of years (Interview 2: Järrehult, 2012). The latest organizational structure, carried out in January 1th 2012, can be seen in figure 12 below.

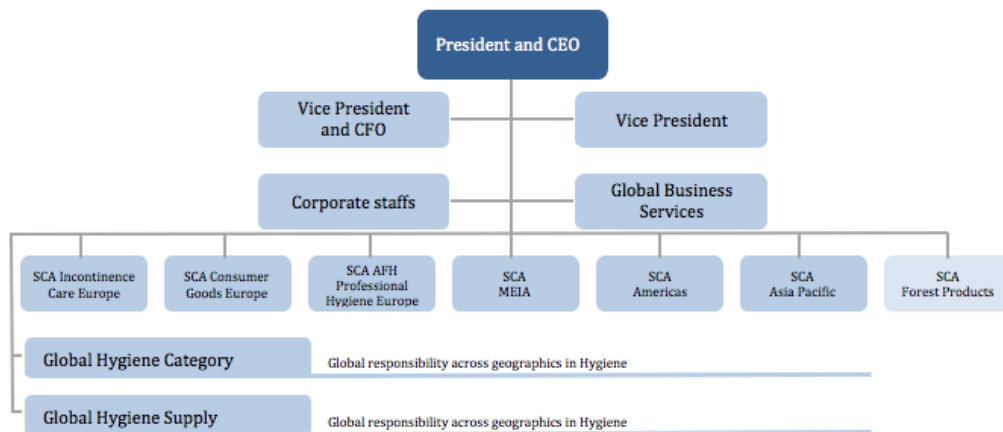


Figure 12. SCA Group's organizational structure
 Source: Minor modification from SCA Group: Annual report (2011)

SCA Group consists of ten business units. The six business units *Incontinence Care Europe*, *Consumer Goods Europe*, *AFH (Away From Home) Professional Hygiene Europe*, *MEIA (Middle East, India, Africa)*, *Americas* and *Asia Pacific* are part of SCA Hygiene. The three business units for Europe are responsible for their product category while in the rest of the geographical areas the products are managed together in each geographical business unit. The focuses in these six business units are local production, marketing and sales. (SCA Group: Business units)

Cross-functional, supporting SCA Hygiene’s six business units, the two business units *Global Hygiene Category* and *Global Hygiene Supply* are present. *Global Hygiene Category’s* tasks is to build customer and consumer insights, provide strategic marketing, expertise as well as direction, brand management, and to drive innovation and launches. *Global Hygiene Supply’s* function is to coordinate and improve the assets, processes and best-practice interchange between the product category business units. (SCA Group: Business units)

The two remaining units, treated as business units, are *SCA Forest Products* that is the sole unit for the forest part and *Global Business Services* that works for all of the nine business units. (SCA Group: Business units)

5.2. Definitions

It is very essential for SCA Hygiene to have the same vocabulary regarding definitions within the topic of innovation. SCA Hygiene has chosen to have a definition of insight as well as innovation to clearly point to the difference (Järrehult, PPT: From Insight to Innovation, 2012):

Insight	“The key piece of in-depth understanding about the target audience that will unlock a business potential.”
Innovation	“Innovation is creating or finding insightful solutions and bringing them successfully to the market.”

There are several different types of innovation, all with different purposes and degrees of novelty (Järrehult, PPT: Two Mindset in one Company for Webinar, 2011). SCA Hygiene has chosen the definition presented in table 9 below.

Definition	Description
Cost save	“Increasing operational productivity by decreasing costs in the supply chain or go-to-market.”
Upgrade	“Supporting existing products, services and business models by increasing the performance or features of an existing product, service or business model in order to grow or maintain our business.”
New generation	“Developing new-to-company product, services and/or business model generations or creating next-generation replacements for existing products and services.”
Breakthrough	“Creating new-to-market product, service and/or business model families expected to fundamentally alter the growth of the business and to provide new platforms for growth.”

Table 4. Innovation types in SCA Hygiene
Source: Minor modification from SCA (Definitions related to Innovation, 2011)

5.3. Framework for Implementation of Breakthrough Innovation

SCA Hygiene is a large organization that has worked to develop models for managing both incremental and breakthrough innovation projects (Järrehult, 2010 p. 4). It is very hard to use a traditional linear product development approach if you do not know what the problem is and what the product will look like. The conundrum is that a company needs to manage product development and customer development in parallel. (Järrehult, PPT: From Insight to Innovation, 2012)

The key idea of customer development is to be a parallel and agile process to product development, as figure 13 below shows. Measurable checkpoints should not be tied to *first customer sales* but to customer insight, emphasis must be on iterative learning and discovery plus the development has to be done by a small team including CEO/project leader. (Järrehult, PPT: From Insight to Innovation, 2012)

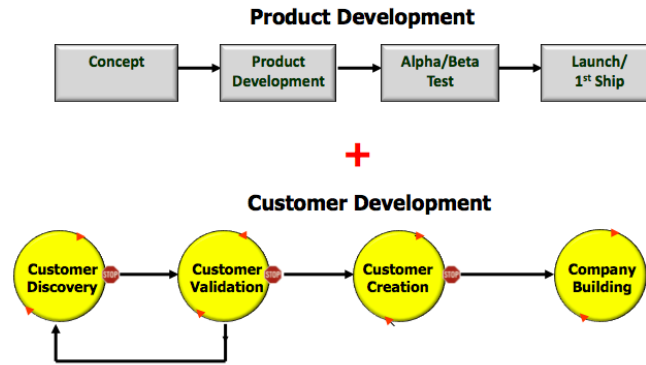


Figure 13. Product development and customer development
Source: (Berglund, PPT: Customer Development for Startups)

SCA Hygiene has developed a model that is an expanded version of O'Connor, et al.'s DIA process and Blank's customer development (Järrehult, PPT: From Insight to Innovation, 2012), see figure 14 below.

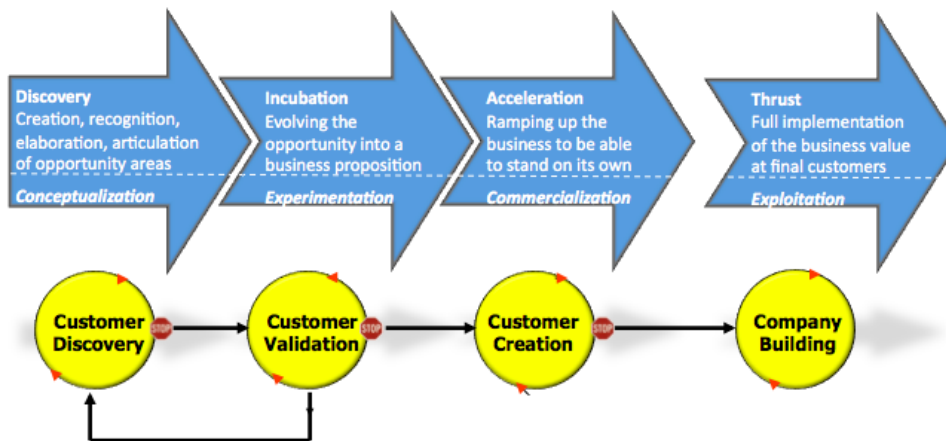


Figure 14. The DIA+T process
Source: (Järrehult, PPT: From Insight to Innovation, 2012)

According to SCA Hygiene, in order to utilize the results from the *acceleration* phase it is necessary for breakthrough innovation projects to have a fourth phase, which is the exploiting *thrust* phase. Furthermore, the features from the exploratory DIA+T process coincide much with the customer development set up. The difference between *incubation* and *acceleration* is agreed to be that in the *acceleration* phase a paying lead customer/early adopters is/are present whereas the field tests in the *incubation* phase are of tests-free-of-charge basis. Moreover, the difference between *acceleration* and *thrust* is that the customers are of a totally different range in the *thrust* phase. The outcome from the *acceleration* phase is an augmented offer proven valid by its lead customer/early adopters, in the *thrust* phase are the augmented offer proven valid by early and late majority customers. The offer is in the *thrust* phase delivered to the final late majority customers globally. It is a big chasm to reach the late majority and to overcome that chasm; marketing, advertising, etcetera, are needed. (Järrehult, PPT: From Insight to Innovation, 2012)

5.3.1. SCA Hygiene's Innovation Strategy

SCA Hygiene's innovation strategy talks about the importance of different innovation types, see table 9 above, and the combination of them to be able to create maximum value from the portfolio. Upgrades are important to keep market shares, next generations are important to drive growth and

breakthroughs are important to create new business opportunities. (Järrehult, PPT: Innovation Strategy, 2010)

The innovation strategy could be seen as having two sides; one exploiting *play not to lose* side and one exploring *play to win* side (Järrehult, PPT: From Insight to Innovation, 2012). The figure 15 below summarizes the different features of the two strategies.



Figure 15. *Play not to lose versus Play to win*
 Source: Minor modification from Järrehult (PPT: From Insight to Innovation, 2012)

SCA Hygiene uses what they call the *Spaghetti model™*, see figure 16 below, when working with innovation. To succeed, the full *Spaghetti model™* with the innovation enablers product/service offer, consumer insight and business model needs to be in place. Innovation can start in any one of the three enablers but it is never an innovation until there is an interception between all three. (Järrehult, PPT: From Insight to Innovation, 2012)

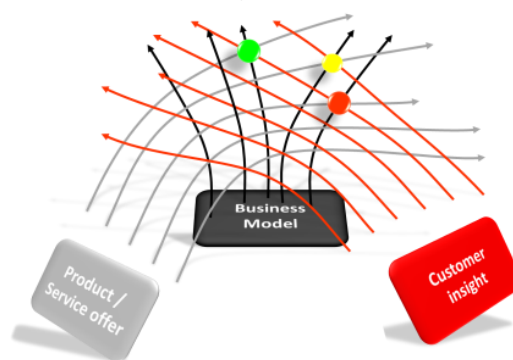


Figure 16. *The Spaghetti model™*
 Source: (Järrehult, PPT: From Insight to Innovation, 2012)

The phrase *Create, Combine & Deliver* is guiding SCA Hygiene in their innovation work. The phrase stands for (SCA: Innovation framework for SCA hygiene areas, 2011):

“We create and combine solutions to deliver innovations that strengthen our brands and drive growth and profit.”

Table 10 below explains what each of the words stand for.

Word	Description
Create	<ul style="list-style-type: none"> ❖ Innovation is built on verified consumer and customer insights. ❖ A combination of technology discoveries with relevant business model drives breakthrough innovations using an exploratory way of working. These ideas are tested quickly and cost effective in a small scale to learn. ❖ An innovation culture that promotes creativity in an open, cross-functional and close to customer way of working is used.
Combine	<ul style="list-style-type: none"> ❖ A combination of own competence and creativity with external partners and expertise to get access to key competencies and resources. ❖ A combination of own knowledge of consumers, trends, technology, competitors and markets are used to create visions and guidelines for the innovation portfolio.
Deliver	<ul style="list-style-type: none"> ❖ A balanced innovation portfolio support growth and profit both for short and long term. ❖ Projects have early business commitment and are delivered in agreed time to the market.

Table 5. Create, Combine & Deliver

Source: Modification from SCA (Innovation framework for SCA hygiene areas, 2011)

5.3.2. The Stage-gate Model PRIME

PRIME is the basic and common stage-gate model for managing projects within SCA Hygiene (SCA-Short Introduction to *PRIME* p. 1). A *PRIME* project is tasks where there is an element of risk or uncertainty, complexity and a need for a temporary organization. (SCA-*PRIME* Introduction, 2011 p. 5) The definition of a *PRIME* project, according to a document from SCA Hygiene (SCA-*PRIME* Introduction, 2011 p. 5), is a project that:

- Is unique and temporary.
- Has a defined time plan with a clear start and ending.
- Have specific goals to fulfill.
- Has a defined budget.
- Uses a cross functional team-based organization.

The main benefits of *PRIME* is said to be that the model provides a common language, structures the work, controls decision making and risk-taking, improves speed, reduces costs and allows for flexible resource allocations. The *PRIME* model, illustrated in figure 17 below, includes four sequential phases (pre-study, preparation, execution and termination) and five tollgates, which is a defined point at which formal decisions are made by the project sponsor about continuation of the project. (SCA-*PRIME* Introduction, 2011 pp. 7, 13, 15)

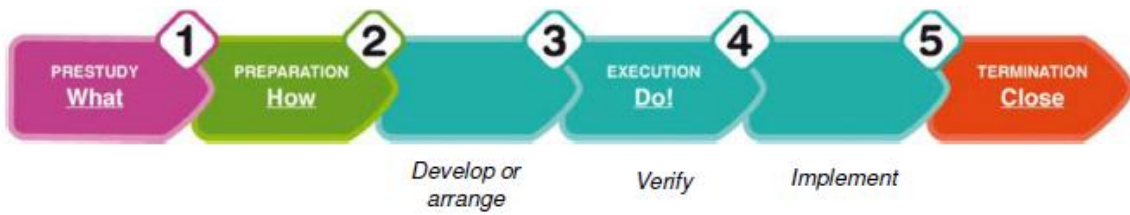


Figure 17. The *PRIME* model
Source: (SCA-PRIME Introduction, 2011)

A project plan must be conducted for all *PRIME* projects. The topics that must be answered are business background, project goal and scope, deliverables/acceptance criteria/boundaries, project time plan, tollgate structure with pre-defined decision criteria, planning assumptions, project budget, project organization, stakeholders, role description, risk analysis and risk response planning as well as project communication and documentation. The goals for *PRIME* projects should be SMART, which means Specific, Measurable, Accepted, Realistic and Time-bounded. Changes in a *PRIME* project plan must be requested to and approved by the project sponsor. (SCA-PRIME Introduction, 2011 pp. 25, 41, 46, 93)

5.3.3. The Idea Systems

When an employee in SCA Hygiene has an idea the official routine is that the idea should be registered within the systems *Ideum* or *Inventum*. These two tools function as databases for ideas. *Ideum* is the tool that has been used within personal care (part of the old organization) and *Inventum* has been used within tissue (part of the old organization). The two tools function in the same way, the difference is that they are addressed to different parts of the organization. (SCA Inventum, 2012), (SCA Welcome to Personal Care Ideum, 2011)

The idea could be generated from for example *Open Innovation*, R&D or the market (Interview 2: Bergendahl, 2012) and the idea giver sends in his/hers idea to *Ideum* or *Inventum* depending on which part of the organization it concerns. To each database expert groups are connected, there is one group for technical ideas and one group for business ideas. These groups evaluate the ideas that are registered. After an expert group has evaluated the idea, the idea giver is informed what happens with it. If the idea is found to be of high novelty and within the patent strategy it is sent to the patent department for a novelty search. (SCA: About Inventum, 2010), (SCA Ideum Information, 2011) If the result from the novelty search is positive the *PD&I* (Product Development & Innovation) management team decides if a patent will be applied for (SCA: About Inventum, 2010). In *Inventum* the idea is receiving a grade from one to five based on usefulness to the business, how smart, new and inspiring the invention is, connection to projects and business strategies as well as ease of realization (technical and cost). *Ideum* is also using a five point scale to grade the ideas. The idea giver is rewarded depending on the contribution of the idea. The rewards range from smaller gifts to monetary awards within both systems. All ideas are saved in the two searchable databases. (SCA Your reward from Inventum, 2010), (SCA Ideum Information, 2011) The kind of ideas that are asked for can be seen in table 11 below.

<i>Ideum</i>	<i>Inventum</i>
New product areas	New products
New product features	New product features
Product and packaging improvements	Improvements around package and design
Process solutions that give a product feature	Marketing ideas
Process that you think could be worth to protect by a patent	Promotion ideas
	Business ideas
	Process ideas (will be forwarded to Technology team after rating)

Table 6. Ideas that are asked for in the idea systems
Source: Minor modification from SCA (Ideum Information, 2011) and SCA (About Inventum, 2010)

Business ideas are asked for in *Ideum* also, even though it is not explicit pronounced in table 11 above (Interview 3: Järrehult, 2012). It is greatly emphasized that ideas should be sent to either database in order to be registered (SCA Ideum Information, 2011), (SCA: Submit your idea to Inventum, 2010).

Ideas that are seen as having a potential goes to new business development or management teams (SCA Ideum Information, 2011). Product developers search in the databases to get input to their work (SCA: Submit your idea to Inventum, 2010). There is also one person in each department that is responsible to be the receiver of the idea after it has left the expert group (Interview 1: Bergendahl, 2012). Many idea givers are said to believe that *Ideum* will take responsibility for bringing the idea further but since it functions as a database that is not true (Respondent X). One of the intentions of *Ideum* is to facilitate for the patent department, since they earlier received all ideas. It is created for technical ideas and has no good structure to handle business ideas. (Respondent Y)

Ideum and *Inventum* are gradually going to be replaced with a new innovation management system called *ICON*. *ICON* will be a global pull-based idea generation tool for the whole SCA Hygiene. A challenge can be posted with a request for ideas or solutions. The ideas and solutions will come from an online collaboration. (SCA: Engage with *ICON*!, 2011) All kinds of question formulations and all types and areas of innovation can be handled in *ICON*. It is built to be open, flat and without hierarchy. *ICON* will be built on recognition and not reward. (Interview 2: Bergendahl, 2012)

There are two ways into *ICON*. Either a challenge is started, and then it is up to the person who created the challenge to guide people in the discussion around it, or the other way is that employees with ideas that are not related to a challenge can register it in an idea pool. These ideas will not receive a grade, but comments about it will be available. There will be evaluation forums that take responsibility for if ideas should be checked for patentability. The possibility to share knowledge and

make comments on the ideas is perceived to generate in improved ideas. (Interview 2: Bergendahl, 2012)

5.3.4. The Patent Department

The patent department's main tasks are (SCA: Welcome to the SCA Patent Department, 2012):

- Guidance and support to projects.
- Patent and design drafting.
- Patent and design prosecution.
- Filing of oppositions against competitors' patents.
- Infringement analyses of competitors' products or processes.
- Competitor watch system.
- Support to General Counsels in matters related to patents and designs (agreements, licenses and litigations).
- Administration of external inventors.
- Patent courses.

Ideum and *Inventum* are today, and *ICON* will be, a way in to the patent department to receive patentability check. An exception is that a project manager can send an idea or invention directly. In these cases a copy of the invention disclosure is sent to *Ideum/Inventum*. A patent clearance investigation is performed before a product or process launch. The costs for this are paid by the requester. (SCA: Order Types, 2011)

5.3.5. Open Innovation

SCA Hygiene's definition of *Open Innovation* is (Järrehult, PPT: Innovation Strategy Framework and Open Innovation, 2010):

“Open Innovation is a way of using *external* solutions, ideas and knowledge in conjunction with *internal* competencies to create new and insightful solutions and bringing them successfully to the market.”

The reasons why SCA Hygiene started to work with *Open Innovation*, and especially through the use of Innomediaries, were to get (Järrehult, PPT: Innovation Strategy Framework and Open Innovation, 2010):

- Access to competences that the organization does not have themselves.
- Extra resources to work on a problem.
- Possibilities to explore more tracks.
- Input/solutions from other industries or areas – adjacent industries.
- Faster development process.
- Cost cuts.

SCA Hygiene's *Open Innovation* ecosystem is illustrated in figure 18 below.



Figure 18. SCA Hygiene's *Open Innovation* ecosystem
Source: (Johansson, et al., 2011)

5.4. Organizational Structures for Breakthrough Innovation Projects

The *Venture Group* is a cross-category and cross-business group unit that will assist in taking potentially breakthrough ventures to the market. The group was incorporated during 2011. It is a place for new projects with breakthrough innovation potential to be managed with a large degree of independence within the larger organization. The *Venture Group* is aimed at everyone within SCA Hygiene and the objective is to increase the level of commercialization within SCA Hygiene by leveraging the organization's assets. The set up allows development of breakthrough ideas that go between and beyond today's business categories. (Järrehult, PPT: Invocation for Incovation, 2010)

The *Venture Group* was established since SCA Hygiene needs more breakthrough innovation to get sufficiently profitable growth. The objective is not that the *Venture Group* should work extensively with the initial generation of ideas. Instead, the *Venture Group* ought to handle input from the internal business categories or from external partners, small start-ups or inventors. The *Venture Group* should focus on the *incubation* and *acceleration* phases in the DIA+T process. That means that the group should concentrate on technicalities, market learning, although in small scale, market creation and business model prototyping in the *incubation* phase and on lead customers, responding to constant feedback from market and invest for the future leap to the final target customer in the *acceleration* phase. (Järrehult, PPT: Invocation for Incovation, 2010)

The first task that the *Venture Group* does is to evaluate incoming suggestions on possible ventures to start up. According to Järrehult (Järrehult, PPT: Invocation for Incovation, 2010) the full list of criteria is one of the first things that the *Venture Group* must decide upon. The criteria involve, among other things, (Järrehult, PPT: Invocation for Incovation, 2010):

- Fit with the long-term strategy for SCA Hygiene.
- Level of breakthrough and disruptive character.
- Need for the special care provided in *Venture Group* in comparison to doing this in the line organization.
- Is the foreseeable business big enough to invest in?
- How does this align with observable trends?

The people in the *Venture Group* consist of a general manager acting as the champion as well as additional venture members that can be temporarily dedicated SCA Hygiene staff, temporary

external competences, seniors/consultants/partners or juniors/MBAs/MSc students. There is an allocated fund from where resources are given to safeguard the unit's daily operations, to financially support the chosen ventures and to reimburse line managers for employees allocated to the *Venture Group*. (Järrehult, PPT: Invocation for Incovation, 2010)

There are other groups except the *Venture Group* within SCA Hygiene that works with really new ideas. These groups are part of the mainstream organization and hence line work might get prioritized. These groups can initiate a *Venture Group* project as well as for example the internal innovation management system (today *Inventum* and *Ideum*, tomorrow *ICON*), external partners or start-ups. If the project is seen as too big for a business category or if several categories are involved, the *Venture Group* should be an alternative. (Järrehult, PPT: Invocation for Incovation, 2010)

6. Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene

This chapter includes an overview of the findings regarding the level of presence of inhibitors for breakthrough innovation capability in SCA Hygiene. The inhibitors are described under their respective cluster and the data is from the 14 semi-structured interviews with employees from different levels and parts of SCA Hygiene.

A modified version of Assink's (2006) framework with inhibitors for breakthrough innovation capability has been used as a guide to gather thoughts about the inhibitors impact on SCA Hygiene's breakthrough innovation capability. To the original framework the inhibitors obsolete mental models and theory-in-use have been merged and the inhibitor personal evaluation has been added. The answers from the SCA Hygiene respondents are presented below under the inhibitor they reflect. The inhibitors are presented under their respective barrier cluster.

6.1. Adoption Barrier Cluster

Existing successful products. Several respondents have mentioned that SCA Hygiene is a very product oriented organization. The feeling is that investments in new products are too small and if a new product will cannibalize on an existing it may be a reason to stop it. One respondent explained that the focus on products can be due to that SCA Hygiene never has had a crisis forcing them to put effort on other aspects, as for example on services.

Successful business model. Some respondents have expressed that they hesitate to carry on ideas that are related to new sales and/or distribution channels since the probability that the idea will be followed through and implemented is low. The perception is that this also affects that new customer segments are not in focus. As expressed above, many respondents experience that there is too much focus on the products and this is expressed to be a reason for why new customer segments not are in the organization's mindset. Another aspect that impede is tender, which is an important sales channel for SCA Hygiene. The channel involves standards that the organization has to follow. It is a complicated process to influence the standards and it is said by some respondents to be a factor that inhibits breakthrough innovation.

A hypothesis that was tested during the interviews was if SCA Hygiene's existing successful brands could be a hinder for breakthrough innovation. One respondent believed that this was a problem within one of the brands, but a majority of the respondents did not see the brands as inhibitors. Instead, most of the respondents expressed thoughts regarding that a strong brand could be a benefit when testing new things as well as the fact that nothing would be commercialized on the market if they do not believe in them and have tested them on beforehand.

Lacking organizational dualism. Even though there are some small-scale tryouts it is not perceived as a general way to do things and one respondent expressed that it does not exist any trial-and-error mentality. Innovation is thought of as a key word but one respondent stated that walk-the-talk must be applied and that more gambling must be allowed. The same respondent would like to have the possibility to, in the first steps, purchase cheaper machines or do it by hand. Additionally, respondents said that there is no common SCA Hygiene budget for breakthrough ideas. Each category has its own budget that is historically based and there are no financial resources in these budgets that are pinpointed for breakthrough ideas. Some of the respondents expressed the opinion

that it does not create an incentive for breakthrough ideas since you instead want to sustain what you already have. However, another respondent told that there is no pinpointed budget for internal generated breakthrough ideas, but that there is a budget for ideas found external. The same respondent also said that there are some ongoing projects with breakthrough innovation potential. Almost all respondents expressed that it was several years since a breakthrough innovation reached the market.

On the other hand, one respondent told that SCA Hygiene recently decided a focus for the breakthrough innovation strategy. Some respondents mentioned that the implementation of the *Venture Group* could help diminish the inhibitor lacking organizational dualism. Furthermore, the existence of the *early product development and innovation group* that is separated from the *product development and innovation group* is expressed to allow that group not to get stuck in the mainstream working environment or having responsibility for an assortment.

Excessive bureaucracy. Since SCA Hygiene is a large organization there are rules and procedures that need to be present. One respondent had the opinion that the decision-making hierarchy about breakthrough ideas is too complicated, especially in Europe, which is a problem as ideas must pass through several levels in the organization. The success within one group was stated not to have been possible if they would follow all the rules. Another aspect influencing excessive bureaucracy is, according to one respondent, that in SCA Hygiene it is not possible to do anything in “lie”/within closed doors. The same respondent said that a similar development process like the Losec drug would not have a chance to happen in SCA Hygiene.

Status quo stifling. One respondent stated that SCA Hygiene is a large organization with existing rules and procedures which lead to things happen slowly. Another respondent articulated that things are performed according to these rules and procedures. This person had the thought that it is wrong, instead the tools should be shaped after the organization. It is mentioned that it is difficult to get approval for breakthrough ideas as the focus often rather is on catching up with things first. Areas in which SCA Hygiene has existing businesses are prioritized according to another respondent. Furthermore, historically, once a potential breakthrough idea appears in SCA Hygiene, there is a feeling that there is a lack of drive to move the idea forward. In the current situation, there is much talk about the importance of being innovative, but one respondent expressed that SCA Hygiene has a great difficulty to actually be that.

Path dependency & dominant design. One respondent said that the production facility that is used is expensive and even though the machines are built in modules, the cost of changing modules is a limiting factor for shifting them too often. The possibility to experiment thus becomes restricted to do it by hand.

6.2. Mindset Barrier Cluster

Inability to unlearn. It is pronounced that there is no inability to unlearn if it will lead to more money. One respondent expressed that in areas that are doubtful there are no incentives to take in new resources. Instead, focus is on what is being done and known today. An overall feeling among the respondents is that the risk adversity is high which leads to that project that challenge core assumptions are not given effort.

Lacking distinctive competencies. The perception from one respondent is that the idea system *Ideum* does not have a good structure for dealing with business ideas. That leads to that technical ideas are prioritized. Several respondents have mentioned that the tools being used in SCA Hygiene are focusing mostly on acquiring new products and not on acquiring new capabilities.

Another respondent said that people need to work harder and more with developing their first idea. Even if an idea gets rejected from being patented in the first try the idea giver should continue working with the idea and improve it so that it passes in the next try. The perception that the respondent had was that many people give up too easily, which is wrong since if it would be easy the idea would certainly already be discovered. Moreover, the feeling by another respondent is that there are many employees in SCA Hygiene who would like to put more effort on their ideas but they do not know how to go forward.

Obsolete mental models & Theory-in-use. Almost all respondents had a definition of what a breakthrough innovation is that corresponds well to the definition that has been chosen as the SCA Hygiene common definition. However, when it came to give an example of a breakthrough idea or innovation many of the respondents automatically only provided examples of product innovation and few mentioned, for example, a service offering innovation as an alternative. One respondent mentioned that it exists a tendency to use the definition of breakthrough for too big things that are very risky. Another respondent had the same opinion and said that it is hard to find potential breakthrough innovation. Often, according to one respondent, the idea system *Inventum* gets the blame to be the obstacle but an idea should be possible to implement anyway. The system should not be the limiting factor.

It was expressed by one respondent that many employees are not focusing on delivering an offer to the customer but rather just a product. It was also said that there are so much talk about innovations that it almost have become a buzzword, including everything from changing tapes to things that are completely new. Furthermore, one respondent feels that people prefer taking the easier path as it provides a secure monetary income.

6.3. Risk Barrier Cluster

High risks and uncertainty. Uncertainties are perceived as risky in SCA Hygiene according to one respondent. Another respondent expressed that SCA Hygiene has a tendency of trying to avoid risks and said that if it is possible risks are avoided. It has been articulated that SCA Hygiene is good at manage risks that can be calculated, but that the organization is less good at manage uncertainties. The same respondent said that it might depend on the fact that there is not a culture to try out in a small-scale first. Another reason could also be the absence of a trial-and-error culture. Experimentation and trial-and-error are two underestimated activities and the respondent expressed that it is a necessity to go outside the house when testing new things. Another respondent had the feeling that working with breakthrough ideas is much like garage work as it involves few people and a little amount of money.

One respondent told about one project in which it was possible to reduce the risk that existed by creating manageable risks. The respondent was convinced that the project would be successful and the decision maker dared to take the risk. It is still unclear, in view of the respondent, whether the project got approved thanks to that they were good at explaining or if it was a risk-taking decision maker.

Risk adverse climate. There is an interpretation from the respondents that the management team could put much more effort on ideas with a high degree of novelty. The management team ought to have a higher courage when it comes to taking risks. One respondent told that the management team dares to put effort if another company already has invested in the innovation as it is less risky than investing in something entirely new. Another respondent expressed that some people higher up in the hierarchy are afraid of failing and losing some small sums of money.

One respondent expressed that it is a necessity to gamble to win but simultaneously he/she said that, of course, it is not possible always to gamble. The feeling that the respondent has is that SCA Hygiene in recent years has not dared to gamble properly. However, according to the respondent, it blows new winds in the organization right now and it might change this fact.

Another respondent had the perception that it exists an amount of catching-up thinking in the strategic portfolio. The respondent mentioned the need to have a portfolio of innovation projects and the importance of setting the bar high in areas where SCA Hygiene wants to be a market leader and then to dare investing in those areas. Today, that respondent thinks that SCA Hygiene is playing too safe in their investments.

Lacking realistic revenue & ROI expectation. Several projects have not started or not been advanced due to that it has been unmanageable to estimate figures associated to them. One respondent said that a group that worked with breakthrough ideas was closed down because they could not, through measuring, defend their existence. This group suffered because they were evaluated on the wrong parameters. Another respondent expressed that if you can motivate your breakthrough idea quantitatively, then it is no problem to get approval. This also means, according to the same respondent, that a project with the character of not being able to calculate on nevertheless is asked to have a financial calculation. The perception from the interviews is that there is no common way to use metrics for breakthrough innovation projects. One respondent said that measuring on-going projects is not performed accurately. For example, in one breakthrough project that the respondent worked in they set targets according to the stage-gate model *PRIME*, but that was totally wrong as breakthrough innovation are all about risks meaning that they ought to have other evaluation criteria.

Unwilling to cannibalize own investment. No respondent has said anything that supports or speaks against the presence of this inhibitor.

Learning trap. The “not invented here” syndrome is mentioned to be present at SCA Hygiene by some of the respondents. One respondent also told that there are some turf issues within the organization.

6.4. Nascent Barrier Cluster

Lacking creativity. The perception by several respondents is that there are no problems with new thinking and creativity in the early phases, when generating ideas. Instead the problems associated with lacking creativity come when the ideas are supposed to be pushed out and further developed. One respondent expressed that creativity is encouraged and gave example of tools in the organization such as the systems *Ideum* and *Inventum* that gather ideas. On the other hand, one respondent did not think that the environment is as creative as it could be and said that: “When you walk in the building it does not feel innovative”. Another respondent feel that SCA Hygiene has an

open climate where you can talk but also has the perception that some momentum has been lost because there do not exist as many that receive ideas any longer. The feeling is that SCA Hygiene historically has been very good at encouraging a creative climate but that recently there has been a great focus on costs. One respondent said that new solutions to known problems are encouraged, when it gets a little cheaper and a little better.

In the last reorganization one respondent perceived that the R&D department was degraded. This was perceived partly because the organizational allocation was moved but also for the reason that it was communicated that the department should not play with useless ideas. The same respondent said that the R&D department got top-down controlled and had the perception that notorious inventors were not appreciated. Oppositely, that the R&D department should have been degraded was not perceived by another respondent and several respondent mention that there are notorious inventors in the organization and that there are opportunities to catch. However, as one respondent expressed, it is much up to the individual to grab the opportunity. One respondent expressed the thought that there certainly are persons in the organization that are afraid of failing and therefore takes the safer and already known way. The same respondent said that in the R&D department it could be good to give credit to failures even though it is not as exciting to report. Another suggestion of how the creative environment in the organization can be improved that one respondent requested is to pay more attention to great innovative performers within the organization.

Lacking market sensing & foresight. An aspect that is mentioned from one respondent is the fact that information input from the marketing department in many cases is not taken into consideration. The signals are not received in the other parts of the organization. The same respondent experienced it as the signals were received and taken action upon in cases when it was a high risk of losing business. Another respondent said that large “cocky” SCA Hygiene is a problem because the organization sometimes gets stubborn and do not realize the market needs. An example was given about a case in which SCA Hygiene was very inflexible although it would not cost much to fix. Another respondent also told about one project in which market sensing was lacking. In that project a small pilot study was conducted but, however, the market was questioned and investigated too late and the project turned out to be focusing too much on technology. Furthermore, it was found in one interview that the respondent felt that SCA Hygiene is not good at changing consumers’ behavior, which needs to be done to be able to come up with completely new things.

Senior management turnover. One respondent mentioned that SCA Hygiene has experienced several reorganizations and thereby also a number of changes in management positions. One respondent said that due to one of the reorganizations the management that supported a particular field of research was moved from that position, and hence their project was closed. The same respondent had the opinion that walk-the-talk has to be applied, which means that innovation should be asked for from top management and through that projects would survive management turnovers. Another respondent expressed that breakthrough innovation is inhibited by changes in management positions. When a position is possessed by a new person projects have to be motivated again. That is, according to one respondent, something that is not always possible and therefore leads to that the idea is discontinued. Another respondent expressed that breakthrough projects are often vulnerable since they depend on few persons. Several of the respondents talk about the need of a solid top management and that duration over time in management positions is important. One

respondent mentioned that too many and frequent changes in the management often leads to that nothing gets developed.

Innovation process mismanagement. Almost all of the respondents had the opinion that the problem is not to generate breakthrough ideas, it is rather to push the ideas out. One respondent mentioned that a culture of pushing breakthrough ideas further on is required, a culture that SCA Hygiene has not succeeded to develop properly. Many respondents who have worked at SCA Hygiene for a long time expressed the importance of informal ways to do things when it comes to breakthrough ideas. Moreover, many respondents said that there is no formal way present for how to develop breakthrough ideas. A problem mentioned by one respondent is that SCA Hygiene has too many projects ongoing and that all are equally important.

Many respondents mentioned that the stage-gate model *PRIME* is often used for breakthrough projects and that people are too excited of *PRIME*. One respondent said that when working with projects you always try to stick to *PRIME* and that it can be miserable as breakthrough ideas needs to be developed in a separate file, otherwise they might get too much resistance. Another respondent had a different view and thought that *PRIME* is working well for all types of project. That respondent said that if *PRIME* is not working, then the project is disposed wrongly.

Several respondents expressed that the system *Ideum* is not well suited for breakthrough ideas. One respondent said that the defined process for *Ideum* is not enough and expressed the need for informal ways in parallel to *Ideum* for breakthrough ideas. The same respondent mentioned that, however, the new idea system *ICON* that will be worldwide for SCA Hygiene, in order to be open, flat and remove any hierarchies, might increase the potential for breakthrough ideas. Another respondent pointed out that breakthrough innovation out on the market is on a completely different level than what *Ideum* is on. Moreover, it was expressed by one respondent that an idea that is ahead in time often gets stopped too easily in *Ideum* and that many innovators believe that the system as such will pursue the idea further. Another respondent mentioned that it is a problem that all breakthrough ideas must be registered in a system. That respondent had the opinion that it is not suitable for all breakthrough ideas to be registered too early and made transparent following a predetermined process.

One respondent said that it is more luck than skill when ideas are found at a later point again, since there is no culture in looking for old ideas that has not been used. The same respondent told that although breakthrough ideas are encouraged, SCA Hygiene is not good at taking care, encouraging and disseminating them. There are many intelligent persons in the organization, but one respondent does not experience that these people are looked for. Another respondent perceive that the collaboration between departments could be better. It is expressed that the product development team and the sales team have collaborations but that it could be more systematic. Another respondent said that ideas often jump between different departments.

Related to the approval of projects, one of the respondents thinks that for a manager to have the mandate to give approval or rejection of a project, the manager ought to be familiar with the way of thoughts of the project. That respondent said that if the decision maker has not been involved in the way of thoughts this person should not be allowed to decide.

The fact that external private inventors must sign papers to give the ownership of the idea to SCA Hygiene was mentioned as an inhibitor leading to that SCA Hygiene miss the chance to see their solution because many people do not sign.

6.5. Infrastructural Barrier Cluster

Lacking mandatory infrastructure and follow-through. An opinion that can be related to this inhibitor is that an organizational desire for breakthrough innovation exists, for example the *Venture Group* was implemented. However, one respondent expressed that there are breakthrough ideas that SCA Hygiene does not have the financial muscles to develop. Muscles in that case meant money and resources. Another respondent told that SCA Hygiene has the *Venture Group* that handles everything that is within SCA Hygiene's long-term strategy. On the contrary, one respondent was not sure if *Ideum* and *Inventum* still existed since those systems had not been visible for the respondent in recent years. Over the years, groups have been started and groups have disappeared according to one respondent. Today, that respondent does not know who is taking care of breakthrough ideas.

Respondents have expressed that work with *Open Innovation* is well practiced. One respondent said that SCA Hygiene has a well-developed work with *Open Innovation* and that some external collaborations are very intense and successful.

6.6. The Barrier Related to Incentive Systems

Personal evaluation. One respondent had the perception that the managers on a certain management level are afraid to put effort on breakthrough innovation due to their bonuses and goals. Another respondent expressed that breakthrough innovation is inhibited by the fact that the managers have too short-term goals. The personal Key Performance Index (KPI), according to one respondent, differs between the managers and is connected to bonuses. The KPI is much related to meeting the next year's budget, which the respondent thinks probably lead to too much focus on short-term goals. There is nothing that says that you are rewarded for something that will be rewarding in a ten years' time according to one respondent. Additionally, the same respondent said that breakthrough innovation is hampered as many key persons are measured on too short-term things and therefore do not feel the need to promote breakthrough ideas.

One responded said that he/she is not evaluated on the amounts of ideas per year but rather on what has been undertaken. The same goes for another respondent that said that employees are evaluated on what they launch which lead to that you would like to do projects with a high chance of success.

7. Analysis of Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene

This chapter consists of the analysis of inhibitors for breakthrough innovation capability in SCA Hygiene. An analysis of each inhibitor is presented and the inhibitors are put under their respective barrier cluster.

The modified version of Assink's (2006) 20 inhibitors for breakthrough innovation capability has been used to analyze the possible presence of these inhibitors in SCA Hygiene. The gathered data through reviewing SCA Hygiene's perspective and work with innovation as well as through 14 semi-structured interviews were the input for the analysis. The three colors of a stoplight have been used to clarify whether or not the inhibitor is present in the organization. A green light means that the inhibitor is a minor problem or not identified. A yellow light means that the inhibitor is present to some extent, but not in full extent. Meanwhile a red light means that the inhibitor is present and greatly hindering a breakthrough innovation capability. Figure 19 below illustrates the identified perceived level of presence of the 20 inhibitors and is followed by the motivations.

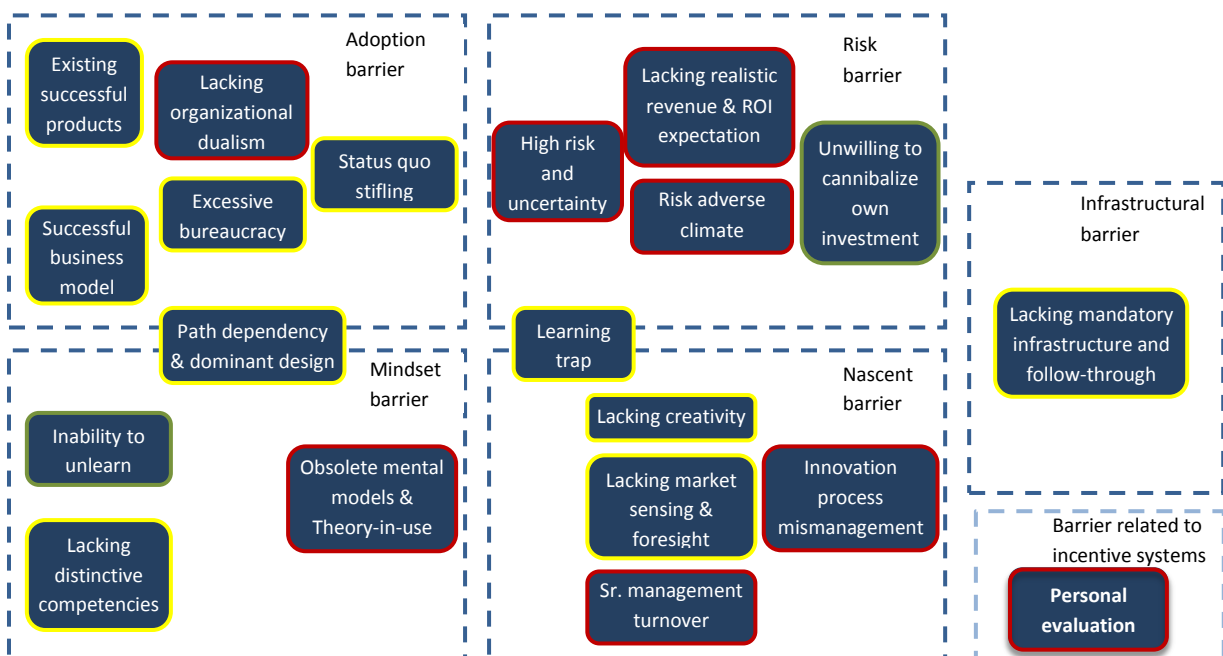


Figure 19. The inhibitors labeled after their perceived presence in SCA Hygiene's organization
Source: Authors

7.1. Cluster Barrier Analysis

The analysis of each inhibitor is put under its respective barrier cluster below.

Adoption barrier cluster

Existing successful products. This inhibitor has been labeled yellow. Looking at what kind of ideas that *Ideum* and *Inventum* ask for, it can be seen that promotion ideas and business ideas are explicitly wanted in *Inventum*, which is not the case in *Ideum*. Several of the respondents said that they experience SCA Hygiene as a product oriented company. Critics of that *Ideum* is not good at handling business ideas have been expressed and can be seen as one reason that signals more product focus. *PRIME*, the organization's common stage-gate model for managing projects, has a better fit with projects where calculations easier are performed. This enhances the product focus as

well, since a product innovation easier than for example a business innovation can be estimated with potential revenues. The motivation for more risky initiatives might decrease through this. It is expressed that if a new product will cannibalize on an existing it may be a reason to stop it.

Breakthrough innovation implies much more than product innovation and therefore this inhibitor is seen as inhibiting the breakthrough innovation capability in SCA Hygiene. The label yellow, and not red, has been given since there is an understanding of the importance of all areas of innovation in SCA Hygiene's innovation strategy. The strategy talks about: "Creating and combining solutions to deliver innovations..." and does not limit the strategy to product innovation.

Successful business model. This inhibitor is labeled yellow since it to some extent is perceived to be present in SCA Hygiene and hence disrupting their breakthrough innovation capability. In SCA Hygiene's framework for breakthrough innovation customer development is an important part, which means that the business model is pointed out as vital when working with innovation. Business model is also one of the corner stones in the *Spaghetti model*TM. However, it is not perceived that a new business model would be the solely focus of a breakthrough innovation. This is affirmed when some of the respondents said that they hesitate to carry on ideas related to new sales and/or distribution channels since the probability of an implementation is low. One important aspect is whether new sales and/or distribution channels are not in focus depending on fear of learning or if it is not seemed to be of worth. It is perceived that the business models used today in SCA Hygiene function well and hence the need of change is not seen in the organization. The tender business model is hard to make changes to and might be a demotivation.

As mentioned under the inhibitor above, the product focus is perceived greater than for example the focus on new customer segments. That *Ideum* does not explicitly want business ideas is seen as lowering the motivation for new business model ideas. It is not perceived that the brand would be an inhibiting factor for breakthrough innovation in SCA Hygiene. Most of the respondents saw a strong brand as a benefit.

Lacking organizational dualism. The ability to simultaneously work with consistency for incremental innovation as well as flexibility and experimentation with breakthrough innovation is perceived as low in SCA Hygiene and this inhibitor is therefore given the label red. There is no pinpointed budget in SCA Hygiene for development of internal generated breakthrough ideas. Money must be gathered from the different categories budgets, where the daily work of a more incremental character often is prioritized since no money is pinpointed to breakthrough innovation. This makes the climate for breakthrough ideas tough, ongoing work are often prioritized. Speaking for this statement is that there are many years since a breakthrough innovation from SCA Hygiene reached the market. However, there are some ongoing potential breakthrough innovation projects and a recently introduced long-term strategic focus. The respondents expressed that the exploring way of working is not what it could be and that innovation is said to be a key word, but that walk-the-talk is not lived up to. In the end, it results in a prioritization of the exploiting way of working instead of the exploring. *PRIME* is meant to be used for almost all projects, which might be inhibiting since it is not applicable for breakthrough innovation projects. The fact that a breakthrough innovation formal way of working is not known by a majority must be changed so that people understand the inhibiting impact that *PRIME* can have on breakthrough innovation projects.

There are groups in the organization today that work with new ideas without being responsible for an assortment. Not being responsible for an assortment is perceived as something good when trying to separate the work from the mainstream organization. However, these groups are still part of the mainstream organization which might have an impact on their focus. The *Venture Group* could, as they are outside the mainstream organization, be an initiative that helps prioritize breakthrough innovation projects in the future. The work with *Open Innovation* also gives a possibility to explore tracks outside of the mainstream organization. The new innovation management system *ICON* has potential to be a tool that helps all types and areas of innovation to be developed simultaneously as well as function as a tool used by the mainstream organization.

Excessive bureaucracy. This inhibitor is labeled yellow. SCA Hygiene is a large organization and hence various rules and procedures are needed. However, it has been pointed out that the decision-making hierarchy regarding breakthrough innovation might be too complicated. One group was said not to have been as successful if they would have followed all rules. Even though *PRIME* is not created for the purpose of breakthrough innovation projects it is used in several of them. A main obstacle identified is that changes in *PRIME* project plans must be requested and approved by the project sponsor, which is perceived to limit the projects flexibility. Flexibility in breakthrough innovation projects is important. *ICON* has the intent to be open, flat and without hierarchy. If that is successful it will make it easier to receive fast feedback on breakthrough ideas.

Status quo stifling. The label yellow has been given to this inhibitor. Experimentation with breakthrough innovation is to some extent limited due to standards and a common way of doing things in SCA Hygiene. Since SCA Hygiene is a large organization there are, as said before, rules and procedures that should be followed. It is important that these rules and procedures are shaped after the organization, and not the opposite. *Ideum* and *Inventum* are perceived as not being created after the organization, instead the organization has to adapt according to them. Thoughts about other ways to take, in addition to *Ideum* and *Inventum*, have been asked for. The focus to first catch-up has resulted in that breakthrough ideas are perceived to have it harder to get approval. Even if approval is given there is said to be a lack of drive in the organization to take the idea forward. SCA Hygiene's innovation strategy differs between efficiency in the *play not to lose* side and effectiveness in the *play to win* side. Both are needed, but it should be defined when each of the strategies are needed. Rules and procedures need to be formed so that both strategies can function in parallel.

Path dependency & dominant design. This inhibitor has been given the label yellow due to the problems related to that the production facilities used in SCA Hygiene is expensive. Even though it is built in modules the cost of changing it is a limiting factor. The label red has not been used since the possibility to experiment by doing things by hand exist. The tender business model is also perceived as leading to path dependency. However, tender is analyzed under the inhibitor successful business model.

Mindset barrier cluster

Inability to unlearn. This inhibitor is labeled green since it is not perceived to be present in SCA Hygiene and hence not disrupting their breakthrough innovation capability. No respondent have mention that inability to unlearn exist either on an individual or organizational level. An overall feeling is that the problem regarding that old logic and assumptions are not challenged is not due to an inability to unlearn, instead it is believed to be more related to the inhibitor risk adverse climate.

Another aspect that impact on this inhibitor, but originate from risk adverse climate, is that focus is on things that are known today. This leads to that the incentives to take in new resources in doubtful areas are few.

Lacking distinctive competencies. This inhibitor has been given the label yellow. Indications that the current innovation tools in SCA Hygiene focus mostly on acquiring new products, rather than new competencies, lead to thoughts that current core competencies are well utilized but that attempts to acquire new necessary competencies might be inhibited. In SCA Hygiene's innovation strategy the importance of that the three innovation enablers product/service offer, consumer insights and business model are in place is pointed out. Hence, a problem when focus is on acquiring new products can be that, predominantly, the business model enabler is underestimated. Furthermore, as innovation can start in any one of the three enablers, it is a problem that the idea system *Ideum* is perceived to not have a good structure for dealing with business ideas.

A competence that was mentioned to have the possibility to be improved is employees' knowledge about how to further develop an idea. It has been identified that there is a tendency of giving up an idea if it gets rejected in the first try, which might lead to that potential new competence within that area is lost. The tendency of giving up is perceived not to be due to the employees as they are said to having the will to put more effort. Rather the problem is that the employees do not know how to do it. *Ideum* is identified to impede this, as many idea givers believe that *Ideum* will take the responsibility for bringing the idea further. It is therefore vital to explicitly describe the purpose of the idea system and clearly make sure that the systems support ideas rather than force them into processes that are not accurate. However, the breakthrough innovation framework should be a solution for employees' difficulties how to proceed with their ideas, but as identified during the interviews employees are not familiar with that framework.

The work with *Open Innovation*, and within that especially the use of Innomediaries, is believed to help minimize the effect of this inhibitor as competencies that are not the core for SCA Hygiene can be acquired from the use of external collaborations. Also the implementation of the *Venture Group*, if it is successful, might lead to that core competencies within the mainstream organization will not be a threat to the same extent in that group. This since they work with a large degree of independence.

Obsolete mental model & Theory-in-use. The inhibitor obsolete mental model is evaluated together with the inhibitor theory-in-use since the arguments for each have been found speaking for them both. They are labeled red since the inhibitors greatly affect the breakthrough innovation capability.

It has been identified that the organization's common definition of breakthrough innovation is well known, but only to the extent of its word. Of the main areas of innovation possibilities (product, service and business model) mentioned in SCA Hygiene's definition of breakthrough innovation it was identified that almost only product innovation was mentioned as examples of successful innovation in SCA Hygiene. The rapid changes in today's business environment require that individuals' and organizations' beliefs about why things are done the way they are done is questioned. Hence, SCA Hygiene must work on pointing out the importance of services and business model innovation so that the mental models do not become obsolete.

Another problem is that when the mental models become obsolete it affects that theory-in-use also becomes an inhibitor. It is believed that many employees know how, but not why, projects are done the way they are. Furthermore, as mentioned above, the organization's common definition of breakthrough innovation is well recognized but it is perceived that the definition is used for too big and risky things. That leads to that the mental models regarding breakthrough innovation might be negatively affected, however this has not been identified in SCA Hygiene.

Another important finding is that there are so much talk about innovation in SCA Hygiene that the word innovation almost have become a buzzword. SCA Hygiene's definition of innovation is very wide which has the advantage of not locking in peoples' thoughts but the disadvantage that the word gets broadly used for completely different things.

The work with *Open Innovation* is seen as important since external partners most probably have other mental models and theories. That might lead to that SCA Hygiene questions why things are done the way they are. It is believed that it is difficult to change the mental models since it is deep-rooted in the organization's culture.

Risk barrier cluster

High risk and uncertainty. The label red has been given to the inhibitor high risk and uncertainty. To differ between the inhibitor high risk and uncertainty and the inhibitor risk adverse climate the first-named is used in situations after that a decision to go for a breakthrough innovation project has been made. Risk adverse climate is used before a decision to go for a breakthrough innovation project is made, when meaningful and meaningless risk needs to be separated.

For organizations working with breakthrough innovation fundamental uncertainties and high risk are inevitable. In the early phase of a breakthrough innovation it is almost impossible to predict its future success and possible revenues. SCA Hygiene is perceived as good at managing calculable risk, but could be better at managing uncertainties. This could probably be related to that trial-and-error and try out in small-scale are not experienced as often used methods. It is stated that breakthrough innovation is wanted, and therefore risk and uncertainties will to some extent be present. The exploring side *play to win* of the innovation strategy emphasizes that: "Fail often to succeed sooner" and that: "Start small but think big" are important aspects to succeed with the exploring way of working. If a breakthrough project has been found to fit in the strategy and therefore have been accepted the needed internal support and resources must be available, which they are not perceived as being to an adequate level today.

Risk adverse climate. Likewise to the previous inhibitor has this one also been identified to inhibit the breakthrough innovation capability, hence it has been given the label red. In SCA Hygiene's innovation strategy it is said that the exploiting side *play not to lose* aims for: "Minimizing risks" and for: "Put all eggs in one basket", while the exploring side *play to win* aims for: "Optimizing of reward vs. risk" and that: "The eggs should be placed in many baskets". Of course, a balance between the exploiting and exploring way of working is needed, but important to emphasize is that the risk-taking in the *play to win* side is not a meaningless risk-taking. By placing the total risk in different baskets and by having a picture over the reward that could be generated, the risk does not become as large as it might seem from the beginning. Since breakthrough innovation is wanted to a greater extent, breakthrough ideas should not be hindered to become projects if they fit with the exploring strategy that has been created for the *play to win* side. It is perceived that SCA Hygiene could put more effort

on ideas with a high degree of novelty. If everyone in the organization is aware of the strategic focus of the *play to win* side and know that it is seen as an important part employees would not be as afraid of failing and losing some small sums of money. Instead it will become a well-aware and meaningful risk of the *play to win* side. The catching-up thinking that is said to be present in the strategic project portfolio is accurate for the *play not to lose* side, but must be adapted so that it accepts breakthrough projects as well.

Lacking realistic revenue & ROI expectation. This inhibitor has been labeled red. It is impossible in the early phase of a breakthrough innovation to predict its future success, which also makes it impossible to make realistic revenue and ROI expectation. It is perceived that in SCA Hygiene there is a willing to calculate the returns a project might give and therefore have some projects, where it is unmanageable to estimate figures, not been started or advanced. Evaluation of breakthrough innovation projects need to differ from evaluation of incremental projects, which is not perceived to be the case today. *PRIME* that most often is used, is created for incremental projects and should not been used for breakthrough innovation projects. An organizational common way to use metrics for breakthrough innovation projects and groups working with tasks of a novel character is perceived to be needed. Groups should not find it hard to explain their existence due to that they are evaluated on wrong parameters.

Unwilling to cannibalize own investment. This inhibitor has been given the label green since no signs has identified an unwillingness to cannibalize own investment. Cannibalization in relation to products and production facilities are discussed under the inhibitors existing successful products and path dependency & dominant design.

Nascent barrier cluster

Learning trap. The inhibitor learning trap is labeled yellow. A tendency to keep doing the same things even in situations where it is no longer effective might exist in SCA Hygiene as the “not invented here” syndrome has been expressed to be present to some extent. It is vital that the current stable environment with effective routines and processes is not preferred in favor of working with breakthrough innovation projects; otherwise this inhibitor cannot be removed. It is believed that efforts to remove the “not invented here” syndrome as well as turf issues, which has been expressed to exist, must be done.

SCA Hygiene’s innovation strategy that has the two sides *play not to lose* (exploiting) and *play to win* (exploring) is a great initiative that has the possibility to remove the negative aspects of the “not invented here” syndrome and turf issues. But, since those two things are perceived to be present, the focus is probably not equally much on the two sides. It is expressed that in the exploiting side *play not to lose* the focus should be on develop what you can and in exploring side *play to win* the focus should be on develop what is needed. A “not invented here” syndrome has the implication that only things that people can develop will be done. However, the work in the independent *Venture Group* might not be disturbed by the factors that make this inhibitor disturbing the breakthrough innovation capability.

Lacking creativity. The inhibitor lacking creativity has been given the label yellow. The perception is that SCA Hygiene is good at encouraging ideas in the first step, which is also obvious as there are employees that generate ideas. Hence, new thinking and creativity in the early phases is good. The main problem that makes this inhibitor labeled yellow is in the later steps when ideas should be

further developed or implemented. It has been expressed that SCA Hygiene does not have the capacity to do that to a sufficient level. Another aspect mentioned that might impede on the creative environment is the attitude toward risk that might makes itself negatively announced, which can lead to that creativity indirectly is not stimulated.

Ideum and *Inventum* have been mentioned to encourage creativity when it comes to generating ideas. However, it is perceived that innovation tools that give ground for pushing generated ideas further is needed. Another identified critical thing, which has been mentioned, is that in recent years the cost focus has been high which has had the consequence that the creative environment has lost some momentum. This fact is observable as findings indicate that notorious inventors are not sufficiently recognized and that there are not as many responsible in SCA Hygiene that receives ideas any longer. This is much related to the importance of organizational dualism as new solutions to known problems, when it gets a little cheaper and a little better, cannot be prioritized if SCA Hygiene wants to build breakthrough innovation capability. About notorious inventors, the perceptions differed if they exist or not in SCA Hygiene. The feeling is that the problem might not depend on their existence or not, rather that today it is much up to each individual to grab the opportunity. This point back to a problem mentioned above under the inhibitor lacking distinctive competencies, which the knowledge about how to push ideas further is wanting. If it is up to the individual to take opportunities it is a condition that they know how to do it. The new system *ICON*, that will allow the possibility to share knowledge and make comments on ideas, has the potential to help employees to improve and work with their ideas.

The creativity in SCA Hygiene might be affected by the statement that it exist employees that are afraid of failing and therefore take the safer and already known way. Efforts to change the picture of failure as something negative to instead be seen as important learning is believed to be necessary. One intervention expressed that can help this is to give credit to failures in the R&D department. The emphasis on the importance of iterative learning and discoveries is mentioned in the framework for breakthrough innovation that SCA Hygiene has. It is crucial to spread that fact to all in the organization so that peoples' thought about failure change towards, as mentioned in the exploring side *play to win* in SCA Hygiene's innovation strategy: "Fail often to succeed sooner". Of course, it may not be perceived as efficient to fail but it must be allowed to some extent. This since it in the long-run will be beneficial as great learning have been achieved. Moreover, the perception that the R&D department might have been degraded ought to be further investigated since it can be a large barrier for their creativity. Interesting to investigate is the importance of their allocation within the organizational structure and how it is controlled. Other mentioned interventions that can reduce the presence of this inhibitor are to pay more attention to great innovative performers and to make the environment in the buildings more innovative.

Lacking market sensing and foresight. Market sensing and foresight could be improved and this inhibitor is therefore labeled yellow. Efforts to reduce this inhibitor making it labeled green is believed fairly straightforward to achieve as the presence of it much depends on unnecessary misses, such as truly absorbing what the marketing department anticipates. Signals from the marketing department ought to not only be taken action upon in cases when it is a high risk of losing a business. Instead it is critical to foresee trends and be aware of Assink's (2006) statement that: "Innovators image the future, then invent it". SCA Hygiene is believed to have the possibility to be better at

changing consumers' behavior. Improving that capability is critical as breakthrough innovation requires new behavior.

Due to the fact that the market for a breakthrough innovation does not yet exist in the development phase it is essential to not merely rely on conventional market research. It is therefore great that SCA Hygiene has chosen one strategic focus to put effort on in a long-term thinking as well as that there exist groups in the organization that work with solving an offering and not merely a product.

The perception from the interviews is that there is an awareness of market sensing and foresight but that they may be creating it in the wrong manner in some cases. For example, are right questions asked in customer researches, and is the market investigated early enough in projects making sure that focus is not too much on technology. Hence, the importance of managing product development and customer development simultaneously, as SCA Hygiene states in their breakthrough innovation framework, must be applied. The feeling is that this is not practiced and followed to an adequate level today. Furthermore, market sensing and foresight is perceived to focus on current customers but to build breakthrough innovation capability non-customers must be addressed as well.

Innovation process mismanagement. The perception is that the inhibitor innovation process mismanagement is present in SCA Hygiene and hence has been given the label red. The knowledge of how to effectively manage breakthrough innovation projects and which individuals to involve is believed not to be clear in SCA Hygiene. The breakthrough innovation framework developed specific for breakthrough innovation projects is not known among employees. Hence, work need to be done to communicate the essence and usefulness of the framework for breakthrough innovation projects. An identified problem is that SCA Hygiene has too many projects ongoing and that the opinion is that all are seen as equally important. The feeling is that by reducing the amount of projects and put more effort and resources on those, the success with innovation could be improved.

Breakthrough ideas have a difficult development procedure as the identified main problem is to push ideas out, not to generate ideas. Even though the breakthrough innovation framework is not acknowledged, that framework, no matter how great it is, cannot solve that. The framework is only a tool and instead it is believed that employees must be educated in the breakthrough innovation topic to accomplish a culture of pushing breakthrough ideas further. It has been identified that an informal way of working is needed in SCA Hygiene today if you want to succeed with breakthrough innovation projects. In the long run, informal ways is not a sustainable method for building breakthrough innovation capability.

Moreover, that *PRIME* today is used for breakthrough innovation projects in some cases and that employees might be too fond of *PRIME* is a barrier for breakthrough innovation. The fact that some employees think that *PRIME* works well for all types of projects and believe that a project is disposed wrongly if it does not fit with *PRIME* indicates that the understanding of the required conditions for breakthrough innovation projects is insufficient.

This inhibitor is marked red also due to that the system *Ideum* is identified not to be well suited for breakthrough ideas. As it has been expressed that breakthrough innovation out on the market is on a completely different level than what *Ideum* is on, the need for another system for breakthrough innovation is necessary. That some innovators think that the system automatically will pursue their idea further, once again, point to the importance of communicating that the system is only a tool for

gathering ideas. Hopefully, the new innovation management system *ICON* might be better suited for breakthrough ideas. An important take away that has been expressed is that it is not suitable for all breakthrough ideas to be registered and made transparent too early. That leads to that there might be a need for an additional parallel way to *ICON* for some ideas.

Some other things that, if they are solved or improved, will contribute to building breakthrough innovation capability are to make it easier to find and take advantage of old ideas, improve the collaboration between departments, make sure that ideas do not jump between different departments, and that the manager that have the mandate to give approval or rejection of a project must be familiar of the way of thoughts of the project.

Senior management turnover. This inhibitor has been given the label red. There are examples of projects that have been disclosed due to a management position change. A change might lead to that the project has to be motivated all over again, which is not always successful. Since several reorganizations have been conducted during the last couple of years, there have been changes in management positions as a consequence. Breakthrough innovation is said to depend on few persons in the organization and are therefore vulnerable. A solid top management with duration over time is seen as important and can together with walk-the-talk regarding the need for breakthrough innovation solve the inconsistency between managers view of breakthrough ideas and facilitate for breakthrough innovation projects.

Infrastructural barrier cluster

Lacking mandatory infrastructure and follow-through. This inhibitor has been given the label yellow. It is perceived that it is not clear where in the organization a breakthrough idea is taken care of. There are initiatives for breakthrough innovation, such as the *Venture Group*, nevertheless it is expressed that SCA Hygiene is not perceived to have sufficient financial muscles (money and resource) to develop breakthrough innovation. The *Venture Group* has not got the opportunity yet to show its capability. There are other groups that work with really new ideas, but these groups do not work merely with breakthrough innovation and are not separated from the mainstream organization. These groups are great and needed for breakthrough innovation, but it is believed that they ought to be more independent from the mainstream organization.

However, the impact of the *Venture Group* cannot be analyzed yet though they have recently started. However, the initiative is perceived to have had an impact on that employees feel that there is an organizational desire for breakthrough innovation. Even though the mentioned group has not shown any results yet, they might already have contributed to a better breakthrough innovation capability.

Open Innovation is a used tool for external collaboration. The feeling is that the work with *Open Innovation* has impacted positively to improve employees' innovativeness. The new tool *ICON*, that soon will be released, might solve the issue that *Ideum* and *Inventum* are not well-known anymore by some of the employees.

Barrier related to incentive systems

Personal evaluation. The inhibitor personal evaluation has been given the label red since it is identified to inhibit the breakthrough innovation capability. There is a perception that some managers have goals and bonuses connected to their evaluation that make them focus on short-term

goals, and therefore might be afraid of betting on breakthrough ideas that have a long-term perspective. Goals are expressed to often be related to next year’s budget or to what is being launched, there is nothing found that evaluates things that will be rewarding in a ten years’ time. Employees are said to do things with a high chance of success. Humans are rational actors who work to optimize their evaluation criteria and it is therefore a need for criteria that stimulates long-term thinking. If breakthrough innovation is wanted, key persons need to be evaluated on metrics that stimulate a long-term thinking.

7.2. Summary of the Analysis

Table 12 below summarizes the analysis and the color label given to the inhibitors regarding their perceived level of presence in SCA Hygiene.

Red-labeled	Yellow-labeled	Green-labeled
Lacking organizational dualism	Existing successful products	Inability to unlearn
Obsolete mental models & Theory-in-use	Successful business model	Unwilling to cannibalize own investment
High risk and uncertainty	Excessive bureaucracy	
Risk adverse climate	Status quo stifling	
Lacking realistic revenue & ROI expectation	Path dependency & dominant design	
Innovation process mismanagement	Lacking distinctive competencies	
Senior management turnover	Learning trap	
Personal evaluation	Lacking creativity	
	Lacking market sensing and foresight	
	Lacking mandatory infrastructure and follow-through	

Table 7. Inhibitors perceived level of presence in SCA Hygiene
Source: Authors

8. External Perspectives on Identified Inhibitors for Breakthrough Innovation Capability in SCA Hygiene

This chapter presents the empirics that were gathered through eleven interviews with ten other large companies in the external perspective interview study. The results from the analysis in chapter seven created the focus of the external perspective interview study.

The inhibitors, from the modified version of Assink’s (2006) 20 inhibitors for breakthrough innovation capability, that were identified to be most present in SCA Hygiene and therefore red-labeled have been further investigated through eleven semi-structured interviews with ten large companies. Focus in the interviews have been to analyze how other companies experience these inhibitors, both to find possible roots to SCA Hygiene’s problems but also to find possible solutions to how SCA Hygiene can reduce the presence of the inhibitors. Even though the external perspective interview study focused on the red-labeled inhibitors, the yellow-labeled inhibitors were concerned to some extent.

8.1. External Perspectives on the Red-Labeled Inhibitors

The concerned inhibitors in this sub-chapter, which were perceived to affect SCA Hygiene’s breakthrough innovation capability to a great extent, can be seen in their respective barrier cluster in figure 20 below.

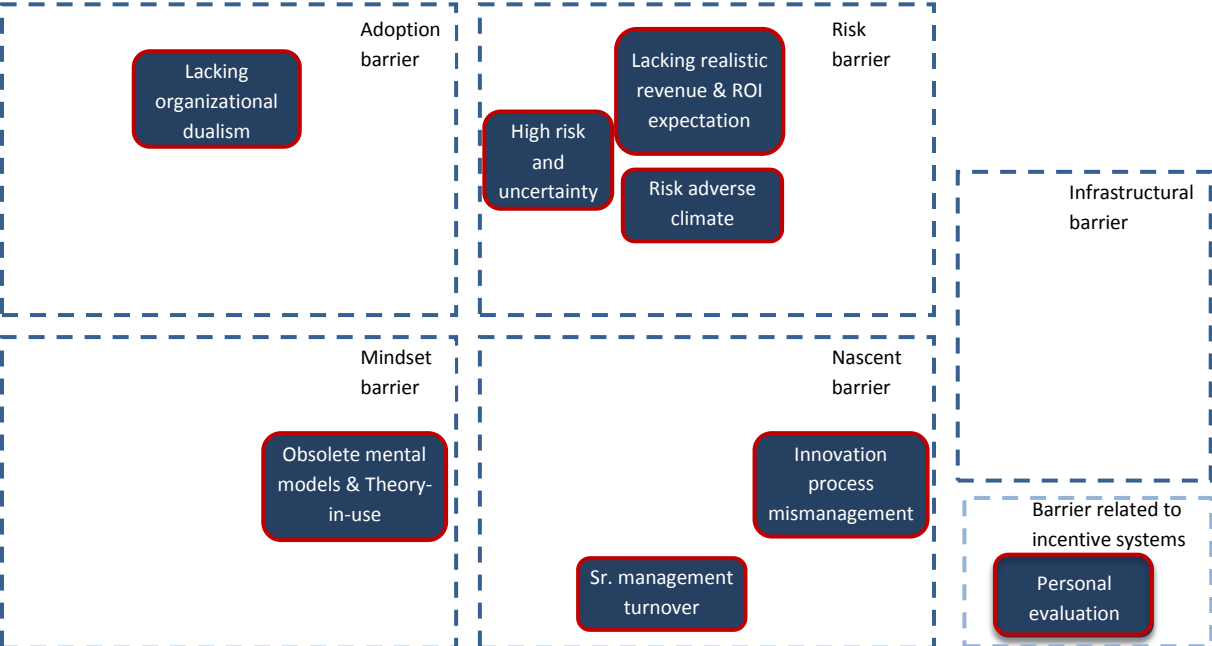


Figure 20. The red-labeled inhibitors in their respective barrier cluster
Source: Authors

Lacking organizational dualism. There are several different solutions on how to fund innovation with high novelty. Four out of ten companies (Company C, Company E, Company F and Company H) have budgets that are pinpointed to these types of ideas. The size of the budgets varies depending on the company. Company D has a pinpointed budget for product development, 50 percent of that budget is going to new products. How large part of the budget for new products that goes to breakthrough innovation projects is not specified. They are struggling to get money that is earmarked for breakthrough innovation, since they believe that it is dangerous to be satisfied with what you have. But there is a discussion whether or not breakthrough innovation is needed for the company. Two additional companies have a similar procedure. The *New Business Opportunities* group in Company J

has nearly ten percent of the development activities budget, but how much of those that are for high novelty projects is not specified. The company's idea system or sponsors do not have any budget. It is up to the sponsor's experience and power in the organization if a budget will be allocated. The money is applied for from the different business categories, often without problem if it is about smaller amounts. The second company, Company A, has a preempt budget for innovation projects, but has not decided to what types of innovation it shall be allocated, and the budget is not always sufficient. They would like to have a strategic goal for the proportion of different innovation types.

The group that works with outside and beyond current business scope ideas in Company B has limited resources and borrows resources from other parts in the company to staff projects. Company F that uses a *Scouting program* has a budget for the scouting but no resources. The budget is small and the group members work much on their own will, which is not sustainable in the long run. However, the program has received positive reactions, and the respondent believes that the company is willing to take the road from cost-estimates. The hard part with new activities is said to be that the answer is unknown but also that it demands much energy from the organization. Respondent 1 from Company G does not know if the company has a separate budget for breakthrough innovation, but perceive that if it is a sufficiently good idea with the right potential money is not a problem.

The R&D department in Company C functions as a facilitator for new development in the business units. That development should be decentralized in the business units since they have the closest relationship with the customers. However, the business units is said to often have a short-term thinking that does not give time or incentives for breakthrough innovation. If it is possible they carry out all types of projects with one of the business units, since it will make the transfer more easily managed later. Another respondent, from Company D, said that they are better at improving existing ideas, making them better and cheaper, than doing something completely new. Breakthrough ideas are present but they are not prioritized over other things that need to be done.

Many of the radical or disruptive innovation projects in Company E are driven by employees that put on "the company hat" and drive projects even though it has not to do with their tasks. It is often due to their personality and the potential gains they can get from it, and not that they are evaluated on it. The same respondent said that every time a radical or disruptive innovation occurs it demands for an effort of the organization.

Obsolete mental models & Theory-in-use. The definitions of ideas with a high degree of novelty differ widely between the interviewed companies and most of the companies do not have a common terminology within their organization. Used definitions are radical, outside and beyond current business scope, high novelty and high commercial value, disruptive, breakthrough, pioneering, faster, bigger, bolder and new business creation. The respondent from Company A said that the definition radical is used to highlight the fact that innovation with high novelty might meet internal difficulties and to pinpoint that they might need special care. Company B has chosen to use the definition outside and beyond current business scope, which refers to innovation that is disruptive for the organization and/or its market. In another company, Company E, both radical and disruptive are used definitions and the respondent expressed that radical aims for innovation that could be a known customer value but a big step for the company, while disruptive innovation change the rules on the market and raise new values. In Company H, the respondent told that they use the word pioneering

instead of the word innovation when they talk about products that can make the company a market leader due to the reason that the word innovation has become hackneyed.

The respondent from Company E said that innovative products and services that could generate a premium are asked for. Moreover, there is almost always a technology, product or aftermarket part involved when discussing innovation.

High risk and uncertainty. Risks and uncertainties are expressed to be hindrances for breakthrough innovation projects but the consequences of these inhibitors vary between the companies.

The respondent from Company B said that later into a breakthrough innovation project, the hard part is to reach momentum for the project to grow in such a way that it is accepted in the organization as it primarily should be a part of it in the future. The same respondent told that uncertainties are inhibitors for projects with a high degree of novelty but at the same time the company knows that dealing with uncertainties is necessary when you run a business like theirs. The need to push more for radical projects was expressed by one respondent to be essential due to that the risk-taking is higher.

In most of the companies there is no universal solution to take care of uncertainties or risks regarding breakthrough innovation projects. Company I sticks out most in their approach to deal with risk. That company tries to handle the risk on a portfolio level. That may have hindered some cases, but they try to look at the portfolio instead of at specific projects.

The respondent from Company A told that his/her knowledge of the organization is that if you take things in small portions, so that the perceived risk is reduced, then you can make a lot of things. Another respondent, from Company D, said that projects with high uncertainties are sold in as high-risk projects with the possibility of a high reward. The same respondent told that the managers can accept a higher risk in the beginning but later it comes a point when they need to know if it will work or not. In another company, they work with tight couplings with the critical factors, which make the risk lower since no money is invested in production facilities. Company E tries to learn much as early as possible to be able to change the direction early if needed. An alternative approach used by Company G is to work with many criteria at the same time and catch opportunities rather than decide in advance what will be reached. The same respondent said that he/she does not know if they have a general way to handle the uncertainties that often are related to projects with high novelty. The respondent from Company H perceived that too much money in the beginning when working with breakthrough ideas could be negative as more money leads to higher expectation.

Risk adverse climate. A common perception from the respondents is that competing with breakthrough innovation is hard due to the risk related to that type of innovation and that the project has to fight against other projects and limited resources. It was mentioned by the respondent from Company B that it is hard to reach the internal anchoring to take the first step, and another respondent, from Company D, said that it is easier to get acceptance for new technologies since the top management can see the need for them in a longer term. Another respondent, from Company C, said that there is a fear of failing and taking responsibility in the company, leading to that time is not given to try new things. Further, in Company H, the respondent's perception was that their company lacks courage and is controlled by risks.

In Company G, respondent 2 had the feeling that there is a will, all the way from the top management, to put effort on things that are new, which is very important for projects that stretch over business units. Another company respondent, from Company J, gave the tip to use an argument for taking on more risky projects that almost always makes the management more interested, that is to say that what if our competitors do it and succeed.

The majority of the interviewed companies do not have an innovation portfolio in which a pronounced goal regarding how the proportion of innovation projects with different levels of novelty should be. Some comparable alternatives that respondents have mentioned are for example to have a classification on how much that should result in improvements and how much that should result in new products (new products are divided into products that are based on old products and products that are not connected to what has been done before) and one company has a group portfolio for more risky product and process innovation. In Company J, they have an ongoing discussion if a more systematic innovation portfolio should be present. But, in past time, that company had a strategic business unit in which breakthrough ideas were created and they are now trying to change that picture into thinking new and not to be locked-in.

The respondent from Company D had the opinion that their culture is entrepreneurial and with a long-term thinking. That company has dared to start projects costing millions that later have been closed down.

Lacking realistic revenue & ROI expectation. How breakthrough innovation should be evaluated is not completely decided in most of the interviewed companies. However, all companies have in common that incremental and radical projects are evaluated on different parameters.

The interviewed companies have different expectations of breakthrough innovation projects. Company A almost solely focuses on customer value in the beginning when evaluating a radical project and later on, to the extent that it is possible, tries to quantify the business potential. On the other hand, Company B has the expectation from the beginning that the outside and beyond current business scope ideas have to be of great potential in upcoming revenues. Company D evaluates the ideas with a high degree of novelty with help from criteria that investigates the strategy alignment, how big the risk is and what could be done to reduce it. Only if it is possible to reach a number on the case, the company's market department is used to estimate the sales numbers. Company F also uses the criteria strategy alignment, but their company respondent means that if that box is completed in the evaluation it is not a breakthrough idea per definition. Company C uses a probability judgment of the success rate of an innovation project to clarify what expectation that could be set, not to decide if it should be run or not. Other criteria expressed during the interviews are gut feeling, novelty, the benefit and how doable it is. Company H uses the *MTOR* model for uncertainties (further explained in sub-chapter 4.1.5.) when evaluating a breakthrough project during its lifecycle.

In Company E, the concept development group is evaluated on a ROI-calculation that is based on the budget, which is nearly the same each year, and the gross margin from products where their concepts are present and still has competitiveness. Hence, the group can take advantage of the total gross margin from existing products, and if the sum is five times as big as their budget the management is satisfied with the group's performance. The company respondent said that this evaluation gives the group more freedom and lets them to be evaluated on what they have done on beforehand.

The respondent from Company J expressed that, regarding the uncertainties related to breakthrough innovation, it is important not to calculate too much. This as in the beginning many things look expensive but by looking forward into the bigger volumes and application possibilities, that picture might look more attractive.

Senior management turnover. Senior management turnover is perceived by the respondents to influence how breakthrough innovation is prioritized both positively and negatively as well as not influencing it at all. Positive aspects that the respondents have mentioned are that executive changes can result in that projects get re-revised, which could lead to that a risky project gets a new chance. However, the respondents also mentioned more negative aspects that senior management turnover can lead to. Expressed consequences are, among other things, the risk that projects might need to start over from step one and that the prioritization of radical and breakthrough innovation projects might change. The personal influence is, according to the respondent from Company H, said to be critical since it is much up to the person, as well as to have a champion. Another respondent, from Company B, had the same thoughts and said that the analytical and technical aspects of projects with a high degree of novelty are not as complex in comparison with management changes.

Respondents from two out of ten companies (Company D and Company I) perceived that changes in management positions are not affecting the prioritization of breakthrough innovation projects. Respondent 1 from Company G said that since it is a group that takes the decision regarding projects the impact of the change of one person is probably small. Another respondent, from Company I, believed that reprioritizations, like changes in amount of employees, have affected prioritizations of breakthrough innovation more than senior management turnover.

Innovation process mismanagement. Projects that are radical, cross-functional or have business focus are often treated outside the mainstream organization due to the many hurdles if being developed within the mainstream in Company A. Another respondent, from Company H, highlighted that virtual incubators are essential for taking care of radical ideas.

Difficulties when dealing with projects with high novelty, stated during the interviews, are that there are not enough resources to evaluate all ideas. This leads to that some ideas never get the chance. Hence, it is important to be patient and push for your idea. Other difficulties mentioned are to find the internal force regarding who should manage the project as well as how to systematically develop ideas. The respondent from Company B expressed that the internal strategic work, including for example which persons that should be involved and if it fits with the strategy, often is most important.

Several respondents expressed that a strong sponsor and innovation champions are essential to succeed. The respondent from Company H said that: "It is often skunk work and that demands for persons to act as champions". Moreover, respondent 2 from Company G said that breakthrough innovation projects demand for reporting, communication, strong willingness as well as the right people. Another respondent, from Company H, mentioned that ideas are often chosen considering both the idea and the idea giver. The same person also said that it is important to show the rest of the organization examples of what you have done and that you have come somewhere with the innovation work. A study performed, by Company J, showed that successful breakthrough innovation projects in the company had in common that there were no connection with the amount of

resources or the size of the budget. The only strong correlation found was an enthusiast that fought for the project and top management support that gave the project time to succeed.

All investigated companies have a developed stage-gate model for projects. However, none of the companies use the stage-gate model strictly for projects with a high degree of novelty. But, on the other hand, several of the respondents expressed that they do not have any framework for breakthrough innovation. Many of the companies have some decided points or milestones that should be followed/reached when working with breakthrough ideas. Two company respondents (Company B and Company J) expressed that the starting-point for projects with a high degree of novelty is from the stage-gate model but the phases and points of decision get adjusted to the specific opportunity. In Company E, which works from milestone to milestone, a new direction is stated only after the current milestone is reached. The same respondent expressed that: "In concept development projects the process between stage zero and one is iterative. The *RIV (Radical Innovation Ventures)* projects do not use the stage-gate but they have the intentions to enter it later. They work similar to the customer development process with the add-on of Product and Value validation". Furthermore, the respondent from Company F told that: "The *Scouting program's* working approach is much like the wild-west style. As they do a pilot they simultaneously look over the following process so that it will fit for these kinds of activities". Almost all respondents believed that it is important that the work with breakthrough ideas need to be flexible and individualized. The respondent from Company H said that they are trying to experiment with the process and currently they are focusing, in radical innovation projects, to work on investigating the *MTOR* model's uncertainties. Several respondents said that these kinds of projects rarely require a big budget in the beginning.

Respondent 1 from Company G told that their company decided not to purchase an idea system until they know what kind of ideas they receive and how they would like to handle them. The company would like to first define what is important to have in the system since the system should be created from the ideas. As the respondent said: "A system should be a help to reach what you want and hence not decide how you should work". Another respondent, from Company J, said that innovation tools might not make the company more innovative but it helps them become faster in coming up with ideas, develop ideas and to get ideas to the market, which in the end makes them more innovative. Evaluation of ideas is done differently in the companies. Approaches for idea evaluation are, for example, an assemble idea team with employees from different parts in the organization, different idea boards depending on the area of idea to evaluate or that a team of global reviewers with different competences make comments on ideas that later is the basis for the decision whether or not to start a project. In Company J, incoming ideas do not get rejected or accepted any longer, which psychologically is said to be important. Instead, all ideas end up in a database and the ones that are believed in receive a sponsor while the other ideas wait for the right timing or resources to receive a sponsor.

Several of the companies have strategic areas in which breakthrough innovation is requested due to the future importance of these areas. Company C classifies all projects in a nine-grid square with the axis "level of novelty" and "level of commercial value". The top right corner is the square with highest novelty and commercial value in which the company would like to have 15-20 percent of their projects.

Innovation is communicated in the companies in different ways. Discussions about radical or disruptive ideas in Company E are done through two 30-minute presentations per year for the top management and through two presentations of additional concepts to the business units. The purpose of those presentations is to start a dialogue on what is happening and to get all employees input. Company G holds seminars with the purpose to inspire and give fact about a specific theme in which breakthrough innovation is requested. The same company also has “lunch dates” that give idea givers the opportunity to talk about their ideas, and hence to get input on how to proceed.

Personal evaluation. The majority of the respondents expressed that personal evaluation has an impact on how projects are prioritized. Moreover, several respondents said that employees are evaluated on different kind of goals and that it often is up to the manager to decide. Respondent 2 from Company G stated that the company’s core values are important and that the goals are short or long-term depending on the employee’s position. The same respondent told that the evaluation of employees partly depends on the person in question. Another respondent, from Company A, stated that in their company they are currently striving for idea generation to become a part of the goals in every employee’s personal goals as well as in each department. In Company B, when evaluating an employee’s contribution within the innovation work, they are among other things looking at expected turnover within three to five years. The respondent from Company D said that it is hard to convince the managers that gut feeling should be used since they are evaluated and given bonuses. According to the respondent from Company E, their evaluation often reflects their courage.

Several respondents said that if the idea giver to a project with high novelty would like to take part that is welcomed. In Company A, time is given in the idea giver’s job description. In Company B, the idea giver can be involved as long as the project allows for it.

8.2. External Perspectives on the Yellow-Labeled Inhibitors

The concerned inhibitors in this sub-chapter, which were perceived to affect SCA Hygiene's breakthrough innovation capability to some extent, can be seen in their respective barrier cluster in figure 21 below.

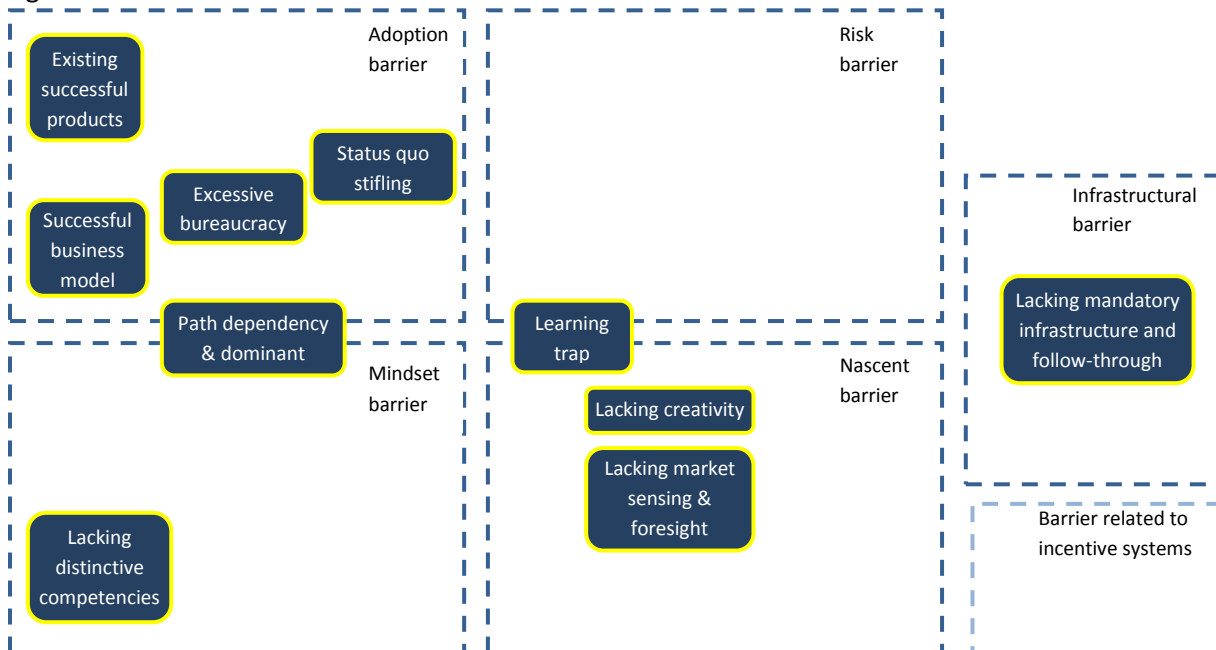


Figure 21. The yellow-labeled inhibitors in their respective cluster
Source: Authors

Existing successful products. No information available from the interviews.

Successful business model. New sales and/or distribution channels for a breakthrough innovation are perceived differently among the companies. Company A does not see it as a problem, the alternative solutions they use are to find a partner, license, create a new company, receive a patent or set up a partnership. Three out of ten companies (Company E, Company H and Company J) see that it can be a problem. The first respondent, from Company E, expressed that if a radical or disruptive innovation involves a new customer segment or new sales/distribution channels it will be difficult, and it will be necessary to find the right people in the right place in the organization. The second respondent, from Company H, said that if breakthrough ideas involves new customer segments or distribution/sales channels that type of ideas would not become projects today. The idea with incubation is to try out early if this is a problem. The third respondent, from Company J, said that it is perceived as hard to launch a new concept with old sales and market teams, since it often is hard to convince these teams of the new concept's benefits. It is easy for the teams to say that they would go for it, but in the reality it is harder.

The respondent from Company D expressed that when innovation is discussed in the company, it mostly regards new products. Another respondent, from Company B, said that they work continuously to increase the awareness in business innovation by for example providing workshops in the area.

No one of the respondents agreed completely that the brand could be an inhibitor for breakthrough innovation. The respondent from Company C expressed that it could be seen as an inhibitor but also as strength. Most often it is seen as strength since it gives a long-term guidance to not go into

something that is not beneficial for the company. The inhibiting factor is that it puts some requirements on the products that can make it harder to think outside-the-box. The rest of the respondents said, among other things, that the brand; was not seen as an inhibitor since the top managers are very interested in thinking big, is a strength, is a resource and could be used even more, opens doors and opens up for more systematic innovation. Several respondents expressed that products are tested very thoroughly before launch to ensure quality; the brand is therefore not seen as an inhibitor. Company B uses sub-brands to test their research and Company G has close relationships with some customers that are willing to test new things in the development phase.

Excessive bureaucracy. The respondent from Company F expressed that the owners of a company are important for what is allowed further down in the organization, since it creates a short- or long-term thinking.

Status quo stifling. The respondent from Company A told that their company has a need and a wish for innovation and renewal in products and processes. However, there is a lack of conviction regarding the need of radical innovation. The respondent from Company D expressed that innovation is discussed in the company but not in a formal way. The CEO is, as pointed out by the respondent from Company H, of great importance. If the CEO says that they should not take any risk that will influence the risk that will be taken.

In companies where innovation is discussed a lot it is done through innovation days, the internal webpage, innovation awards (twice a year for good ideas that have been implemented), presentations in different levels of the company and workshops. Company G had a workshop that focused on specific questions related to what the company was in need of and what they were not good enough at. Everyone in the organization had the possibility to express his/her thoughts.

Respondent 1 from Company G said that the hard part with changing the culture is that this kind of idea process is outside the core activities. It is easily thought that these parts are outside the comfort zone and that culture has to be changed. The culture is more important than all processes, but the other parts are needed as well.

Path dependency & dominant design. If needed production facilities are not available in Company B, their respondent said that either that it is bought or a company that possesses it is bought. Respondent 2 from Company G told that common development with varying intensity with customers and suppliers often are solutions for them.

Lacking distinctive competencies. Because of Company A's great technical focus, the business projects are meeting a tougher climate, which is why they often are taken care of in the greenhouse environment. Innovation networks, such as *Innovation pioneers* and *Innovation round table*, are said by respondent 1 from Company G to be great and necessary tools since it is hard to come up with everything on your own. It makes the road much shorter. Company C's central R&D department often have projects together with universities. The respondent from Company D told that if a knowledge gap is found in the company, the innovation management group is informed and workshops and studies are performed.

Learning trap. No information available from the interviews.

Lacking creativity. There is a mixture among the companies regarding how they perceived the creativity climate in their company. The respondent from Company J told that the culture in the company regarding trying out new things and daring to fail could be better. The respondent further expressed that caution has become a greater part of the culture in many companies, which might have to do with more and more signals from the top management, for example code of conducts. The company respondent also expressed that: “The safest way not to do something wrong is not to do much at all”. In the same company monetary rewards are given to the most promising ideas in three different categories each year. Idea givers that have not received a positive response on their idea are encouraged not to give up if they really believe in their idea. In Company B, failure is not received in the same way in all parts of the organization, which depends much on the management culture. They work on distinguishing between a failure in the traditional process and a more planned risk-taking leading to failure in the innovation process.

The respondent from Company D expressed that scapegoats are not looked for in the company. He/she thought that it could be due to that they have relatively much money invested in new development. That respondent also told the innovation management group has no fear of doing mistakes since there is not much money involved. Yet respondent 1, from company G, said that they are aware of the importance of a culture that allows for testing new things and fail since they know that it is important to dare and be brave. Therefore they talk about it a lot and have for example had an event in which it was discussed with help of voting pads and inspiration seminars. The seminars have been about thinking differently and new. Innovation days are hold by Company F to raise ideas and to build a creative climate. All employees are involved and the day has a strategic focus. The innovation day is said to be an effective way to make people understand, and to be a part of, the specified strategy. The same company uses lessons learned activities to open up for a tolerant climate that things do not always become successful. The company also recently launched a project with the purpose that all employees should put five percent of their time on doing something beyond the ordinary. This approached was past in time used by Company C that let one of the business unit’s R&D department have one day off from projects to do something new.

The culture in Company G is perceived as rather good for daring to test and fail, a failure could as well be a learning process. The climate is said to have been in the walls in many years and it probably comes from a management that is well-familiar in the work and problems that might arise, but also that takes a collective responsibility for risk-taking.

Lacking market sensing and foresight. The respondent from Company I touched upon the inhibitor market sensing and foresight. They gather information externally from different sources, such as market areas and business areas. They also try to identify areas that could be of interest for them.

Lacking mandatory infrastructure and follow-through. There are almost as many ways to handle infrastructure and follow-through as there are companies in the study. Most of them have a separate group or function that work with ideas that are of a more novel character, but not all groups have it as their only responsibility.

An example is a greenhouse environment in Company A that is created to give special care to projects that are expected to be harder to run. Company E uses *Radical Innovation Ventures (RIV)* for radical ideas. These ventures are run as virtual companies within the company. The *RIV* takes the responsibility of everything from technology to sales. They take the commercial responsibility, which

is seen as important to be able to put it back into the mainstream organization. The *RIV* consists of cross-functional teams and the company tries to separate it from the mainstream organization not to disturb it. Four out of ten further companies (Company B, Company G, Company H and Company I) work with ventures or virtual companies to some extent. The projects that Company G brings in the *Venture* unit are the ones that do not fit with the core activity or those that work over several business units. The *Venture* unit functions as a greenhouse and gives extra support to projects to get started. Much support from the top management is given to this unit. One of the companies that use virtual companies, Company H, lets them function as external ventures; the company can bring in as well as give away projects from the mainstream organization.

Company B has a sub-group that deals with the outside and beyond current business scope ideas that fulfill the criteria of being big and interesting for the company strategically and in long-term, and that cannot be handled within the existing business units. They also work with strengthening the overall innovation capability in the whole company.

The respondent from Company C told that their central R&D department coordinates the business units' R&D work by trying to reach as much synergies as possible. The same company also puts money in smaller companies that work with breakthrough ideas. They are looking at how they could continue benefit from external ideas even more since it is seen as an important way to start new projects. Company F uses a *Scouting program* that is a cross-functional project that scout, both internal and external, for new ideas and customer needs. That group performs pre-studies; several are running in parallel in the group. The *Scouting program* has its own location and that works like a mental marking, which is said to be very important. Employees are not working on the project on full-time, they put between 50-60 percent of their working time on it.

Many of the groups mentioned function as facilitators for innovation in their organization. They provide tools, workshops, training and support. *Open Innovation* and internal innovation are also used. Funding of PhD programs has also occurred.

8.3. Reflections on the External Perspectives

The external perspectives of the identified inhibitors for breakthrough innovation capability in SCA Hygiene have resulted in several good suggestions for how SCA Hygiene could reduce the level of presence of the inhibitors. The next coming chapter will discuss the suggestions together with relevant theory.

9. Discussion: SCA Hygiene's Capability for Implementing Breakthrough Innovation?

This chapter presents the discussion that aims to answer the research question. The structure of the discussion starts through pointing out the importance of a breakthrough innovation strategy and then goes deeper into how SCA Hygiene could manage the identified inhibitors for their breakthrough innovation capability.

This thesis has aimed at answering what factors SCA Hygiene business area could focus on to get a higher breakthrough innovation capability to improve their implementation of ideas with breakthrough innovation potential. The discussion is based on the findings from the interviews in SCA Hygiene, the external perspective interview study and the literature study. There are several different ways to see how SCA Hygiene can reduce the level of presence of the inhibitors. The solution would differ if the company in focus was changed.

9.1. The Need for a Clearly Stated Breakthrough Innovation Strategy

An interpretation from the work with this thesis has indicated the importance of a clearly stated breakthrough innovation strategy. It is essential that the strategy aims on developing the organization's breakthrough innovation capability. The main question that the business categories within SCA Hygiene have to decide upon is whether or not they should put effort on breakthrough innovation. Our interpretation is that this is something that some business categories want to do, first and foremost since SCA Hygiene initiated this thesis. There is also a feeling that the employees have a willingness to become better at implementing breakthrough innovation. However, it is not perceived as clearly stated in the organization's strategy that this is a focus. Some things found that reflect on it are that there are few persons in the organization that work with breakthrough innovation and that few persons are evaluated on metrics related to it. If it is decided that breakthrough innovation should be of focus it does not have to be the focus in all the business categories. The categories could work with breakthrough innovation to different degrees, as long as it is clearly stated to what degree. To summarize, a decision to focus on breakthrough innovation must be explicitly pronounced in the strategy. The mainstream organization is of course still of utmost importance but it needs to be distinct that there are two parallel objectives in the strategy; one exploiting and one exploring.

9.2. The Red-labeled Inhibitors as the Starting-point

Eight of the inhibitors were labeled red and consequently perceived as greatly affecting the breakthrough innovation capability in SCA Hygiene. These inhibitors are perceived as the most important to change to be able to become better at implementing potential breakthrough innovation and should therefore have the main focus. Perceived relations between the red-labeled inhibitors have been identified, as can be seen in figure 22 below. Some of the inhibitors mutually affect each other while some more or less have the potential to be a solution to another inhibitor. The arrows in figure 22 demonstrate our view of how the situation looks like and consequently how SCA Hygiene can start to improve their breakthrough innovation capability.

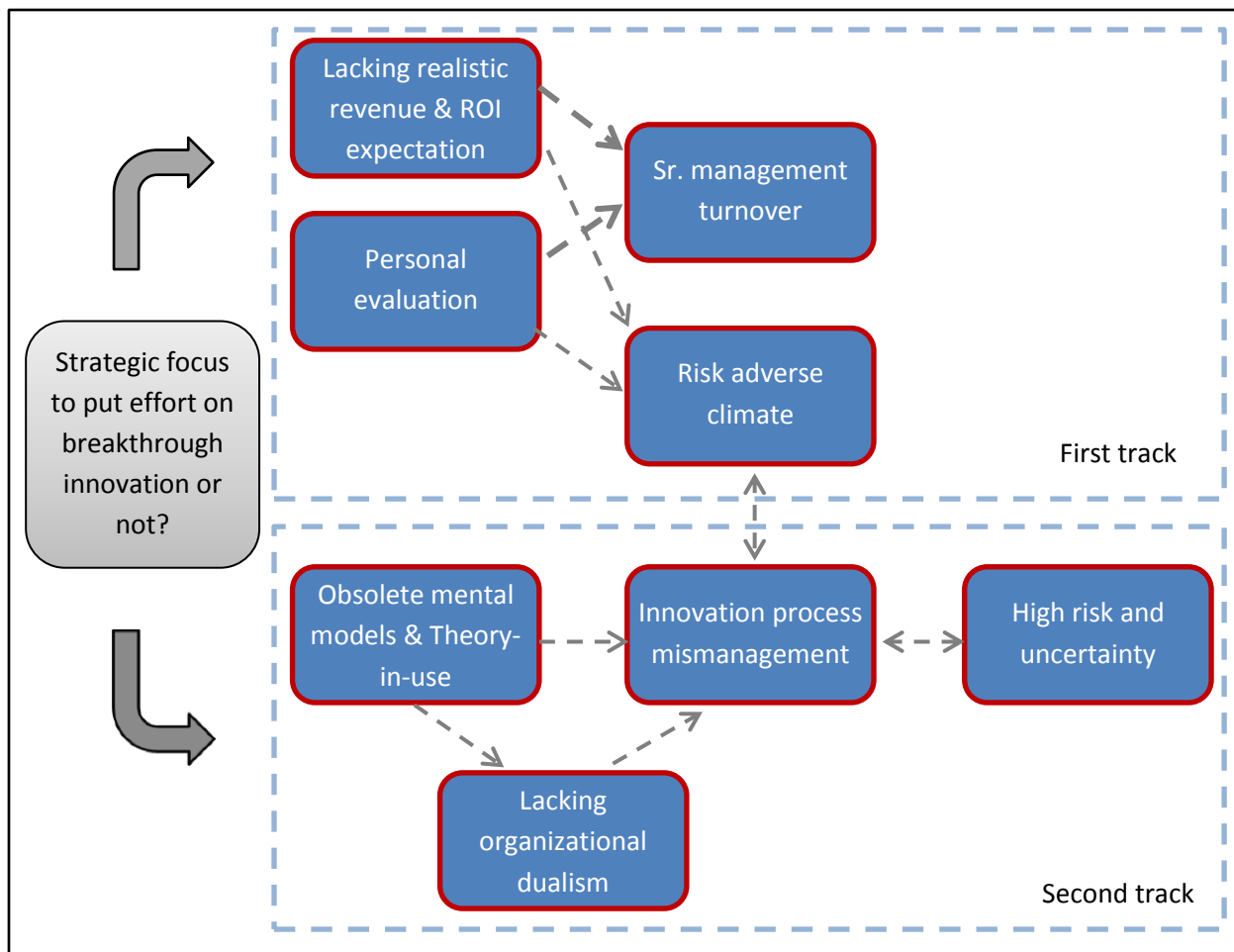


Figure 22. Relations between the red-labeled inhibitors
Source: Authors

When the red-labeled inhibitors were analyzed they were divided into two tracks. Furthest to the left in figure 22 above, and also first in time, is the question whether or not breakthrough innovation should be in focus. The discussion follows the supposition that it is the case. After the decision to put effort on breakthrough innovation is taken, the two tracks are natural starting points since they are perceived necessary to begin to improve as they impact the breakthrough innovation culture. Thereby they will have a positive impact on minimizing the presence of several of the other inhibitors. The tracks are not completely separated from each other since there are inhibitors that affect each other in-between them.

The first track starts with the inhibitors lacking realistic revenue & ROI expectation and personal evaluation. The first-named inhibitor is seen as rather straightforward to change and will have a great positive effect on other inhibitors. Through the decision to focus on breakthrough innovation there should be two separate strategies for incremental and breakthrough innovation. This will lead to different expectations and that projects and groups will have the suppositions that they ought to have. Both Morris (2011) and O'Connor (2008) emphasize the importance of appropriate metrics for innovative parts in the organization. O'Connor (2008) suggests activity- and performance-based metrics for high uncertainty projects. Company C uses a probability judgment of the success rate of innovation projects. However, the result is not determining whether or not a project should be run, instead it clarifies what expectations that could be set. This is perceived to be a sound approach as it does not impede any breakthrough innovation projects to be run, rather they are fairly evaluated. An

additional good evaluation approach, used by Company E, is that their group working with radical innovation is evaluated on a ROI-calculation based on their budget and the total gross-margin from products where their developed concepts are present and still has competitiveness. Their management team is satisfied as long as the sum is five times as big as the budget.

As discussed above, projects and groups working with potential breakthrough innovation projects have to have realistic expectations and be evaluated on metrics that inspire and allow for breakthrough innovation. The same goes for the employees that are working with breakthrough innovation. Today the personal evaluation for employees in SCA Hygiene is perceived to benefit short-term goals, which does not allow for breakthrough innovation. After a breakthrough innovation strategy is set it has to reach out to the whole organization. It does not matter how well-formulated the strategy is since people are rational actors who work to optimize their evaluation criteria (Phillips, 2012). Both Phillips (2012) and O'Connor (2008) highlight the importance that employees working with breakthrough innovation are evaluated on metrics related to it. This since it will make those employees more eager to do the work in breakthrough innovation projects better. The respondent from Company C said that how employees are evaluated impacts the prioritization of projects, which also is perceived to be the case in SCA Hygiene. It is believed to be important that a breakthrough innovation strategy decided by the top management is to be cascaded out in the organization. Managers at higher levels need to be evaluated on both short- and long-term goals. Furthermore, it is perceived that some employees need to be evaluated solely on long-term goals, which means that they only work with long-term innovation projects. Through introduction of a long-term thinking in the evaluation goals the employees will be given incentives to work with breakthrough innovation and a better breakthrough innovation culture will be created.

If the suggested improvements in the above-mentioned inhibitors are managed the presence of the inhibitor senior management turnover is consequently perceived to be reduced to a great extent. Therefore have the arrows in figure 22 above towards this inhibitor been marked with bolder lines. Through a clearly stated strategy and appropriate evaluation metrics for projects, groups and employees there will not be much room left for senior management turnover to affect the breakthrough innovation capability. By applying walk-the-talk to a greater extent it will further enhance the importance of breakthrough innovation and thereby reduce the influence that management turnover can have.

The inhibitor risk adverse climate is partly seen to be influenced by the inhibitors lacking realistic revenue & ROI expectation and personal evaluation. Breakthrough innovation projects, groups and employees have been evaluated on parameters that do not inspire, hence not allowing for breakthrough innovation. This has resulted in that the potential of breakthrough innovation projects might not have been seen to its full extent and that employees might have been afraid to prioritize and put effort on breakthrough innovation. It is believed that a balance between the focus in the exploiting side *play not to lose* and the exploring side *play to win* in the innovation strategy ought to be created as it would allow for a more risk-taking climate in the exploring *play to win* side in the project portfolio. Moreover, the risk-taking in the exploring *play to win* side should also be balanced through that "eggs are put in many baskets" as well as a separation between meaningful and meaningless risk. Many breakthrough innovation projects will not succeed and this has to be understood and expected as a natural consequence when working with them. A distribution of breakthrough innovation projects, based on different contents and time frames, is perceived to help

make the risk easier to handle. Morris (2011) emphasizes the importance of different options and time frames in the innovation project portfolio as well as the fact that some projects will fail. Likewise, O'Connor, et al. (2008) are emphasizing the importance of a well-balanced breakthrough innovation portfolio. This is in accordance with O'Connor (2008) that expresses that appropriate governance over both the portfolio and the specific projects within it is necessary. Company I has a group portfolio that aims for that more risky innovations are developed, something that SCA Hygiene could benefit from having. Our perception is that if a project fits with SCA Hygiene's strategy for breakthrough innovation it should be given effort. By exploring a potential breakthrough idea the procedure of working with it generates learning and can lead to something big in the end, even though the project might take a different direction. Furthermore, as O'Connor, et al. (2008) state, experimentation and learning during the *incubation* block in the DIAT process is essential as it reduces uncertainties. It is perceived that improvements in the inhibitor innovation process mismanagement will benefit a risk-taking climate thanks to a more clear structure to follow.

The second track of inhibitors starts with the inhibitor obsolete mental models & theory-in-use. Influencing the mental model among employees is perceived as a vital first step to change the understanding of breakthrough innovation. By applying the *Cynefin framework* employees might find it easier to explore new ways of working and hence take the right path for the concerned situation (Snowden, 2010). The mental model that employees possess affects several other factors, especially the culture. The culture in turn affects almost everything that happens in the organization. When the decision to focus on breakthrough innovation is explicitly pronounced the meaning of the breakthrough innovation definition has to be highlighted. The perception is that the employees know the breakthrough innovation definition to the extent of its words but that the mental model of a breakthrough innovation is strongly connected to product innovation. Therefore, it needs to be emphasized that the definition stands for all areas of innovation. Solely a decision to put effort on breakthrough innovation is not enough since unfortunately deciding and doing is not the same thing. Therefore walk-the-talk, as mentioned before, regarding putting effort on breakthrough innovation is an important factor that must be done to catch the outcome of the decision. By doing what is decided and emphasizing what breakthrough innovation stands for, the employees will understand why it is an important part of the organization's strategy. Company F has used innovation days with the chosen strategic focus for breakthrough innovation as a tool to inform the employees about the chosen strategic focus for breakthrough innovation as well as to make them understand it. This is perceived as a good way to influence and change the existing mental model. There is a lot of expertise within SCA Hygiene's organization that can be used to inspire employees on the chosen strategy for breakthrough innovation, through for example seminars and events during an innovation day. This is in line with what O'Connor (2008) says about the importance of that the organization's culture and leadership recognize the significance of the whole breakthrough innovation procedure, which can be shown through investments in the future health of the company and required competencies. The wide use of *Open Innovation* in SCA Hygiene is seen as a great way to challenge the existing mental model.

Due to existing mental models there are preconceptions regarding how things should be done. Commonly used procedures might result in that a parallel track for breakthrough innovation is not perceived to fit in the organization, which is why the inhibitor lacking organizational dualism is perceived as present. If the mental model regarding breakthrough innovation is changed successfully it will lead to more resources to experiment with breakthrough innovation. Resources are a

prerequisite for the breakthrough innovation procedure to be successful. However, it is important to remember that even though the breakthrough innovation procedure is well worked out, it will not have the possibility to be successful if not the resources and the way of thinking act together with it. O'Connor, et al. (2008) emphasize the use of corporate resources. A common budget pinpointed for internally generated breakthrough innovation is interpreted to be needed in SCA Hygiene as today it is perceived that ongoing work, of more incremental character, is prioritized over breakthrough innovation. This as the business categories does not have incentives to put effort on breakthrough innovation with their own budgets. However, it is important to be aware of that in some cases tight couplings between a breakthrough innovation project and the mainstream organization can generate benefits (O'Connor, 2008). It is also vital that breakthrough innovation activities are legitimized in the whole company (O'Connor, et al., 2008).

When the mental model is turned into being more breakthrough innovation friendly the employees will probably ask for a framework for breakthrough innovation projects. That framework already exists, but will then get the opportunity to become more well-known. The inhibitor lacking organizational dualism coheres much with a well-functioning infrastructure for breakthrough innovation, which will be discussed further on in this discussion chapter. Company C told about the importance of that a specified group working with breakthrough innovation should do things together with the categories as often as possible to facilitate the implementation of the project in the future. However, this is not in line with Tushman (2004) who instead points to that the ambidextrous organizational structure is best suited for breakthrough innovation projects. Our interpretation is that both opinions are valuable to consider and a suggestion is that employees from the involved category/categories are selected and allowed to put time on the breakthrough innovation project.

Both the inhibitors obsolete mental models & theory-in-use and lacking organizational dualism are perceived to have effects on the inhibitor innovation process mismanagement. The reason is that it does not matter how well-structured the breakthrough innovation procedure is if not the earlier steps are improved. Prerequisites such as an understanding of the importance, resources and a pinpointed budget for breakthrough innovation are seen as necessary. However, the prerequisites are not enough since the breakthrough innovation procedure must be well-structured as well. This can partly be done by making the framework for breakthrough innovation more user-friendly and clear. *PRIME* is today used for more or less all projects, which is perceived as impeding breakthrough innovation projects. O'Connor (2008) expresses that gating does not deliver any long-term competitive advantage. Company A uses a framework consisting of merely a few points that should be followed and no stage-gate model. This approach is perceived as a good way of working to give breakthrough innovation projects their needed flexibility. Furthermore, the development of breakthrough ideas ought to be given time to simultaneously experiment with technology, discovery, business concepts and business models (O'Connor, et al., 2008). The innovation tools used in SCA Hygiene need to be adapted to the organization and not the opposite, which is perceived to be the case today with *Ideum* and *Inventum*. If the innovation tools are appropriately framed breakthrough innovation projects will not be experienced to be squeezed in. The respondent from Company J told that innovation tools might not make them more innovative, but it helps to become faster in coming up with ideas, develop ideas and to get ideas to the market, which makes them more innovative.

The inhibitors innovation process mismanagement and risk adverse climate mutually affect each other. A well-functioning breakthrough innovation procedure is perceived to decrease the inhibitor risk adverse climate thanks to a clear structure to follow. In the opposite direction, a well-balanced project portfolio for breakthrough innovation will lead to that projects get the opportunity to be handled in a better way. Moreover, too many projects at the same time might lead to a lower capacity to handle the projects. Breakthrough innovation projects should be put in different baskets to spread the risk; a basket symbolizes here a sub-focus within the main strategic focus for breakthrough innovation. Within each sub-focus it is perceived that the focus should be on a manageable amount of projects to be able to handle the projects that are given effort. The person or group that takes the decision which projects that should be given effort must be familiar with the way of thoughts of the project to have the mandate to determine. Company B emphasizes the importance of strategic alignment and that the right persons are working in the project. It is perceived that the persons working in a breakthrough innovation project should possess a broad amount of knowledge and complement each other. This is something that O'Connor (2008) highlights, saying that teams should consist of broadly skilled and flexible employees.

The inhibitor high risk and uncertainty is affected and mutually affecting the inhibitor innovation process mismanagement. How well the breakthrough innovation procedure functions is perceived to influence how risks and uncertainties are handled in projects. If there is a good structure to handle these factors, they will not be perceived as problems to the same extent. However, the inhibitor high risk and uncertainty is affected by several other factors. As can be seen in figure 22 above, more or less all the other red-labeled inhibitors are forerunners. Since a decision to put effort on breakthrough innovation is assumed to be done, risks and uncertainties are perceived to be able to be handled in a better way. By working in small-scale and on developing a trial-and-error culture, risks and uncertainties will not be perceived as threats to the same extent. This was also expressed by the respondent from Company A that told if things are taken in small portions the perceived risk is reduced. This way of working correlates with SCA Hygiene's exploring *play to win* side in the innovation strategy. The risk should not be high in the beginning of a project since not much time and money ought to be invested. This makes it possible to explore breakthrough innovation ideas. However, it has to be understood that uncertainties are inevitable when working with breakthrough innovation. Leifer, et al. (2000) told about four groups of uncertainties; market, technical, organizational and resources, and he said that they are possible to reduce through appropriate innovation project management tools. Company I deals with risks through manage it on a portfolio level instead of on a project level. This is in line with a well-balanced breakthrough innovation portfolio, which has been discussed.

9.3. The Reduction of the Yellow-labeled Inhibitors

Even though the external perspective interview study focused on the red-labeled inhibitors, the yellow-labeled inhibitors were concerned to some extent. The ten yellow-labeled inhibitors, which are perceived as affecting the breakthrough innovation capability in SCA Hygiene, have been placed on a scale according to how straightforward or difficult they are perceived to be to change. This can also be seen in figure 23 below. The first-named inhibitors in figure 23 are seen as being more straightforward to reduce, while the last-mentioned inhibitors are seen as more difficult to reduce or as being a consequence of that SCA Hygiene is a large organization. The inhibitors placed further down in figure 23 needs to be kept aware of and be handled even though they are hard to do something about.

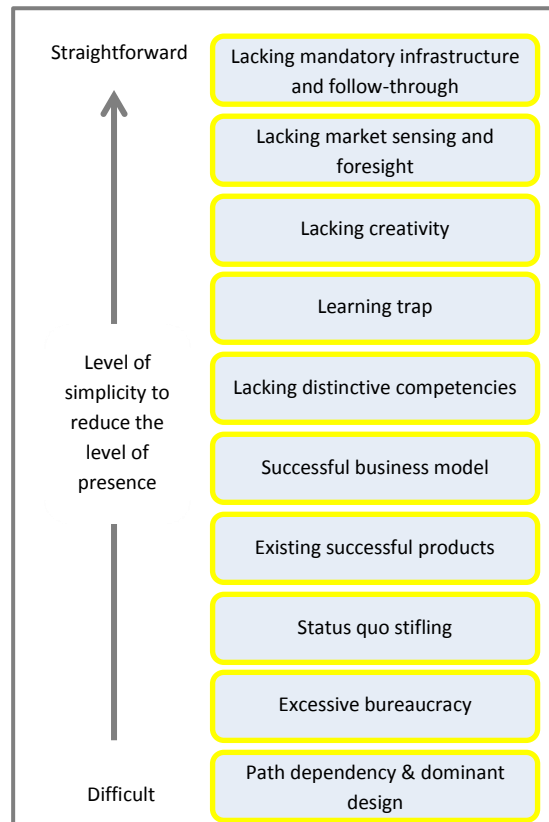


Figure 23. The perceived level of simplicity to reduce the level of presence of the yellow-labeled inhibitors
Source: Authors

The discussion below concerns the yellow-labeled inhibitors in the order of how straightforward the level of presence is perceived to be to reduce. Each inhibitor is discussed one by one and the structure is that:

- The concerned inhibitor is defined in the top left corner (the dark blue box).
- The reason of the inhibitors place on the scale in figure 23 is explained in the top right corner (the light blue box).
- The big box below the two boxes explained above, SCA Hygiene's main hinders related to the inhibitor is expressed in bold text. Under each bold text are good approaches by other companies, suggestions found from the literature study and/or reflections by the authors outlined.

Lacking mandatory infrastructure and follow-through	The perceived organizational desire for breakthrough innovation makes itself apparent due to the innovation initiative with the <i>Venture Group</i> , even though it has not provided any result hitherto. However, as it already exist several potential solutions the effort to minimize this inhibitor would not have to be great.
<ul style="list-style-type: none"> ▪ The ownership of breakthrough ideas is not clear. <ul style="list-style-type: none"> ○ Company E tries to solve this by having ventures run as virtual companies in the company. The ventures have the responsibility of everything from technology to commercialization. The ventures are tried to be separated from the mainstream organization not to be disturbed. ○ O'Connor (2008) states that clearly identified organizational structures are a key capability for breakthrough innovation. Moreover, through an identified team/entity in the company it allows for structures and clear reporting relationships, which is necessary for creating the discipline and creativity that need to be present (O'Connor, 2008). ▪ Sufficient financial muscles to develop breakthrough innovations are perceived as missing. This is mainly pointed out as there is a want to have more employees/groups that work merely with breakthrough innovation and that they are independent from the mainstream organization. <ul style="list-style-type: none"> ○ Many companies have the similar problem as many of them have separate groups/functions that work with breakthrough ideas, which do not have it as their only responsibility. ○ Company C tries to solve this problem by using external ideas even more as a way to start projects. The same company also puts money in smaller companies that work with breakthrough innovation. ○ According to Morris (2011) by improving the innovation work a virtuous cycle of innovation will start. This will lead to more resources, which can be used to further get better at innovation and to positively influence the innovation culture of thinking. The cycle must just get truly started. (Morris, 2011) ▪ The <i>Venture Group</i> should be independent from the mainstream organization and possess different competencies from the organization. External competencies can be used as a complemented. <ul style="list-style-type: none"> ○ Morris (2011) writes about the four key innovation elements <i>Open Innovation</i>, innovation & collaboration, the physical infrastructure and the virtual workplace that constitute a system. When they are combined successfully they can make a remarkable difference by supporting creative and innovative people as well as teams to achieve results much better and much more rapidly (Morris, 2011). ○ Breakthrough activities that report to the same top senior management as the mainstream organization but have their own processes, hierarchy and culture was found by Tushman (2004) to be considerably more successful than other organizational structures for breakthrough activities. SCA Hygiene ought to have the ambidextrous organizational structure which is not the case today. 	

Lacking market sensing and foresight	Market sensing should be quite trivial to improve as signals from the market is received, thus the problem is to take care of these properly. Market foresight is however not as trivial.
<ul style="list-style-type: none"> ▪ Signals from the marketing department must be seen as a benefit for finding new business opportunities and should be taken action upon early. <ul style="list-style-type: none"> ○ In the DIAT process's <i>discovery</i> block, O'Connor, et al. (2008) points out the importance to create and identify opportunities. The activities should be foundational knowledge in multiple domains and opportunity generation/articulation (O'Connor, et al., 2008). ▪ Must be better at influencing and changing consumers' behavior even though it is hard. Moreover, non-customers ought to be addressed more. <ul style="list-style-type: none"> ○ To be an innovator it is critical to foresee trends and to have the starting point of imaging the future and then invent it (Assink, 2006). 	

Lacking creativity	This inhibitor is difficult as it relates to the culture. However, there exist a couple of activities that are rather straightforward to implement and which together with correction of several red-labeled inhibitors can give a great positive effect on the breakthrough innovation capability.
<ul style="list-style-type: none"> ▪ Especially the risk adverse climate inhibitor impedes on the creativeness. If efforts are put on minimizing that inhibitor it will impinge positively on improving the creative climate. It is also critical to be aware of that the cost focus that is perceived to exist might have affected that the creative environment has lost some momentum. <ul style="list-style-type: none"> ○ Many companies perceive that their culture regarding trying new things and daring to fail can be improved. ○ Company F has recently launched a project in which all employees should put five percent of their time to do something beyond the ordinary. ▪ Innovation tools that encourage pushing generated ideas further are requested. <ul style="list-style-type: none"> ○ <i>ICON</i> has the possibility to be a great tool for employees to exchange knowledge. It is critical that this will be easy done in the system. Also, by doing the breakthrough innovation framework more accepted and user-friendly it will be a great guide for how to bring ideas further. ○ Creative solutions used by other companies are inspiration seminars about thinking new/differently, lessons learned activities and innovation days with the purpose to raise ideas and to build a creative climate. ▪ Needs to be better at seeing the benefit of mistakes and not classify it as failures. Ought to work more with customer development, which is iterative learning and discoveries, as illustrated in the breakthrough innovation framework. <ul style="list-style-type: none"> ○ In the <i>Innovation Master Plan Framework</i> the importance of iterative and interdependent stages is stated. Morris (2011) also points to the importance of discipline exploration, meaning that some projects will fail. (Morris, 2011) ○ In the DIAT process, O'Connor, et al. (2008) point to that the work in the <i>incubation</i> block is hard and demanding. Hence, teams working with potential breakthrough innovation need the right coaching, resources and connections. Especially in large companies is personal support of greatest importance as it is more common there that too many failures can be a threat of a person's career. (O'Connor, et al., 2008) ○ Company B works on distinguishing between a failure in the mainstream process and a more planned risk-taking leading to failure in the innovation process. 	

Learning trap	The tendency of keep on doing the same thing even in situation where it is no longer effective might exist as the "not invented here" syndrome and turf issues are present to some degree. These are two hard issues to deal with but the <i>Venture Group</i> has the possibility to not be affected if they are separated from the mainstream organization.
<ul style="list-style-type: none"> ▪ If work is put on minimizing the red-labeled inhibitor lacking organizational dualism it will impinge on the "not invented here" syndrome and turf issues so that those issues not will have the same negative influence on the breakthrough innovation capability. This since the current stable environment not will be preferred to the same extent as today. <ul style="list-style-type: none"> ○ O'Connor (2008) states that a separate organization for breakthrough innovation allows for development of competencies protected from the mainstream organization's routines and rules. 	

Lacking distinctive competencies	The <i>Spaghetti model's</i> TM three innovation enablers in the breakthrough innovation framework ought to have equal focus, today the business model enabler is found to be underestimated. It is rather complicated to adopt that thinking in the organization, which is the reason why this inhibitor is perceived to be hard and take time to minimize.
<ul style="list-style-type: none"> ▪ Efforts to reduce the presence of the red-labeled inhibitor obsolete mental models & theory-in-use will through changing employees' mindset have a great possibility to make sure that all three innovation enablers are considered. ▪ Employees need to get the competence about how to push generated ideas further. <ul style="list-style-type: none"> ○ This is much related to tasks in the blocks after the <i>discovery</i> block in the DIAT process, mainly the <i>incubation</i> block. O'Connor, et al. (2008) say that business laboratory is time consuming and very risky but gives the opportunity to simultaneously experiment with technology, discovery, business concepts and business models. Doing that will help lead to a new business model that brings breakthrough value to both the market and the company. (O'Connor, et al., 2008) ○ Part of the solution is to make the breakthrough innovation framework more user-friendly but also to inspire through providing success stories which are not technical focused. ○ To supplement the company's competencies other companies take advantage of innovation networks, projects with universities and workshops in the area where a knowledge gap is found. The work with <i>Open Innovation</i> in SCA Hygiene is great and can work as an "eye opener". 	

Successful business model	The presence of this inhibitor is hard to reduce as it is influenced by several red-labeled inhibitors as well as it has much to do with the culture. Cultural aspects often take long time to change and demand much effort.
<ul style="list-style-type: none"> ▪ The presence of this inhibitor depends mainly on the red-labeled inhibitors in the second track as well as the yellow-labeled inhibitor lacking distinctive competencies. <ul style="list-style-type: none"> ○ This is vital to put effort on as business model is one of the cornerstones in the <i>Spaghetti model</i>TM. However, the tender business model is hard to do something about. ○ Innovation could be seen as a change having two dimensions; what area of change it is and what type of novelty it holds (Tidd, et al., 2005). As Doblin (2012) explains it, innovation can occur in ten different areas in a company. This fact must be understood as focus today merely is on a few of the areas. This is a found problem among many of the other companies as well. ○ New sales and/or distribution channels is perceived different among the companies whether it is a problem or not. Some creative solutions for the problem are to find a partner, license or create a new company. ▪ The existing successful brands ought to be utilized when testing new business models as they provide a great benefit. <ul style="list-style-type: none"> ○ Company F sees the brand as strength and a resource that should be used even more for testing breakthrough ideas. However, it is essential that the new concepts are tested thorough before launch to ensure quality. ○ Company G has close relationship with some customers that are willing to test new things in the development phase. 	

Existing successful products	The product focus is great in SCA Hygiene. Both the tools and the mindset must be adjusted to not being locked into the product thinking. Hence, this inhibitor is hard and several other inhibitors must be minimized to reduce the degree of presence of this inhibitor.
<ul style="list-style-type: none"> ▪ The general way of thinking is on products. Several other inhibitors are problems much due to the focus on products. <ul style="list-style-type: none"> ○ Morris (2011) talks about that it is important to be aware of that culture is created through time and therefore reflects what has been done in history. That fact illustrates that changing the focus on products is not a one-time effort. Instead it must be reflected in all parts of the company and walk-the-talk must be followed. ▪ Evaluation procedures inhibit innovation that is not about products. Hence, if changes are done to reduce the reasons that make the inhibitor lacking realistic revenue & ROI expectation red, it will be a great first step also to have positive effects on this inhibitor. 	

Status quo stifling	Rules and procedures must be present as SCA Hygiene is a large organization but they are today obstacles for the work with breakthrough innovation projects. The present catch-up thinking is also a hinder.
<ul style="list-style-type: none"> ▪ Status quo stifling is due to rules and procedures complicated to deal with. The importance is not to remove these but to ensure that they suit the organization's needs. That is not the situation today as it is perceived that the organization adapt to the rules and procedures. <ul style="list-style-type: none"> ○ The <i>Cynefin framework</i> points to the fact that people are rooted in many different paths, which influence what you do and where you are, but you are not aware of it. By conforming to the <i>Cynefin framework</i> people can better sense which situation they are in and let the data precede the framework. (Snowden, 2010) ▪ This inhibitor is much influenced by how well communicated the focus on breakthrough innovation is in the organization. If that focus gets explicitly pronounced it ought to impact so that catch-up thinking is not perceived as a problem for breakthrough innovation projects. <ul style="list-style-type: none"> ○ Innovation projects require the right mindset and meaningful progress will only be reached when managers adopt the mindset that their organization must and will innovate, when their words and actions genuinely reflect that mindset and when they realize how to do it in action. (Morris, 2011) 	

Path dependency & dominant design	That the production facilities used is expensive to change is, in principle, impossible to change. That circumstance is the main reason making this inhibitor complex and difficult to do something about.
<ul style="list-style-type: none"> ▪ The possibility to do things by hand could be used more as well as to do things more in small-scale to adopt the iterative learning and development thinking. <ul style="list-style-type: none"> ○ Company G solves the problem if production facilities are needed through having common development, with varying intensity, with customers and suppliers. 	

Excessive bureaucracy	SCA Hygiene is a large organization and then bureaucracy is inevitable. Since it is fuzzy how breakthrough innovation projects should be managed that bureaucracy lead to inaccurate ways of decisions, which also are hard to have a bearing on.
<ul style="list-style-type: none"> ▪ If the breakthrough innovation framework becomes more explicit pronounced and user-friendly as well as that efforts are put on the red-labeled inhibitor innovation process mismanagement it will lead towards more clear directions that should have the possibility to minimize the negative aspects of bureaucracy for breakthrough innovation. <ul style="list-style-type: none"> ○ If <i>ICON</i> succeeds with the intent to be open, flat and without hierarchy it would be great for breakthrough innovation projects. ○ Company F expressed that the owners of a company are important for what is allowed further down in the organization, since it is those that create a short- or long-term thinking. 	

9.4. Reflections on the Discussion

Even though the discussion separates the red-labeled and the yellow-labeled inhibitors it is important to keep a system perspective in mind and remember that the inhibitors are interrelated. The presence of several yellow-labeled inhibitors will be reduced through the reduction of the red-labeled inhibitors, which the recommendation, chapter 10, goes further into.

10. Recommendations of what Factors SCA Hygiene Could Focus on to Improve the Breakthrough Innovation Capability

After exploring inhibitors for implementing potential breakthrough innovation in SCA Hygiene we recommend the organization to focus on the eight¹ red-labeled inhibitors that were identified greatly inhibiting the breakthrough innovation capability. These inhibitors ought to be given the main focus and be reduced as soon as possible. Perceived relations between the inhibitors have been identified by the authors and the recommendations are therefore not given toward one specific inhibitor; instead one recommendation benefits the reduction of several inhibitors. However, as the red-labeled inhibitors were divided into two tracks (see figure 22 in the discussion), the seven recommendations are implicitly following these. In our view, the most important recommendations for SCA Hygiene are:

1. **Decide and explicitly pronounce that breakthrough innovation is part of SCA Hygiene's innovation strategy**

A breakthrough innovation strategy is recommended to be decided by the top management and cascaded out in the organization. It needs to be distinct in that there are two separate strategies; one exploiting for innovation in the mainstream organization and one exploring for breakthrough innovation activities. Breakthrough innovation does not need to be of equal focus in all categories but it has to be clearly stated how much resources each category ought to put on it. Moreover, breakthrough innovation activities ought to also be done independently outside the business categories. A breakthrough innovation strategy will lead to that breakthrough innovation projects get the suppositions they ought to have.

2. **Back up what you decide by doing the actions in the breakthrough innovation strategy**

It is of greatest importance that walk-the-talk is applied to catch the outcome of breakthrough innovation initiatives. This will create a culture that accepts and values breakthrough innovation projects. By doing what is decided the employees will understand why it is an important part of the organization's innovation strategy. It is recommended to have a chosen strategic focus for breakthrough innovation and to inspire the employees within that focus to start their creativeness within the way of thinking around breakthrough innovation. Moreover, prerequisites such as an understanding of the importance, resources and a pinpointed budget for internally generated breakthrough innovation projects are necessary for a well-structured breakthrough innovation procedure.

3. **Influence the current perception that employees have about the meaning of breakthrough innovation**

Elucidate the definition of breakthrough innovation as it impinges the mindset and the attitude around everything related to breakthrough innovation. It is recommended to work on creating a more tolerant trial-and-error culture as well as to encourage breakthrough innovation creativity and learning through events, for example innovation days. However, influencing the perceptions require appropriate metrics for groups working with breakthrough innovation and proper evaluation criteria for the employees working with it.

¹ The eight inhibitors are; lacking organizational dualism, obsolete mental models & theory-in-use, high risk and uncertainty, risk adverse climate, lacking realistic revenue & ROI expectation, innovation process mismanagement, sr. management turnover and personal evaluation.

4. Establish appropriate metrics for groups that work with breakthrough innovation projects

Appropriate metrics, such as activity- and performance-based, is something that must be established at the same time as in trying to influence employees' mental models. This is a must to reduce the level of presence of several other inhibitors. Metrics are recommended to be used for the purpose of clarifying what expectations that could be set, not whether or not to run projects. Moreover, we suggest that groups working with breakthrough innovation ought to be evaluated on their historical innovations that still are competitive and not on a yearly basis.

5. Employees ought to be evaluated more on long-term goals

We suggest and have found that it is important that managers at higher levels and employees' that work in breakthrough innovation projects are evaluated on both short- and long-term goals. Persons work to optimize their evaluation criteria which indicate that it is essential to change some employees' evaluation criteria to make them more eager to do a better work in breakthrough innovation projects. Moreover, we recommend that some employees solely should be evaluated on long-term goals, which means that they should only work with long-term projects. It is also recommended that employees from the business categories can be selected and allowed to put time on breakthrough innovation projects. Through introduction of a long-term thinking in the evaluation goals a better breakthrough innovation culture will be created.

6. Construct a well-balanced risk-taking breakthrough innovation portfolio

As mentioned above, it is important to manage breakthrough innovation projects appropriately. At the same time, it is of greatest importance and hence recommended that a well-balanced breakthrough innovation portfolio is created. A distribution of breakthrough innovation projects, based on the area of project and its time frame, is suggested. This will spread the risks and make the total perceived risk reduced. By exploring projects within many different sub-focuses of the decided breakthrough innovation strategic focus or outside of it, essential learning will be acquired. It is believed to be critical and a must that the person or group that have the mandate to determine which projects to run is familiar with the way of thoughts of the specific project.

7. The breakthrough innovation tools must be adapted to the organization and be user-friendly

By explicitly pronounce that breakthrough innovation is part of SCA Hygiene's innovation strategy it is believed that the problem that employees are not aware of the breakthrough innovation framework will be managed, meaning that *PRIME* not is to be for breakthrough innovation projects. To improve the breakthrough innovation capability it is essential that innovation tools within the framework are adapted to the organization so that not any project gets wrongly excluded or directed in the wrong course. However, the framework is recommended to become somewhat more user-friendly. It is suggested that how to handle uncertainties should be added, for example could the *MTOR* model be a good tool for that. Moreover, more work in small-scales is also suggested to minimize uncertainties and risks.

Summary

The recommendations for SCA Hygiene on how the implementation of potential breakthrough innovation could be improved are:

- 1. Decide and explicitly pronounce that breakthrough innovation is part of SCA Hygiene's innovation strategy*
- 2. Back up what you decide by doing the actions in the breakthrough innovation strategy*
- 3. Influence the current perception that employees have about the meaning of breakthrough innovation*
- 4. Establish appropriate metrics for groups that work with breakthrough innovation projects*
- 5. Employees ought to be evaluated more on long-term goals*
- 6. Construct a well-balanced risk-taking breakthrough innovation portfolio*
- 7. The breakthrough innovation tools must be adapted to the organization and be user-friendly*

11. Conclusion

This thesis aimed at answering what factors SCA Hygiene could focus on to improve their implementation of ideas with breakthrough innovation potential. Breakthrough innovation has become more or less a necessity in today's fast changing business environment. Generating potential breakthrough innovation is not seen as difficult; rather the hard part is to implement them. The implementation procedure is also what SCA Hygiene has found challenging. There does not exist any universal solution to this challenge due to that it is influenced by many factors and hence becomes company specific.

A framework, by Assink (2006), of inhibitors for breakthrough innovation capability in large companies was found during the literature study. This framework was modified and thereafter used to identify possible inhibitors in SCA Hygiene. The inhibitors were labeled after their perceived presence in the organization, meaning how much they inhibit the breakthrough innovation capability. The inhibitors that received a red label were the ones that influenced in the most negative manner. They also became the focus areas in the external perspective interview study that was conducted afterwards. The external study showed that some of the inhibitors identified in SCA Hygiene also were perceived as inhibitors in several of the other companies interviewed. However, there were companies that did not perceive all the identified inhibitors as present and there were those that had a good way of working to minimize them, if they perceived them as present. The external perspectives together with the literature study provide important insights and suggestions on what could be done in SCA Hygiene to enhance the breakthrough innovation capability.

An important interpretation from analyzing this thesis's findings turned out to be that for SCA Hygiene to be better at implementing breakthrough innovation they first have to answer affirmative on if they would like to have a strategic focus to put effort on breakthrough innovation. An affirmative answer is of course not enough to create a better breakthrough innovation capability, even though it is vital, since deciding and doing is not the same thing. However, an honest affirmative answer is the basis of making it possible, to start doing, since it confirms to the whole organization that it is seen as important and thereby also will get the needed resources. The red-labeled inhibitors are suggested as the starting point to put efforts on to enhance the breakthrough innovation capability since they are greatly affecting each other as well as the yellow-labeled inhibitors. The red-labeled inhibitors were divided in two tracks, which should be improved in parallel. The first track starts with changing the employees' evaluation to a more long-term thinking, as well as to give projects and groups working with potential breakthrough innovation projects realistic expectations and evaluation metrics that inspires and allows for breakthrough innovation. The second track starts with changing the employees' mental models of breakthrough innovation.

This thesis has aimed at answering what factors that SCA Hygiene could focus on and the results are therefore adapted for their organization's challenges. However, the framework can easily be used for other organizations in their endeavor to create a better breakthrough innovation capability. Most likely could several of the recommendations be valuable for other companies as well.

12. List of References

Below is the list of academic references, web-sites and SCA Hygiene internal documents, material and interviews referred to in this thesis.

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13. Appendices

This chapter provides extra material for a more thorough understanding of the empirical material. Interview guides and summaries of data from the external interviews are presented.

Appendix A. Interview Guides

Two different interview guides have been used; one for the internal interviews in SCA Hygiene and one for the external interviews in other large companies.

i. Interview Questions used in the Case Study in SCA Hygiene

All interviews started with a short introduction of the interviewers as well as this thesis scope and work procedure. All interviews were held in Swedish and the interview guide was therefore developed and tested in Swedish. A translate has been made to English.

Introduction questions

The interviewee is informed that the person in question will be treated confidentially.

1. For how long have you worked in SCA Hygiene?
2. What position do you possess?
 - a. Have you possessed other positions before?
3. What are your daily work tasks?

Definition questions

We would like to start with some general questions regarding the definitions breakthrough and innovation to understand what meaning it has to you.

4. How would you define a breakthrough idea?
 - a. Do you have any example of such an idea?
5. How would you define a breakthrough innovation?
 - a. Do you have any example of such an innovation in SCA Hygiene?

Work procedure questions

There are several factors that create prerequisites for how an organization creates and takes care of ideas. We would like to go further into your experiences of how ideas are handled and the procedure around them in SCA Hygiene.

6. In your work tasks, are you encouraged to come up with new ideas?
 - a. How much of your time do you put on developing ideas?
7. How would you describe the way that a breakthrough idea can take in SCA Hygiene's organization?
 - a. Are there any key persons involved?
 - b. Are there any specific tools that should be used?
8. What are your experiences regarding the procedure you described above?
 - a. Have you sent in an idea through it?
 - i. If no:

- What has restrained you?
 - ii. If yes:
 - How long time did it take from the idea was sent in until you received an evaluation of it?
 - How did the procedure look like for your idea?
 - What was the result for your idea?
9. How would **you** proceed if you had a breakthrough idea?
- a. If the answer differs from the described way for a breakthrough idea:
 - i. Why?
10. How would a dream scenario from an idea handling process to a ready breakthrough innovation offer look to you?
- a. What would you like to change in your existing process?
 - b. What would you like to keep in your existing process?

Questions regarding adoption barrier

11. How do you perceive that the climate in SCA Hygiene encourage to think new and being creative?
12. How flexible are your work tasks?
- a. Do you have time to think of how to develop your ideas?
 - b. Are you controlled by rules?
13. How many of your ideas are developed from solely being a thought?
14. Do you perceive that existing successful products are prioritized over the development of new ones?
15. Do you perceive that existing successful business models are prioritized over the development of new ones?
16. Do you perceive that existing successful brands are prioritized over the development of new ones?

Questions regarding mindset barrier

17. How much do you perceive that, in your daily work, breakthrough innovation is discussed?
18. What parameters/criteria are you evaluated on in the position you possess?
19. How does the incitement for you to develop new ideas look?
20. What education are you offered?
- a. Are you educated in what it means to be an innovative company?

21. How willing do you perceive the organization to be to forget old things and learn new?
22. Do you always know the underlying purpose of the work you perform?

Questions regarding risk barrier

23. How do you perceive that SCA Hygiene put effort on breakthrough innovation projects?
24. How are the projects that you take part in evaluated?
 - a. Do the evaluation criteria differ depending on type of project?

Questions regarding nascent barrier

25. How are superiors encouraging you to develop a new idea?
26. How are superiors encouraging you to take risks?
27. How much of your work time do you put on understanding the market needs?
 - a. In what way is it done?
28. How do you perceive that the daily work is prioritized in comparison to development of new ideas?

Project specific questions

These questions were used during some of the interview, when a specific project was in focus.

29. Could you please describe the project?
 - a. Which are/were you work tasks in the project?
30. How would you classify the idea? (*Cost save, upgrade, new generation or breakthrough*)
31. From where did the idea come?
32. Which way in the organization has the idea taken during its development?
33. Who has been involved in the project?
 - a. Have there been any key persons?
34. How long time did it take from idea to commercialization/where you are today?
35. What has function well in the project?
36. What has function less well in the project?
37. How are good and less good learning from the project gathered up?
 - a. What learning from previous projects has been used?

38. Has the existing idea handling procedure in the company come in handy for the project?
 - a. If yes:
 - i. In what way?
 - b. If no:
 - i. In what way?
 - ii. How do you perceive that it could have been done differently to benefit the project?
 - c. How could the procedure in general (if you look to all breakthrough ideas) be changed to the better?
 - i. Are there any specific problems with it?
 - ii. Are there any specific benefits with it?

Wrap up questions

39. Is there anything special you can think of within the topic that we have not touched upon, which you perceive is important to keep in mind?
40. Do you have suggestions on persons that we should contact to get a deeper understanding of the topic?
41. If we have any complementing questions, is it okay that we keep in contact with you?

ii. Interview Questions used in the External Perspective Interview Study

All interviews started with a short introduction of the interviewers as well as the thesis scope and work procedure. All interviews were hold in Swedish and the interview template where therefore developed and tested in Swedish. A translation has been made to English.

Introduction questions

1. With the prerequisite that both you and the company are treated confidentially, do you permit us to use the information gathered during this interview in our thesis?
 - a. We will of course send you our notes for you to approve.
2. For how long have you worked at xxx?
3. What position do you possess at xxx today?
4. What are your work tasks?

Definition questions

5. There are several ways to define ideas with the character of being new to the market and thereby often new to the company. What have your company chosen to call these ideas?
 - a. *The stated definition below is introduced to the respondent as the one used in this interview to define the type of innovation that will be of focus:*

“Creating new-to-market product, service and/or business model families expected to fundamentally alter the growth of the business and to provide new platforms for growth”

6. Do you have any example of such an idea that you have launched?
 - a. If not,
 - i. Would you like that you had one?
 - ii. What is the reason that you do not have any?

Work procedure questions

7. Do you have a portfolio of innovation in which there is a decided distribution regarding the amount of innovation with different degrees of novelty? (*i.e. incremental vs. radical*)
 - a. How much effort is given to breakthrough innovation projects? (*Money, resources, etcetera.*)
 - b. Is there a pinpointed budget for breakthrough innovation that has to be used?
8. Do you have a strategic focus in which breakthrough ideas are wanted?
 - a. Do you work with research and insights to be able to create better conditions for the creation of *relevant* breakthrough ideas?
9. Is breakthrough innovation discussed and if so, how is it communicated in the organization?
 - a. Do you perceive that it leads to actions or is it most a willingness?
 - i. If it leads to actions, what do you perceive are the success factors?
 - ii. If it does not lead to actions, what do you perceive are the inhibitors?
10. How do you relate to uncertainties that always are related to breakthrough innovation projects?
 - a. How do you go about if a breakthrough innovation project involves new customer segments or new sales/distribution channels?
 - b. How do you go about if a breakthrough innovation project demands for production facilities that you do not have?
 - c. Which criteria are used to evaluate a breakthrough innovation project during its lifecycle/development?
11. How much do you perceive that your company puts effort on breakthrough innovation projects?
 - a. If good, which are the perceived underlying factors?
 - b. If less good, which are the perceived underlying factors?
12. What requirements concerning potential does the management have on breakthrough ideas before they give approval for a project to start? (*Parameters: Financial calculations, synergies, etcetera*)
13. Do you perceive that changes in management positions have affected how potential breakthrough innovation projects get reprioritize/shut down?
 - a. If yes, which are the perceived underlying factors?

- b. If no, how do you solve the transfer of ongoing projects that the earlier manager approved to the new manager?
14. Do you have any framework for breakthrough innovation projects and if so, how does it look?
- a. If yes, does it differ from a linear stage-gate model?
 - b. If no, what ways can a breakthrough idea take in your organization to be implemented?
 - c. Is it often a formal or informal way?
 - d. Are there any key persons involved?
 - i. Is there any person that takes part all the way from the beginning to commercialization?
15. How is the culture in your company regarding daring to test new things and to fail?
- a. If good, how do you perceive that you attained that climate?
 - b. If less good, what do you perceive that it depends on?
16. What evaluation criteria are employees evaluated on?
- a. Do the evaluation criteria motivate short- or long-term goals?
 - b. Do the evaluation criteria motivate projects with low or high risk?
17. Is your brand an inhibitor to test/launch potential breakthrough innovations?
- a. Do you use different brands to test new offerings?
18. How would a dream scenario from an idea handling process to a ready breakthrough innovation offer look to you?
- a. What would you like to change in your existing process?
 - b. What would you like to keep in your existing process?

Wrap up questions

19. Is there anything special you can think of within the topic that we have not touched upon, which you perceive is important to keep in mind?
20. Do you have suggestions on persons that we should contact to get a deeper understanding of the topic?
21. If we have any complementing questions, is it okay that we keep in contact with you?

Appendix B. External Interviews

The answers from the external respondents are presented in both a table and in a text below. The interviews have been translated to English.

i. Table

The answers from the external respondents have below been put under the inhibitor that they reflect. The inhibitor in focus can be seen on the top on each page and the color of the cell illustrates the perceived presence of the inhibitor in SCA Hygiene. Additionally, the companies dream scenario on how to better manage breakthrough ideas and innovation is presented.

Successful business model			
Company A	Company B	Company C	Company D
<p>The need of new distribution channels for an innovation is not seen as a problem. Alternative solutions are to find a partner, license, create a new company, receive a patent or set up a partnership.</p> <p>That the brand should be an inhibitor for radical innovation has been discussed, but it is not seen as a hinder.</p>	<p>The company is not much active in business innovation. They work continuously to increase the awareness of these areas of innovation by for example providing workshops.</p> <p>The brand is not seen as an inhibitor. The brand has recently been changed to become more innovation friendly and open up for more systematic innovation. The company use sub-brands to test their research, but are then strict to inform that it is not a finished solution. That opens up for more dynamic in the brand and a higher possibility of not being afraid of testing new things.</p>	<p>The brand can be seen both as an inhibitor and as strength to try ideas with high novelty and high commercial value. It is most often seen as strength. The inhibiting factor is that it puts some requirements on the products that can make it harder to think outside-the-box. The strength is that the brand gives a long-term guidance to not go into something that is not beneficial for the company.</p>	<p>The company's business model has been more or less the same over the years.</p> <p>The innovation discussion is mostly regarding new products.</p> <p>The brand is not seen as an inhibitor, but the company has to be sure that the product works as it should when being launched.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>If a radical or disruptive innovation involves a new customer segment or new sales or distribution channel it will be difficult. Then it is necessary to find the right people in the right place in the organization.</p> <p>The brand is not seen as an inhibitor in the company, even though it could be in some situations.</p>	<p>The brand is seen as a resource and could be used even more. The brand has the possibility to open doors.</p>	<p>The brand is not perceived as an inhibitor in the company since the top management is very interested in thinking big.</p>	<p>The company has brands that are very sensitive. New products must be tested enough in the project phase since it cannot be launch with bad quality. Systematically use of other brands to test new things is not a used approach in the company, but they have close relationships with some customers that are willing to test new things in the development phase.</p>
Company H	Company I	Company J	
<p>If a breakthrough idea involves new customer segments or distribution/sales channels it is a problem since that type of ideas would not become a project today. The idea with incubation is to early try out if this is a problem.</p>	<p>The brand is not perceived as a hinder to try out or launch breakthrough innovation.</p>	<p>It is perceived as hard to launch a new concept with old sales and market teams since it often is hard to convince them of the new concept's benefits, and to make them feel comfortable with it. It is also much harder to do things that involve new customer segments or new sales/distribution channels. It is easy to say that they should go for it, but in the actual situation it is harder. The company is now building their strategy from a technical base and hence they can avoid "the forbidden box" new technology and new customer. Instead, the company will have strength in the technical foundation. In order not to be locked-in in the technology base it is essential to continuously expand the technology platform.</p> <p>The brand is not perceived as an inhibitor for breakthrough innovation, it is rather the contrary.</p>	

Excessive bureaucracy			
Company A	Company B	Company C	Company D
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
	The owners of a company are important for what is allowed further down in the organization. It creates a short-term or long-term thinking.		
Company H	Company I	Company J	

Status quo stifling			
Company A	Company B	Company C	Company D
There is a lack of conviction regarding the need of radical innovation. However, there is a need and a wish for innovation and renewal in products and processes.			Innovation is discussed but not in a formal way.
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
	Innovation is discussed, much thanks to the <i>Scouting program</i> . They communicate through innovation days, the internal webpage, innovation awards (two times a year to good ideas that have been implemented) and presentations in different levels of the company.	<p>There is a big demand for "come up with ideas, we are very eager to grab them" in the company. It is a great wish to strive forward. Especially since the company just started the <i>Venture business</i> unit.</p> <p>The hard part with changing the culture is that this kind of idea process is outside the core activities. It is easily thought that these parts are outside the comfort zone and that culture has to be changed. The culture is more important than all processes, but the other parts are needed as well.</p>	The innovation initiative group started a year ago with a large workshop with the employees. The workshop focused on specific questions related to what the company was in need of and what they were not good enough at. Everyone in the organization had the possibility to express his or her thoughts.
Company H	Company I	Company J	
The CEO is of great importance, if the CEO says that they should not take any risk that will influence the risks that will be taken.		The exploratory program is sold in to the top management as if any important project needs more resources they can use the program's budget as a buffer, something that happens quite often. In the end, projects that lead to sales are prioritized over more long-term projects.	

Path dependency & dominant design			
Company A	Company B	Company C	Company D
	If an outside and beyond current business scope project needs production facilities that are not available it is not perceived as a problem. Either that production facility is bought in or a company that possesses it is bought.		
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
			If an idea demands production facilities that are not available in the company, common development with varying intensity with customers and suppliers are often solutions.
Company H	Company I	Company J	

Lacking distinctive competencies			
Company A	Company B	Company C	Company D
The company has had a great technical focus and the business projects have therefore met a tougher climate, which is why they often are taken care of in the greenhouse environment.		The central R&D department often runs projects together with universities.	If a knowledge gap is found, the innovation management group is informed and workshops and studies are performed.
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
		Innovation network, such as <i>Innovation pioneers</i> and <i>Innovation round table</i> , are great and necessary tools since it is hard to come up with everything on your own; it makes the road much shorter.	
Company H	Company I	Company J	

Lacking creativity			
Company A	Company B	Company C	Company D
	<p>A failure is not received in the same way in different parts of the organization, which depends much on the management culture. They work on distinguishing between a failure in the traditional process and a more planned risk-taking leading to failure in the innovation process.</p>	<p>Past in time, one of the business unit's R&D department had one day off from projects to do something new, but this is not practiced today.</p>	<p>Scapegoats are not looked for, which could have to do with that there is relatively much money invested in new development.</p> <p>The culture is good, and there is at least no fear in the innovation management group of doing mistakes since there is not much money involved.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>The top management is not opposing innovation, but they are not running around asking for it either.</p> <p>There are more and more metrics that evaluate how fast new products are received. However, it is certainly easier to drive something that pull down costs than something that add customer value. It becomes a more immediate impact than if they would sell a new customer value.</p>	<p>The company has innovation days to raise ideas and to build a creative climate. The purpose of the <i>Scouting program</i> has been to involve all employees and to launch the cross-functional thinking that will characterize the program. These days have had a strategic focus and have therefore been an effective way to make people understand, and be a part of, the specified strategy.</p> <p>The culture regarding testing new things is good. In January this year (2012) a project started with the purpose that all employees should put five percent of their time to do something beyond the ordinary. In this case they are open with what innovation and creativity means.</p> <p>Failing is a tough thing. The company has lessons learned activities that open up for a tolerant climate that things do not always become successful. Few people think that it is fun to fail and thereby they might be afraid of it, but they are not afraid of it because they will be punished for it.</p>	<p>The company is aware of the importance of a culture that allows for testing new things and failures since they know that it is important to dare and be brave. They talk a lot about it in the company so that they can become better at it. A year ago was an event held in the business unit where these questions were discussed. Voting pads were used to receive an immediate response from the employees.</p> <p>To get the requested culture, inspiration seminars about thinking differently and thinking new are also held.</p>	<p>The culture in the company is perceived as rather good for daring to test and fail, a failure could as well be a learning process. This cultural aspect was one question that was present during the workshop with the whole organization. This climate has been in the walls in many years. It is said to probably come from a management that is well familiar in the work and problems that might arise but also that takes a collective responsibility for risk-taking.</p>
Company H	Company I	Company J	
	<p>Regarding the culture of daring to fail, the company respondent think that the company has more to learn, as they have not reached the maturity that a failure is celebrated; this is not due to lack of encouragement from top management, but probably due to inertia in the changing company culture.</p>	<p>The culture in the company regarding trying new things and daring to fail could be better. Caution has become a greater part of the culture in many companies, which might have to do with more and more signals from the top management, for example code of conducts. The company respondent expressed that: "The safest way not to do something wrong is not to do much at all". The company sees a failure much more as something positive today than what they have done historically. All development is an investment.</p> <p>The company rewards the most promising ideas in three different categories with 2000 Euro each per year.</p> <p>Idea givers that have not received a positive response are encouraged not to give up if they really believe in their idea.</p>	

Lacking market sensing and foresight			
Company A	Company B	Company C	Company D
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
Company H	Company I	Company J	
	Information is gathered externally from different sources as well as internally, such as from business units and specific market segments. The company tries to identify areas that could be of interest for them.		

Lacking mandatory infrastructure and follow-through			
Company A	Company B	Company C	Company D
<p>To be able to give special care to projects that are expected to be harder to run a greenhouse environment has been created.</p>	<p>The outside and beyond current business scope ideas are taken care of by a sub-group to the group function for strategic work. They work with ideas that fulfill the criteria of being big and interesting for the company strategically and in long-term and that cannot be handled within the existing business units. They also work with strengthening the overall innovation capability in the whole company.</p> <p>Other options to work with outside and beyond current business scope ideas are to let them grow in a separate area of work or in a spin-off.</p>	<p>A central R&D department is present that coordinates the business units' R&D work and tries to reach as much synergies as possible. The business units' R&D managers do not report to the central unit. The project leader for these projects is often from the central R&D department that reports to the central R&D manager.</p> <p>The company puts money in smaller companies that work with breakthrough ideas. They are looking at how they could continue benefit from external ideas even more since it is seen as an important way to start new projects.</p>	<p>The company has an innovation management group that is responsible for idea management, facilitating, workshops and creative training for the whole company. After an idea has get accepted to become a project the innovation management group no longer has the responsibility for the project.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>It is crucial for the company that product development delivers on time. Hence, they have a step before called concept management that has the responsibility to prepare with initial tests as well as reducing risks. The last six months has the concept management group been more concentrated on radical projects. The management for concept consists of four persons with different backgrounds that have a common responsibility for the portfolio.</p> <p>The company also uses <i>Radical Innovation Ventures (RIV)</i> for radical ideas. These ventures are run separately from how they normally do concept development, which is as a virtual company in the company. <i>RIV</i> takes the responsibility of everything from technology to sales. They take the commercial responsibility, which is important to be able to put it back into the mainstream organization. <i>RIV</i> consists of cross-functional teams. The company tries to separate <i>RIV</i> from the mainstream organization not to disturb it.</p>	<p>The company has used a <i>Scouting program</i> during two years. It is a cross-functional project that is scouting, both internal and external, for new ideas and customer needs. The program started with an extensive identification of customer needs that they have continued to work on. Today, a mixture of 25 persons is involved in the scouting group, but the number depends on the need. The persons are not on the project on full-time, they put between 50-60 percent of their working time on it. All participants think this is fun and support it but they get heavily loaded. The group performs pre-studies; several are running in parallel in the group. The group has their own location that works like a mental marking, which is very important.</p>	<p>The company has an innovation group that is staffed with employees from respective department as the group is supposed to represent the whole business unit. The innovation group works very open with what they do to be able to receive feedback and to have a dialogue. They want to function as a tool so that everyone can be innovative. The innovation group gains great support from the top management.</p> <p>The company has a new business unit called venture that deals with things that does not fit with the core activity or those that work over several business units. The <i>Venture</i> unit will function as a greenhouse and give extra support to projects to get started. Much support from the top management is given to this unit.</p>	<p>The company has an innovation initiative group for one part of the R&D department. The project group work cross-functional with the initiative.</p>
Company H	Company I	Company J	
<p>The company, as an external venture, can bring in as well as give away projects from the mainstream organization.</p> <p>The company has used virtual companies in two cases. They have consisted of one CEO, one business developer, one technician, one designer as well as one board group and one advice group. In one of the two projects, the CEO was hired from another external company.</p> <p><i>Open Innovation</i> is used a lot and they are not limited to the corporate organization.</p>	<p>The company has a group that is responsible for innovation management within one of the business units. They work with all kinds of innovation and create tools that can handle the questions.</p> <p>It exist a venture unit within the company in which ideas are bought in as a complement to their other ways of working.</p>	<p>The company has a scouting group that looks at potential external technologies to buy. The company also has a group that takes decision about ideas that comes globally.</p> <p>One part of the R&D department is called <i>New Business Opportunities</i> and that part focuses on things that the company does not have a business in or processes for today.</p> <p>The company has exploratory programs within some important large areas, which means that they try to create new things in other ways than what they previously have done. This program gives opportunities to finance PhD projects as well as the opportunity to do things without asking for permission all the time. If you have to ask for permission all the time you are strangling the innovation climate.</p> <p>They use internal <i>Open Innovation</i> to take care of existing knowledge.</p>	

Lacking organizational dualism			
Company A	Company B	Company C	Company D
<p>The company has a preempt budget for innovation projects, but it is not specified how much that should go to incremental versus radical innovation. The company would like to have a strategic goal regarding that proportion. The budget is not always enough and collaboration with other functions is necessary to get an additional amount of money.</p>	<p>The sub-group for outside and beyond current business scope ideas have limited resources and borrow resources from other parts in the company to staff projects.</p>	<p>The central R&D department functions as a facilitator for new development in the business units. Development should be decentralized in the business units since they have the closest relationship with the customers. However, the business units often have a short-term thinking that does not give time or incentives for breakthrough innovation.</p> <p>All types of projects are carried out within one of the business units if it is possible as it is most optimal since it will make the rootedness and transfer more easily managed later. If a business unit has not been taking part in a project, the implementation is harder to conduct and it demands engagement to widen the scope of the business unit in question.</p> <p>Innovation of a breakthrough nature have a preempt budget of around one per mille of the turnover, and ten percent of the R&D budget. There are cases in which that budget has been used for incremental projects as well.</p> <p>It is hard to combine efficiency and earning with a more relaxed approach.</p>	<p>The product development budget is specified to give 50 percent to improvements and 50 percent to new products.</p> <p>The company is better at improving existing ideas making them better and cheaper than doing something completely new. Breakthrough ideas are present but they are not prioritized over other things that need to be done.</p> <p>They are struggling to get money that is earmarked for more breakthrough innovation, since it is dangerous to be satisfied with what you have.</p> <p>The discussion is whether or not breakthrough innovation is needed for the company.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>In the budget for concept development ten percent is pinpointed to RIV.</p> <p>Many of the radical or disruptive innovation projects are driven by employees that put on the “company-hat” and drive projects even though it has not to do with their tasks. The reason that they do it is often due to their personality and the potential gains they can get from it, not that they are evaluated on it.</p> <p>The concept development group has a part of the R&D budget and they have trust to deliver.</p> <p>Every time a radical or disruptive innovation occurs it demands for an effort of the organization.</p>	<p>The <i>Scouting program</i> is a new activity and they are experiencing positive reactions from the organization. The company is willing to take the road from cost-estimates. The hard part with new activities is that the answer is unknown but also that it demands much energy from the organization.</p> <p>The <i>Scouting program</i> responsible has a budget but no resources for the scouting. This budget is small in relation to the development budget. They work much on their own will, which is not sustainable in the long run.</p>	<p>The company respondent has not heard of a separate budget for breakthrough innovation, but if it is a sufficiently good idea with the right potential money is not a problem.</p>	

Lacking organizational dualism		
Company H	Company I	Company J
<p>The company, as an external venture, is allocated a budget that is supposed to grow.</p>		<p>R&D is divided in product range or in market areas/needs. The development of products is the biggest but making processes more effective is also a great part. The different parts of the R&D have its own budget that the management team is very free to use like they want to.</p> <p>The R&D department's part <i>New Business Opportunities</i> has nearly ten percent of the development activities budget.</p> <p>The idea system or the sponsor does not have any budget. It is up to the sponsor's experience and power in the organization if a budget will be allocated.</p> <p>Money for ideas/projects is applied for from the different business categories, often without problem if it is smaller amounts.</p>

Obsolete mental models & Theory-in-use

Company A	Company B	Company C	Company D
<p>The definition radical is used to highlight the fact that innovation with high novelty might meet internal difficulties and to pinpoint that they might need special care.</p>	<p>The definition outside and beyond current business scope is used to describe innovation with high novelty. This could mean that it is disruptive for the organization and/or the market.</p>	<p>No common definition for innovation with a high degree of novelty exists. Instead they talk about high novelty and high commercial value. To be called a breakthrough innovation the company respondent has the opinion that it should be nearest patentable and have revenues above 50 million.</p>	<p>Do not have a company common terminology for innovation that are new for the market and thereby often new for the organization. It depends on what book that have been read the week before.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>Do not have a pronounced vocabulary regarding how to define innovation of different levels of novelty. The term differs within the company. Incremental, radical (could be a known customer value but a big step for the company) and disruptive (change the rules on the market and raise new values) are used to some extent.</p> <p>Innovative product and services that could generate a premium are asked for, but it differs in their different market segments. There is almost always a technology or product part involved when discussing innovation, the aftermarket is also discussed. If the idea only involves how a product is taken to the market the concept management group is not involved. The business units then handle it.</p> <p>Radical innovation is not regularly discussed in the organization, except from in the concept management group since it is a part of their activities.</p>	<p>Definitions such as disruptive and breakthrough innovation is used, but there is no common defined company vocabulary.</p>	<p>No generic definition for innovation with high novelty is being used. The group that works with innovations uses the terms incremental and radical innovation.</p>	<p>Do not have a common terminology for ideas with high novelty.</p> <p>Since they do not have a definition of what a breakthrough innovation is the company respondent does not feel that he/she know if the focus is on breakthrough projects.</p>
Company H	Company I	Company J	
<p>No common definition for ideas with high novelty is used. However, terms used are for example new business creation, radical and breakthrough.</p> <p>The word pioneering is used instead of the word innovation when they talk about products that can make the company a market leader. The reason is that the word innovation has become hackneyed.</p>	<p>No common definition for ideas with high novelty is used. They classify activities in quadrants with the axis "new for the market" and "new for the company".</p> <p>There is a group portfolio in which more risky product and process innovations are developed. The funding of this portfolio is either absorbed by the group or shared between the group and one or more business units depending on the purpose of the project (advanced renewal of existing business offering or totally new offering (c.f. classification above).</p>	<p>Do not have a common definition of innovations with a high degree of novelty. The term being used has much to do with the current trend in the company. The term radical is sometimes used but more often are the terms faster, bigger or bolder used. Radical is perceived to aim more towards questioning and to deal with different concepts than the "normal".</p>	

High risk and uncertainty			
Company A	Company B	Company C	Company D
<p>The knowledge of the organization is that if you take things in small portions so that the perceived risk is reduced, then you can make a lot of things. But if you say that something will cost for example 2 million it will be a too big deal. To take things in small portions is a strategic way to get around the perceived risk.</p>	<p>There is said to be a skepticism regarding the uncertainties that are related to projects with a high degree of novelty. Later in the project, the hard part is to reach momentum for the project to grow in such a way that it is accepted in the organization as it primarily should be a part of it in the future.</p> <p>Uncertainties are an inhibitor for the company but it is also something that they know is necessary when you run a business like theirs.</p>		<p>Projects with high uncertainties are sold in as high-risk projects with the possibility of a high reward.</p> <p>The managers can accept a higher risk in the beginning but later it comes a point when they need to know if it will work or not. There is a risk that breakthrough innovation projects are not invested in.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>The top management talks about innovation and that they would like to have them faster, but they do not dare to say how much they would like to have.</p> <p>In R/V projects there are tight couplings with the critical factors. That makes the risk lower since no money is invested in production facilities. They try to learn as early as possible to be able to change the direction as early as possible if needed.</p>		<p>The respondent expressed that radical projects need more push since the risk-taking is higher.</p>	<p>The company respondent does not know if they have a general way to handle the uncertainties that often is related to projects with high novelty. Criteria that are used in competence projects are difficult as the work is very free and not that goal-oriented. In competence projects, they probably work with more criteria at the same time and catch opportunities rather than decide in advance what will be reached. Since different projects aim for different things the top management request is changed depending on the nature of the project. The situation decides how the work will be preceded since there are many different ways of working within the company.</p>
Company H	Company I	Company J	
<p>Too much money in the beginning when working with breakthrough ideas is by the company respondent perceived as having a negative side as more money leads to higher expectations. Instead, it could be better to build it in levels since breakthrough innovation have big risks.</p> <p>There is no universal solution to take care of uncertainties regarding breakthrough projects in the company.</p>	<p>They are trying to handle the risk on a portfolio level. That may have hindered some cases, but they try to look at the portfolio instead of at specific cases.</p>	<p>Regarding uncertainties related to breakthrough innovation it is important in the company to have a feeling for cost efficiency and the value that is created.</p>	

Risk adverse climate			
Company A	Company B	Company C	Company D
	<p>One hard part is to reach the internal anchoring to take the first step.</p> <p>Do not have a pronounced goal regarding how the proportion of innovation with different level of novelty should be, but indirectly it is managed to keep the proportion on an adequate level.</p>	<p>There is a fear of failing and taking responsibility in the company, especially in times of tight resource-economic, which does not leave time to try other things than what you already are doing.</p>	<p>It is hard to compete with breakthrough ideas since the risk is high and it is hard to put a number on the case. This is perceived as having to do with the culture, today no one is willing to take the risk. New technologies are easier to get acceptance for since the top management can see the need for them in a longer term.</p> <p>Accept from what is breakthrough or not, the culture is said to be entrepreneurial and with a long-term thinking. They have dared to start projects worth millions that have been closed down.</p> <p>There is a classification on how much that should result in improvements and how much that should result in new products. New products are divided into products that are based on old products as well as products that push the limit and are not connected to what has been done before.</p> <p>Some ideas with a high degree of novelty are selected to develop a business case for and then presented to the top management to get approval. It is perceived as tough to get approval for ideas with a high degree of novelty since these projects have to fight against other projects and limited resources.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>The fact that <i>RIV</i> gets a confirmed customer value and a paying customer makes it easier for the management to accept projects. It is easier in concept development projects to set goals since they know quite well what they are looking for, but in <i>RIV</i> it is much harder and it has to be expected that the goals change.</p> <p>The company has one good example of a virtual company that was successful. In this case it was probably thanks to a “burning platform” that had to be replaced, and it was not hard for the management to realize the benefits.</p> <p>A radical or disruptive project takes between seven to ten years while other projects take between three to five years. The timeframe is expressed to the top management together with the fact that the more radical project generates more in the end.</p> <p>The company does not have an innovation portfolio where it is decided how the proportion of innovation with different level of novelty should look like. Earlier a decided number of one new concepts per year was set, but today they deliver between fifteen to twenty concepts per year (radical and disruptive).</p>	<p>In the choice between projects that are easier or more difficult both of them are chosen.</p>	<p>Regarding uncertainties related to breakthrough projects the chance taking is greater. It must be possible to see the potential. The top management wants to know what is new, what the benefit is and how doable it is. This is hard for radical ideas since the uncertainties are great.</p>	<p>The feeling is that there is a will to put effort on things that are new. This willingness comes all the way from the top management, which is very important for projects that stretch over business units.</p>

Risk adverse climate		
Company H	Company I	Company J
<p>The company respondent's perception is that the company lack courage and is controlled by risks. Additionally, the respondent does not believe that the company has come far enough in terms of betting on high-risk projects and said that: "It is not in the walls to put effort on these projects".</p>	<p>Reorganizations have probably led to that the company have cut more critically in projects that perhaps should have been left. The culture has become better but still there is more work to do. Since many operational activities have been cut off it is difficult for the management to speak for large risky innovations that goes beyond what they can handle today.</p> <p>The company does not have an innovation portfolio in which the distribution of innovation with different levels of novelty is determined. Instead, the company has an organizational classification in terms of responsibility.</p> <p>There is a group portfolio in which more risky product and process innovations are developed. Risk premium for driving various kinds of product or process innovation is present. What differ the portfolios from each other is the time to market of the projects they consists of.</p> <p>The company has some strategic platforms in which breakthrough innovation should be generated, but ideas are generated outside of these as well.</p>	<p>Breakthrough ideas demand much better arguments. The interest from the top management has been low but has increased since the company has decided to grow organically.</p> <p>An argument for taking on more risky projects that almost always works in the company is to say that what if our competitors do it and succeed? That makes the management more interested.</p> <p>The company does not have an innovation portfolio in which it is decided how the proportion of innovation with different levels of novelty should be. An ongoing discussion if they should have a more systematic portfolio is present.</p> <p>Past in time, the company had a strategic business focus in which breakthrough ideas were created. They are now trying to change that picture into thinking new and not be locked-in.</p>

Lacking realistic revenue & ROI expectations			
Company A	Company B	Company C	Company D
Incremental and radical projects are evaluated on different parameters. In the beginning of a radical project the evaluation almost solely focus on customer value. Later on, to the extent that it is possible, the business potential is tried to be quantified.	The outside and beyond current business scope ideas have to be of great potential in upcoming revenues.	The uncertainties related to projects are evaluated using parameters about novelty and commercial potential. The novelty evaluation is done by a research foundation and employees in the company with relevant knowledge perform the commercial potential evaluation. A probability judgment of the success rate is also conducted in three levels. The result does not determine whether or not to run the project, it is to clarify what expectations that could be set.	The evaluation of the ideas with a high degree of novelty is done with help from criteria that investigate the strategy alignment, how big the risks are and what could be done to reduce them. If it is possible to set a number on the case, the market department is used to estimate the sales numbers.
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>The company has discussed how the portfolio of concepts should be valued. In the end, gut feeling and the basis of discussions is what decide. A good team, with good backgrounds and attitude is hard to challenge.</p> <p>The concept development group is evaluated on a ROI-calculation that is based on the budget, which is nearly the same each year, and the gross margin from products where their concepts are present and still has competitiveness. The group can take advantage of the total gross margin from existing products, and if the sum is five times as big as their budget the management is satisfied with the group's performance. This evaluation gives the group more freedom and makes them evaluated on what they have done on beforehand. The group is living on the fact that someone in the top management thinks more than three years ahead.</p>	<p>How breakthrough innovation should be evaluated is not completely decided. Discussions regarding scorecards have been hold. After much discussion, a symbol symbolizing the gut feeling was being added in the evaluation for a couple of years ago. Strategic fit is also something that is included in the evaluation. The company respondent means that if that box is completed in the evaluation it is not a breakthrough idea per definition. The company has come to the conclusion that they need different scorecards depending on if it is a development, minor improvements or something totally new.</p> <p>If all pre-studies in the <i>Scouting program</i> fail, the company respondent is not sure if their group will remain.</p>	The top management wants to know what is new, what the benefit is and how doable it is.	
Company H	Company I	Company J	
The <i>MTOR</i> model for uncertainties is used to evaluate breakthrough innovation projects during their lifecycle. The model both has benefits and drawbacks but the top management requires that the model is used for evaluation of breakthrough innovation projects.	The company tries to quantify the risk but still has much more to learn within that area.	Regarding uncertainties related to breakthrough innovation it is important not to calculate too much as in the beginning many things look expensive but by looking forward into the bigger volumes and application possibilities that picture might look more attractive.	

Sr. management turnover			
Company A	Company B	Company C	Company D
	Changes in management positions affect a lot and there is a risk that projects might need to start over from step one. The analytical and technical aspects are not as complex in comparison.	Personal influence is identified as having a great impact regarding how projects are prioritized.	Changes in management positions have not been perceived to have an effect on the prioritization of breakthrough projects.
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
Changes in management positions are said to have a great risk in affecting the prioritization of radical projects. There is always a human factor involved.	Senior management turnovers have influenced how breakthrough innovation is prioritized both positively and negatively. The prioritizing has much to do with the persons but also the company's strategy for the upcoming years.	Changes in senior management positions are believed to have an impact on the prioritization of breakthrough projects. But as it is a group that takes the decision the impact of the change of one person is probably small.	
Company H	Company I	Company J	
Senior management turnover is said to have an impact on the prioritization of breakthrough innovation since it is much up to the person, and to have a champion.	Changes in senior management positions are not perceived as affecting prioritizations of breakthrough innovation. However, reprioritizations, like changes in amount of employees, have affected prioritizations of breakthrough innovation.	Senior management turnovers result in that project might be re-revised, which could be both good and bad.	

Innovation process mismanagement

Company A	Company B	Company C	Company D
<p>The projects that most often come into the greenhouse environment are radical, cross-functional, or have business focus. These projects often end up in the greenhouse environment due to the hurdles of being developed within the mainstream organization.</p> <p>There are two channels for ideas to enter the greenhouse environment. The first is through all kinds of idea generation and the second is when a function cannot handle an idea on its own and instead sends it to the greenhouse.</p> <p>For each idea an idea team is established to develop the idea. The persons in the team are from different functions and parts in the organization, and are almost never in the team on fulltime. They are often experts or very creative persons.</p> <p>No complex framework for radical innovation is used. Some points that should be followed when working with radical projects are created since the employees have asked for it. No stage-gate model is used for radical innovation.</p>	<p>One important aspect with projects that are outside and beyond current business scope is the ability to find personal connections in the organization to reach support for the project. The internal strategic work, including for example which persons that should be involved and if it fits with the strategy, is often most important.</p> <p>Does not use a specific framework for ideas with a high degree of novelty. Instead they are flexible and adjust depending on the opportunity. The projects starting-point is from a stage-gate model with phases and points of decision that they adjust to the opportunity.</p>	<p>The central R&D's projects are divided into six strategic focuses. These focuses are chosen due to their importance in the future and hence breakthrough innovation is requested in those. All projects are classified in a nine grid square. The axis shows the level of novelty and the level of commercial value. The top right corner is the square with highest novelty and commercial value. The company would like to have 15-20 percent of their projects in that square.</p> <p>As long as the central R&D department handles a project it does not go into a stage-gate model. In this stage a relatively low amount of money is involved, and the project follows reporting points decided when it was evaluated. The central R&D has a longer time frame than the business units, around three years instead of around nine months. When the central department hands over the project to one of the business units much more money becomes involved and therefore more structure, the project then also enters a stage-gate model.</p> <p>There is often someone, "a mother", which is interested in the project and speaks for it. This person plays an important role and is often someone from the central R&D unit.</p>	<p>The innovation management group screens ideas that are gathered from the market, competitor understanding, consumer understanding, global trends, scenarios, road maps, etcetera.</p> <p>The company has a strategic scope of business in which breakthrough ideas are welcomed.</p> <p>For a project to get prioritized the management needs to see the benefits and the available resources. The hard part is before this, since there are not enough resources to evaluate all ideas. That leads to that some ideas never get the chance. The company has no dedicated group that work solely with non-prioritized ideas. It is the innovation management group that prioritizes ideas in the first step. Some ideas that have been evaluated and are crazier can be put on the product list pending to become a project. You need to be patient and push for your idea.</p> <p>No specific framework is used for breakthrough projects. They use the stage-gate model but have different gates depending on the project. The innovation management group does not have a strict process.</p>

Innovation process mismanagement			
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>The hard part dealing with disruptive innovation is said to be to find the internal force regarding who should manage the project.</p> <p>There is no distinct strategic focus in which radical ideas are asked for.</p> <p>Innovation is communicated in the organization in different ways but partly through the permanent contact with product managers. It is also communicated through two 30-minutes presentations per year for the top management. These ideas are often radical or disruptive since it is that kind of ideas that they would like to give attention to. Additionally, after the presentation for the top management, 25-30 other concepts are presented to the business units. The purpose of that presentation is to start a dialogue on what is happening and to get their input.</p> <p>In more uncertain projects the company is working from milestone to milestone and rarely requires a big budget. After a milestone is reached a new direction is stated.</p> <p>Product development projects use a stage-gate model. In concept development projects the process between stage zero and one is iterative. The <i>RIV</i> projects do not use the stage-gate but they have the intentions to enter it later. They work similar to the customer development process with the add-on of product and value validation.</p>	<p>The company has three different boards that meet every month to evaluate ideas that have come in from for example the <i>Scouting program</i>, any employee or business development. There is a pre-screening before the idea comes to these boards. When the idea is presented the first time the template from the first tollgate is used. Depending on the area of idea it will be evaluated by either an ideation board for new product, service and business development ideas (not only breakthrough), a board for cost savings and minor improvements or the third board that deals with ideas that are more difficult to define and that does not fit in any of the other two.</p> <p>Ordinary projects use a development process with six gates. This model does not fit well for the projects in early development and especially not for breakthrough innovation projects. The <i>Scouting program's</i> working approach is much like the wild-west style. As they do a pilot they simultaneously look over the following process so that it will fit for these kinds of activities.</p> <p>A disruptive or breakthrough project needs a strong sponsor to get the time needed.</p>	<p>The innovation group is currently developing an innovation/idea process to be able to take care of ideas that are not aligned with the mainstream work and that go over several business units. The theoretical work is finished and the practical launch will soon take place. They believe that the model needs to be flexible and individualized.</p> <p>Ideas can enter the innovation/idea process either from anywhere at any time or from a more controlled idea generation, for example an idea challenge is going to be held twice a year. The idea challenge will have a theme or hypothesis of strategic character. Seminars will be held to inspire and give fact about the theme or hypothesis. After the seminars, ideas can be deposit during two weeks. Managers are supposed to lob for that time is given for employees to work with this idea challenge and the innovation group will be available for support during the two-week period.</p> <p>A simple idea template will be used. After the two-week period is finished the ideas are assigned and every employee has the possibility to learn more and hear about the ideas during a "lunch date". This "lunch date" offers an opportunity to develop the ideas further. After the "lunch date" the idea givers gets time to develop their ideas before it is time to do a pitch for the top management. Most probably someone from the innovation group will do the pitch since it will create more neutrality. After the pitch the top management gives opinions to the idea giver about if anything should be developed, refined, complimented and/or what looks promising or not. Then the idea giver gets time to refine the idea and could also be given resources. Later, the top management gives a decision on where the idea will be going. The alternatives are to a department/section within the own business unit, to the own business unit, outside the business unit (but inside the company) or that it is given a stop. The idea giver will present the idea to the whole business unit if it gets an approval by the management team. Moreover, the top management takes over the responsibility of the ideas from the innovation group at this point.</p> <p>After one discussion in an innovation network, the company decided not to purchase an idea system until they know what kinds of ideas they will receive from the idea challenge and how they would like to handle them. They would like to define what is important to have in the system since the system should be created from the ideas. A system should be a help to reach what you want and hence not decide how you should work.</p>	<p>Breakthrough innovation projects demand for reporting, communication, strong willingness as well as the right people.</p> <p>In product development projects a stage-gate model is used. In competence and platform construction projects, when they create potential to develop new products, they are freer and quite unguided in the organization today.</p>

Innovation process mismanagement

Company H	Company I	Company J
<p>Four levels of innovation are defined; idea, culture, organization and process, and <i>Open Innovation</i>.</p> <p>To succeed with innovation, innovation champions are seen as important. It is often skunk work and that demands for persons that act as champions. Virtual incubators are also highlighted as essential for taking care of radical ideas.</p> <p>The company uses <i>Innovation jams</i>. They start with specifying a specific focus of the jam and then ideas are captured during a defined period of time. Ideas are evaluated and the best ones are chosen to do a pitch. After the pitch, some ideas are explored further and pre-commercialization begins. The idea giver is important and ideas are often chosen considering both the idea and the idea giver. It is perceived as important to show the rest of the organization examples of what you have done and that you have come somewhere, and the process surrounding a jam is a good way to do that. It is important that someone take care of breakthrough ideas; otherwise they will stop. Some project might take ten years.</p> <p>The stage-gate model that is used for projects does not work well for disruptive projects, but there is no other specified model. However, the company does not use the stage-gate model anyway. Instead, they try to experiment with the process and to investigate the <i>MTOR</i> model's uncertainties.</p>	<p>A product innovation, which is the main part, is taken care of by the specific business units as appropriate. "New for the market" and "new for the company" are often new technology platforms that a group organization takes responsibility for.</p> <p>For projects with high novelty it is important not to have a model that is too strict even if structure is important.</p> <p>The company has put much effort in breakthrough innovation, but it has been hard since the organization has changed.</p> <p>The company does not have a specific framework for breakthrough projects. The work depends much on the nature of the project.</p>	<p>The company has recently appointed an <i>Innovation manager</i> that is responsible for innovation tools, such as the idea system. According to the company respondent, the tools might not make the company more innovative but it helps them become faster in coming up with ideas, develop ideas and to get ideas to the market, which makes them more innovative.</p> <p>An incoming idea is no longer rejected or accepted, which psychologically is important. All ideas end up in a database and the ones that are believed in receive a sponsor. The other ideas wait for the right timing or resources to receive a sponsor. The sponsor is chosen in collaboration with the idea giver.</p> <p>A study within the Swedish part of the company showed that successful breakthrough projects in the company had in common that there were no connection with the amount of resources or the size of the budget. The only strong correlation found were an enthusiast that fought for the project and top management support that gave them more time to succeed.</p> <p>The first step in the evaluation of breakthrough projects is that someone believes in it. A sanity-check is made directly when an idea is received to make sure that the idea does not need to be treated confidentially. The next step is that 25 global reviewers with different competences make comments on the idea. These comments are then the basis for the decision whether or not to start a project.</p> <p>The framework for breakthrough projects is a stage-gate model. They try to have a more expressed pre-project phase that is supposed to see if the responsible team believes in the idea to make sure that they will do a good job. It is a wish that the idea giver takes part in the project since that employee believes in the idea and sees the potential. The stage-gate model is used with common sense and is not exactly followed. Instead, the stage-gate model functions more like a checklist to see what needs to be investigated before the project reaches the market.</p> <p>The company has the ideas but could be better at systematically developing them, which means allowing more time and focus as well as taking risks.</p>

Personal evaluation			
Company A	Company B	Company C	Company D
<p>They are striving for idea generating to become part of the goals at each department as well as in every employee's personal goals.</p> <p>In projects where the idea giver would like to proceed with the project, that is welcomed. Time is then given in the job description.</p>	<p>The employees are evaluated on different kind of goals. Within the innovation work they are among others looking at expected turnover within three to five years.</p> <p>The idea giver can be involved in the project if the person would like to and if the project allows for it.</p>	<p>How the employees are evaluated has an impact on how projects are prioritized.</p>	<p>It is hard to convince the managers that gut feeling should be used since they are evaluated and given bonuses.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>Employee evaluation differs within the company and is decided by the manager. However, evaluation is often much about courage and teamwork.</p>			<p>Evaluation of employees differs and depends partly on the person in question. Used criteria are often a technical part, holistic approach and expertise, commitment and motivation, change management, personal development as well as attitudes and values. The company's core values are important and the goals are short- or long-term depending on the employee's position.</p>
Company H	Company I	Company J	

Dream scenario on how to better manage breakthrough ideas and innovation			
Company A	Company B	Company C	Company D
<p>In the future the company would like that the external collaboration becomes an ordinary part in the daily work. More connection with customers is also wished for as well as the possibility to bring things to the market in smaller runs.</p>	<p>A goal in the future is to have the ability that every idea ends up in the right place and in the right level within the company, as well as that there is a possibility at that time and place to pick it up. That is, to build some kind of onion-model.</p>	<p>A dream scenario would be to choose those ideas that someone has a real commitment for, be sure that the CEO and the board gives their support, appoint resources, leave it alone for some time, get the result with a small budget in a small dedicated part of the company, feedback, as well as a well-functioning process for implementation in the business units and that their management are giving support to the idea.</p> <p>The structure in relationship to the culture is another important factor. To be able to get breakthrough innovation a culture that supports it must be in place. It is possible to handle it without that structure but not without that culture. It is not easy to create the needed culture, you need to take the risk and show that you have succeeded before.</p>	<p>A dream scenario working with breakthrough innovation would be that everyone is enthusiastic and willing to work with new ideas, that the ideas gets evaluated in a proper manner and has a dedicated budget as well as that time is given to these ideas. Furthermore, it would be great if top managers see ten to fifteen years ahead instead of three to four years.</p>
Company E	Company F	Company G: Respondent 1	Company G: Respondent 2
<p>A dream goal would be that the CTO or someone in the top management team feels a responsibility for radical and disruptive innovation and that a dedicated group of three to four persons work with that type of innovation on a full-time employment. This group should have the possibility to handpick people when the opportunities arise for a one to three year project. The departments where these people are picked from should be compensated. It would work as a company within the company so that it does not feel like they are bad guys who take money and do all the fun.</p>	<p>A dream scenario for breakthrough innovation would be that employees work with it on fulltime, and that a critical mass is reached. It should also be decoupled from the R&D department. A thought that the respondent has is that a process might hurt more than it helps in early development.</p>	<p>A dream scenario is hard to define. The innovation group is working on phasing out themselves. They would like the process to be natural and a part of the daily work so that it does not feel unusual, but instead equally important as everything else that is done every day. Another goal is that the process can handle both ideas from the teams that are set but also those ideas that just pop up. Furthermore, a dream scenario would be that every employee has the opportunity not being staffed all of the time.</p>	<p>A dream scenario for an idea handling process to a breakthrough offering would be that the process accepts ideas that improve locally on the site but also really big ideas to bring outside of the site. A dream is also that time is given to test new ideas. Probably it is not that hard for people to generate ideas, instead the hard parts are to allow free time for it and to give ideas the possibility to be evaluated. Moreover, a dream scenario would be that all idea givers get feedback and that their idea becomes tested. Today if an idea giver would like to test an idea there is often no possibility to spare a group for it. This is probably something that the company could be better at and doing more frequently.</p>

Dream scenario on how to better manage breakthrough ideas and innovation		
Company H	Company I	Company J
	<p>A dream scenario for an idea handling process for breakthrough offering would be to handle risk in a better way to be able to use failures as learning. It would be a boost for the creative climate.</p>	<p>A dream scenario for an idea handling process for breakthrough offering would be to have a core team. Having the best people can do wonders and be more essential than technical resources. Different knowledge has to be present in the team. The process should not be seen sequential or scaled in different processes. The speed forward is more important than the cost focus. The cost is important in development projects but not in breakthrough projects. Also, having the top management commitment is important, as it is a good driving force that triggers everyone.</p> <p>Breakthrough innovation can create new divisions and business units. The company respondent believes in having a base that is complemented and developed. It is important not to have to narrow core business definitions, as it can be devastating for the creativity. A too narrow strategy can be an inhibitor for a development department as being free in mind is important.</p>

ii. By Company

The answers from the external respondents are below presented by each company.

Company A

Company A is a global company with around 20 000 employees. It is a business-to-business company with its own production and research & development department. Other companies as well as private customers can use their products and services.

The term radical has been chosen to describe innovation that have a great impact on the market and the company. The term is chosen to highlight the fact that these innovations might meet internal difficulties, and pinpoint that they might need special care. To be able to give special care to projects that are expected to be harder to run Company A has created a greenhouse environment. The projects that most often come into the greenhouse environment are radical projects, cross-functional projects, and projects with business focus. The cross-functional projects often end up in the greenhouse environment due to the hurdles of working concurrently between several functions. These projects often end up in just one function or they are shut down. The company has had a great technical focus and the business projects have therefore met a tougher climate, which is why they often are taken care of in the greenhouse environment.

There are two channels for ideas to enter the greenhouse environment. The first is through all kinds of idea generation, for example idea jams or an employee that got an idea. They are striving for idea generating to become part of the goals at each department as well as in every employee's personal goals. The second channel is when a function cannot handle an idea on its own and instead sends it to the greenhouse. It is possible that an idea gets rejected in the functions and later is evaluated by the same persons, together with others, in the greenhouse.

The greenhouse consists of four groups. The first group runs the innovation process, facilitates the evaluation and selection, as well as act as a coach for the idea teams. The second group is the idea teams. For each idea an idea team is established to develop the ideas. The persons in the team are from different functions and parts in the organization, and are almost always never in the team on fulltime. These employees are often experts or very creative persons. The third group consists of employees from the different functions and they function as an innovation network. The fourth group consists of employees from top positions in the organization and some are from the top management team. This group is doing the final evaluation on whether the idea will be approved and become a project.

Company A would like to have a strategic goal of how the proportion between incremental and radical innovation should look like. They have a preempt budget for innovation projects, but it is not specified how much that should go to incremental versus radical innovation. The budget is not always enough and collaboration with other functions is necessary to get an additional amount of money. There is today a lack of conviction regarding the need of radical innovation. However, there is a need and a wish for innovation and renewal in products and processes. The knowledge of the organization is that if you take things in small portions, so that the perceived risk is reduced, then you can make a lot of things. But if you say that something will cost for example two million it will be a too big deal. To take things in small portions is a strategic way to get around the perceived risk.

The need of a new distribution channels for an innovation is not seen as a problem. Alternative solutions are to find a partner, license, create a new company, receive a patent or set up a partnership.

Incremental and radical projects are evaluated on different parameters. In the beginning of a radical project the evaluation almost solely focus on customer value. Later on, to the extent that it is possible, the business potential is tried to be quantified.

Company A does not use any complex framework for radical innovation. They have some points that should be followed since the employees asked for it, but they do not use a stage-gate model for radical innovation. In projects where the idea giver would like to proceed with the project, that is welcomed. This is the situation in a majority of the projects. The idea giver is then given time in his/hers job description for it.

The fact that the brand should be an inhibitor for radical innovation has been discussed, but it is not seen as a hinder today and has not been it before.

In the future the company would like that the external collaboration becomes a ordinary part in the daily work. More connection with customers is also wished for as well as the possibility to bring things to the market in smaller runs.

Company B

Company B is a global company with around 100 000 employees. It is a business-to-business company with its own production and research & development department.

The terms breakthrough or radical ideas are not used in Company B, instead is the term outside and beyond current business scope used. The radical part of the idea is not central but instead the possibility of a business that is close to the existing businesses. This so that current resources can be built on and so that the company feels that it is appropriate to enter that business. Company B wants to have the unique ability that no one else has to enter and, of course, that it is a need on the market. This could mean that it is disruptive for the organization and/or the market.

These outside and beyond current business scope ideas are taken care of by a sub-group to the group function for strategic work. The sub-group is responsible for development of new businesses and innovation. They work with ideas that fulfill the criteria of being big and interesting for the company strategically and in long-term and that cannot be handled within the existing business units. The ideas have to be of great potential in upcoming revenues. They also work with strengthening the overall innovation capability in the whole company. The group has limited resources and borrows resources from other parts in the company to staff projects.

Company B does not have a pronounced goal regarding how the proportion of innovation with different level of novelty should be, but indirectly it is managed to keep the proportion on an adequate level. The level of novelty is not the central thing; instead the focus is on that the ideas meet the criteria mentioned above. There is no decided budget for ideas that match those criteria.

Company B works systematic with the ideas that are outside and beyond current business scope and meet the criteria. They believe that it is hard to be close enough to the existing businesses and in the meantime put effort on ideas that are precisely outside of it. There is said to be a skepticism regarding the uncertainties that are related to those kinds of projects. One hard part is to reach the internal anchoring to take the first step. Later in the project, the hard part is to reach momentum for the project to grow in such a way that it is accepted in the organization, as it primarily should be a part of it in the future. Other options to work with outside and beyond current business scope ideas are to let them grow in a separate area of work or in a spin-off. Uncertainties are an inhibitor for the company but it is also something that they know is necessary when you run a business like this.

One important aspect with projects that are outside and beyond current business scope is the ability to find personal connections in the organization to reach support for the project. Changes in management positions affect a lot and there is a risk that projects might need to start over from step one. The analytical and technical aspects are not as complex in comparison. The internal strategic work, including for example which persons that should be involved and if it fits with the strategy, is often most important. During this work it is decided how projects should precede, what points of decisions that should be involved, where the decisions should be taken, etcetera. Company B does not use a specific framework for ideas with a high degree of novelty instead they are flexible and adjust depending on the opportunity. The projects starting-point is from a stage-gate model with phases and points of decision that they adjust to the opportunity. The model has four phases; screening, pre-study, innovation cell (prototypes, validating, etcetera) and venture phase (run as a company, execute, hand-over, etcetera). The idea giver can be involved in the project if the person would like to and if the project allows for it.

There is a historical culture in the company to try out new things, affected by how they work and what they invest in. One third of the company consists of development and they have renewed themselves radically several times. However, they are not much active in business innovation. They work continuously to increase the awareness in these areas of innovation by for example providing workshops.

A failure is not received in the same way in different parts of the organization, which depends much on the management culture. In the organization, they work on distinguishing between a failure in the traditional process and a more planned risk-taking leading to failure in the innovation process. The employees are evaluated on different kinds of goal. Within the innovation work they are among others looking at expected turnover within three to five years.

If an outside and beyond current business scope project needs production facilities that is not available it is not perceived as a problem. Either that machine or equipment is bought in separately or a company that possesses it is bought. The brand is not seen as an inhibitor for innovation. Company B has recently changed its brand to become more innovation friendly and open up for more systematic innovation. They have sub-brands within the company that they use when they are testing their research, but in those cases they are strict to inform that it is not a finished solution. That opens up for more dynamic in the brand and a higher possibility of not being afraid of testing new things.

A goal in the future is to have the ability that every idea ends up in the right place and in the right level within the company, as well as that there is a possibility at that time and place to pick it up. That is, to build some kind of onion-model.

Company C

Company C is a global company with around 10 000 employees. It is a business-to-business company with its own production and research & development department.

In one of Company C's business units the definition breakthrough innovation is used. However, no common definition for innovation with a high degree of novelty within the whole company exists. Instead they talk about high novelty and high commercial value. To be called a breakthrough innovation, the company respondent, has the opinion that it should be nearest patentable and have revenues above 50 million.

Company C has an R&D department in all except one of its business units. They also have one central R&D department that coordinates the R&D work in the company and tries to reach as much synergies as possible. The business units' R&D managers do not report to the central unit. The central unit runs projects on a central level, often together with universities. The project leader for these projects is often one of the seven persons from the central R&D department that reports to the central R&D manager. The central R&D department also functions as a facilitator for new development in the business units. Development should be decentralized in the business units since they have the closest relationship with the customers. However, the business units often have a short-term thinking that does not give time or incitement for breakthrough innovation.

The central R&D's projects are divided in six strategic focuses. These focuses are chosen due to their future importance and hence breakthrough innovation is requested in those. All projects are classified in a nine-grid square. The axis shows the level of novelty and the level of commercial value. The top right corner is the square with highest novelty and commercial value. 15-20 percent of their projects would Company C like to have in that square. If it is possible to carry out these types of projects with one of the business units that is the most optimal as it will make the rootedness and transfer more easily managed. If a business unit has not been taking part in a project, the implementation is harder to conduct and it demands an engagement to widen the scope of the business unit in question.

Innovation of a breakthrough nature has a preempt budget of around one per mille of the turnover, and ten percent of the R&D budget. There are cases in which that budget has been used for incremental projects as well.

Company C bets on breakthrough projects, even though it could be done even more. The company puts money in smaller companies that work with more breakthrough ideas. They are looking at how they could continue benefit from external ideas even more since it is seen as an important way to start new projects.

The uncertainties related to projects with a high degree of novelty are evaluated using parameters about novelty and commercial potential. The novelty evaluation is done by a research foundation and employees in the company with relevant knowledge perform the commercial potential evaluation. A probability judgment of the success rate is also conducted in three levels. The result does not determine whether or not to run the project, it is to clarify what expectations that could be set. It is possible for external parts to apply for money from the research foundation. The same parameters are used in their evaluation.

Personal influence is identified as having a great impact regarding how projects are prioritized. This depends both on how the person is evaluated but above all how the persons' personality is.

As long as the central R&D department handles a project it does not go into a stage-gate model. In this stage a relatively low amount of money is involved, and the project follows reporting points decided when it was evaluated. The central R&D department has a longer time frame than the business units, around three years instead of around nine months. The stage-gate to start a project is relatively simple, either a board or the manager of the central R&D give its approval. There is a small budget for this. Often is there someone that is interested in the project and speaks for it, usually this person becomes the "mother" of the project. The "mother" plays an important role, and is often someone from the central R&D department. When the central department hands over the project to one of the business units, where it is going to belong, much more money becomes involved and therefore more structure. The project also then enters a stage-gate model. The costs in this step are related to development resources, test runs in bigger scale, marketing, sales and investments.

There is a fear of failing and taking responsibility in Company C, especially in times of tight resource-economic, which does not leave time to try other things than what you already are doing. It is hard to combine efficiency and earning with a more relaxed approach. Past in time, one of the business unit's R&D department had one day off from projects to do something new but this is not practiced today. The current strategy in the company does not allow for a sufficient effort in innovation, even though they have enough money for it.

In Company C, the brand can be seen both as an inhibitor and as strength to try ideas with high novelty and high commercial value. It is most often seen as strength. The inhibiting factor is that it puts some requirements on the products that can make it harder to think outside-the-box. For example, if the brand stands for something specific it is hard to go for a product that does not have that inherent impact. The strength is that the brand gives a long-term guidance to not go into something that is not beneficial for the company.

A dream scenario for high novelty and high commercial value innovation would be to choose those ideas that someone has a real commitment for, be sure that the CEO and the board gives their support, appoint resources, leave it alone for some time, get the result with a small budget in a small dedicated part of the company, feedback, as well as a well-functioning process for implementation in the business units and that their management are giving support to the idea. The structure in relationship to the culture is another important factor. To be able to get breakthrough innovation a culture that supports it must be in place. It is possible to handle it without that structure but not without that culture. It is not easy to create the needed culture, you need to take the risk and show that you have succeeded before. At the mean time the company has to make money on other things, but a common way of saying is that necessity is the inventor's mother.

The company respondent believes that it is hard to define what breakthrough is as it depends on who is doing the judgment. The respondent believes that stage-gate models are inhibiting a company's innovativeness. There is a need of some formal decision but the possibility to think freely is important. Further, the respondent thinks that many people perceive the stage-gate model as conveniently as they can lean on the system and thereby do not need to take decisions. By doing this you could never reach the top performance.

Company D

Company D is a global company with around 23 000 employees. It is a business-to-business company with its own production and research & development department.

Company D does not have a common terminology for innovation that are new for the market and thereby often new for the organization. It depends on what book that have been read the week before. (These ideas will be called breakthrough ideas in the rest of the text for convenience.)

Company D has an innovation management group that answers for idea management, facilitation, workshops and creative training for the whole company. The group most often works with the R&D department, but is available worldwide for all departments. The group screens ideas and select which ideas that should be further developed. For the selected ideas a business case is conducted and used when they try to convince the top management to prioritize and create a project for the idea. This is perceived as a tough part since these projects have to fight against all other projects and limited resources. The ideas are gathered from the market, competitor understanding, consumer understanding, global trends, scenarios, and road maps, etcetera. If a gap is found, the innovation management group is informed and workshops and studies are performed. Workshops with customers are also performed. After an idea has got accepted to become a project the innovation management group no longer has the responsibility for the project.

There is a decided classification on how much that should result in improvements and how much that should result in new products. New products are divided into products that are based on old products and products that push the limit and are not connected to what has been done before. The product development budget is specified to give 50 percent to improvements and 50 percent to new products. Company D has a strategic scope of business in which breakthrough ideas are welcomed.

Innovation is discussed in Company D but not in a formal way. The discussion is mostly about new products. Everything they do is related to costs and their customers would like to have new things but they are not willing to pay for it. Company D's business model has, more or less, been the same over the years.

Company D is better at improving existing ideas by making them better and cheaper than doing something completely new. Breakthrough ideas are present but they are not prioritized over other things that need to be done. It is hard to compete with breakthrough ideas since the risk is high and it is hard to put a number on the case. This is perceived as having to do with their culture. They are struggling to get money that is earmarked for breakthrough innovation since they are aware of the danger of being satisfied with what you have today.

Projects with high uncertainties are sold in as high-risk projects with the possibility of a high reward. The evaluation of the ideas is done with help from criteria that investigate the strategy alignment, how big the risk is and what could be done to reduce it. If it is possible to reach a number on the case it is the market department that tries to estimate the sales numbers. Today, in Company D, there is no one that is willing to take the risk. New technologies are easier to get acceptance for since the top management can see the need for them in the long-term. They are trying to get a balance over the segments and over different situations for the future. For a project to get prioritized the management needs to see the benefits and the available resources. The hard part is before this, since there are not enough resources to evaluate all ideas. That leads to that some ideas never get

the chance even to be evaluated. The company has no dedicated group that work solely with non-prioritized ideas. It is the innovation management group that prioritizes ideas in the first step. Some ideas that have been evaluated and are crazier can be put on a product list and pend to become a project later. You need to be patient and push for your idea in Company D.

Changes in management positions have not been perceived to have an effect on the prioritization of breakthrough projects. No specific framework is used for breakthrough projects. They use the stage-gate model but have different gates depending on the project. The innovation management group does not have a strict process. It is hard to convince the managers that gut feeling should be used since they are evaluated and given bonuses. The managers can accept a higher risk in the beginning but later it comes a point when they need to know if it will work or not. There is a risk in Company D that breakthrough projects are not invested in due to their high risk.

The culture in Company D is good, and there is at least no fear in the innovation management group of doing mistakes since there is not much money involved. Except from what is breakthrough or not, the culture is said to be entrepreneurial and with a long-term thinking. They have dared to start projects worth millions that later have been closed down. Scapegoats are not looked for, which might have to do with that there is relatively much money invested in new development. The discussion is whether or not breakthrough innovation is needed for the company.

The brand is not seen as an inhibitor, but they have to be sure that the product works, as it should when being launched.

A dream scenario when working with breakthrough innovation would be that everyone is enthusiastic and willing to work with new ideas, that ideas get evaluated in a proper manner, has a dedicated budget, as well as that time is given to these ideas. Furthermore, it would be great if top managers see ten to fifteen years ahead instead of three to four years.

The struggling for Company D is to decide what a breakthrough innovation is for them.

Company E

Company E is a global company with around 11 000 employees. It is a business-to-business company with its own production and research & development department.

Company E does not have a pronounced vocabulary regarding how to define innovation of different levels of novelty. The terminology differs within the company. Incremental, radical (could be a known customer value but a big step for the company) and disruptive (changes the rules on the market and raise new values) are used to some extent.

In Company E it is crucial that product development delivers on time. Hence, they have a step before product development that is called concept management that has the responsibility to conduct initial tests as well as reducing risks. The last six months has the concept management group been more concentrated on radical projects. Company E also use *Radical Innovation Ventures (RIV)* for radical ideas. These ventures are run separately from how they normally do concept development, which is as a virtual company in the company. *RIV* takes the responsibility of everything from technology to sales. They take the commercial responsibility, which is important to be able to put it back into the mainstream organization later. *RIV* consists of cross-functional teams. The fact that *RIV* gets a confirmed customer value and a paying customer makes it easier for the project to get accepted. It is easier in concept development projects to create goals since they know quite well what they are looking for, but it is much harder in *RIV* projects in which it has to be expected that the goals will change. They have one good example of a virtual company that was successful. In this case it was probably thanks to a “burning platform” that had to be replaced. Hence, it was not hard for the management to realize the benefits. Other disruptive innovations have been launched and these have been managed separately by the corporate development. The hard part in Company E is said to be to find the internal force regarding who should manage a breakthrough project.

Company E does not have an innovation portfolio in which it is decided how the proportion of innovation with different levels of novelty should look like. Earlier a decided number of one new concept per year was set, but today they deliver between fifteen to twenty concepts per year (radical and disruptive). In the budget for concept development is ten percent pinpointed to *RIV*.

There is no distinct strategic focus in which radical ideas are asked for. Innovative product and services that could generate a premium are asked for, but it differs in their different market segments. There is almost always a technology or product part involved when innovation is discussed. The aftermarket is also discussed. If the idea only involves how a product is taken to the market the concept management group is not involved. In those cases the business units handle the projects themselves.

The top management is not opposing innovation, but they are not running around asking for it either. Every time a radical or disruptive innovation occurs it demands for an effort of the organization. It cannot be said that every top manager would like to have one. Economic-oriented persons in Company E do not really understand that the products “news-rate” is decreasing. The top management talks about innovation and that they would like to have them faster, but they do not dare to say how much they would like to have.

Radical innovation is not regularly discussed in the organization, except from in the concept management group since it is a part of their activities. Innovation is communicated in the

organization in different ways but partly through the permanent contact with product managers. It is also communicated through two 30-minute presentations per year for the top management. In these presentations, the ten most interesting ideas that the organization have work on are presented. These ideas are often radical or disruptive since it is those kinds of ideas that they would like to give attention to. Additionally, after the presentation for the top management, 25-30 other concepts are presented to the business units. The purpose of that presentation is to start a dialogue on what is happening and to get their input. The concept management group also keeps discussion with the product development regarding their product range. The purpose of these discussions is for the concept management group to be able to know where it is heading, but also to create a push for their concepts.

A radical or disruptive project often takes between seven to ten years while other projects often take between three to five years. The timeframe is expressed to the top management together with the fact that the more radical project generates more in the end. In more uncertain projects are Company E working from milestone to milestone and rarely require a big budget. A milestone could be that a prototype is tested by customers for three months and then taken back for analysis. After a milestone is reached a new direction is stated. In *RIV's* there are tight couplings with the critical factors. That makes the risks lower since no money is invested in production equipment. They try to learn as early as possible to be able to change the direction as early as possible if needed. They also try to be separate from the mainstream organization not to disturb it.

If a radical or disruptive innovation involves a new customer segment or new sales or distribution channels it will be difficult. Then it is necessary to find the right people in the right place in the organization. If the idea is not met positively you need to take it one step up. In the end it could happen that the top management has to restate what the company does. Many of these projects are driven by employees that put on the "Company E"-hat and drive a project even though it has not to do with their tasks. The reason that they do it is often due to their personality and the potential gains they can get from it, not that they are evaluated on it.

In Company E changes in management positions are said to have a great risk in affecting the prioritization of radical projects. It is impossible to invent a system that is totally fair. There is always a human factor involved. How long you have been working in the company affects your possibility to enforce a project, it is a great difference. The difference is seen as incorrect and as possible to abuse, and should be taken into consideration.

Company E has discussed how the portfolio of concepts should be valued. In the end, gut feeling and the basis of discussions is what decide. A good team, with good backgrounds and attitude is hard to challenge. The management for concept has that approach consisting of four persons with different backgrounds that have a common responsibility for the portfolio.

Product development projects are using a stage-gate model. In concept development projects the process between stage 0 and 1 is iterative. The *RIV* projects do not use the stage-gate but they have the intentions to enter it in a later stage. They work similar to the customer development process with the add-on of Product and Value validation.

Employee evaluation differs within the company and is decided by the manager. However, evaluation is often much about courage and teamwork. The concept management group has a part

of the R&D budget and they have trust to deliver. There are persons outside the group that want to have the impact to decide more what the group should do, but there are as many as say the opposite. That is leaving the group with competent people and a long-term thinking. The group is evaluated on a ROI-calculation that is based on the budget, which is nearly the same each year, and the gross margin from products where their concepts are present and still has competitiveness. The group can take advantage of the total gross margin from existing products, and if the sum is five times as big as their budget the management is satisfied with the group's performance. This evaluation gives the group more freedom and makes them evaluated on what they have done on beforehand. The group is living on the fact that someone in top management thinks more than three years ahead.

In Company E, if you want to, it is possible to hide behind short-term goals. But there are more and more metrics that evaluate how fast new products are received. However, it is certainly easier to drive something that pulls down costs than something that adds customer value. It becomes a more immediate impact than that they will sell a new customer value. The brand is not seen as an inhibitor in Company E, even though it could be in some situations.

A dream goal would be that the CTO or someone in the top management team feels a responsibility for radical and disruptive innovation and that a dedicated group of three to four persons work with that type of innovation on a full-time employment. This group should have the possibility to handpick people when the opportunities arise for a one to three year project. The departments where these people are picked from should be compensated. It would work as a company within the company so that it does not feel like they are bad guys who take money and do all the fun.

Company F

Company F is a global company with around 7 000 employees. It is a business-to-business company with its own production and research & development department. The empiric about Company F considers one of their business units.

Company F uses definitions such as disruptive and breakthrough innovation, but there is no common defined company vocabulary.

Company F has used a *Scouting program* in a two years' time. It is a cross-functional project that is scouting, both internal and external, for new ideas and customer needs. The program started with an extensive identification of customer needs that they have continued to work on. The company has Innovation days to raise ideas and to build a creative climate in the company that makes everyone feel involved. The purpose of the *Scouting program* has been to involve all employees and to launch the cross-functional thinking that will characterize the program. These days have had a strategic focus and have therefore been an effective way to make people understand and be a part of the specified strategy. Today, a mixture of 25 persons is involved in the *Scouting program*, but the number depends on the need. The persons are not on the project on full-time, they put between 50-60 percent of their working time on it. All participants think this is fun and support it but they get heavily loaded. They do it much on their own will, which is not sustainable in the long run. The group performs pre-studies; several are running in parallel in the group. The group has their own location that works like a mental marking, which is very important.

Company F has three different boards that meet every month to evaluate ideas that have come in from for example the *Scouting program*, any employee or business development. There is a pre-screening before the idea comes to these boards. When the idea is presented the first time the template from the first tollgate is used. Depending on the area of idea it will be evaluated by either an ideation board for new product, service and business development ideas (not only breakthrough), a board for cost savings and minor improvements or the third board that deals with ideas that are more difficult to define and that does not fit in any of the other two.

The *Scouting program* responsible has a budget but no resources for the scouting. This budget is small in relation to the development budget. Company F is in a shift today, they invest much more money in breakthrough innovation than what they previously have done. It has to do with that their product assortment is mature and price pressed so the organization is ready and needs to break new ground.

The *Scouting program* is a new activity and they are experiencing positive reactions from the organization. The company is willing to take the road from cost-estimates. The hard part with new activities is that the answer is unknown but also that it demand much energy from the organization.

Innovation is discussed in Company F, much thanks to the *Scouting program*. They communicate through Innovation days, the internal webpage, innovation awards (two times a year to good ideas that have been implemented) and presentations in different levels of the company.

How breakthrough innovation should be evaluated is not completely decided. Discussions regarding scorecards have been hold. After much discussion, a symbol symbolizing the gut feeling was being added in the evaluation for a couple of years ago. Strategic fit is also something that is included in

the evaluation. The company respondent means that if that box is completed in the evaluation it is not a breakthrough idea per definition. Today, the focus is on that ideas should be related to a customer need, but if it is a known technology and a big investment risk is also included. Company F has come to the conclusion that they need different scorecards depending on if it is a development or minor improvement or if it is something totally new.

Senior management turnovers have influenced how breakthrough innovation is prioritized, both positively and negatively. The prioritizing has much to do with the persons but also the company's strategy for the upcoming years. Innovation has to, according to the company respondent, be treated as small babies meaning that you are not mean to them because then they do not survive. The owners of a company are important for what is allowed further down in the organization. It creates a short-term or long-term thinking.

Projects at Company F use a development process with six gates. This model does not fit well for the projects in early development and especially not for breakthrough innovation projects. The *Scouting program's* working approach is much like a wild-west style. As they do a pilot they simultaneously look over the following process so that it will fit for these kinds of activities.

The culture regarding testing new things in the business unit of Company F is good. In January this year (2012) a project started with the purpose that all employees, in the whole company, should put five percent of their time to do something beyond the ordinary. In this case they are open with what innovation and creativity means.

Failing is a tough thing. Company F has lessons learned activities that open up for a tolerant climate that things do not always becomes successful. Few people think that it is fun to fail and thereby they might be afraid of it, but they are not afraid of it because they will be punished for it.

In the choice between projects that are easier or more difficult both of them are chosen. The company respondent believes that experience can make you more risk willing without being aware of it. A project needs a strong sponsor to get the time needed. If all pre-studies in the *Scouting program* fail, the representative is not sure if their group will remain. There is one good example in Company F of a product that would not have survived if scorecards had been used as today. This product is today a market-leading product, but at the time the idea was new the inventor had to work on it at home.

The brand is seen as a resource and could be used even more. The brand has the possibility to open doors.

A dream scenario for breakthrough innovation would be that employees work with it on fulltime, and that a critical mass is reached. It should also be decoupled from the R&D department. A thought that the respondent has is that a process might hurt more than it helps in early development.

Company G: Respondent 1

Company G is a global company with around 50 000 employees. It is a business-to-business company with its own production and research & development department. The empiric regards one of the business units in which around 19 000 of the employees work.

In Company G no generic definition for innovation with high novelty is being used. The group that works with innovation uses the terms incremental and radical innovation.

Company G has an innovation group that is staffed with employees from respective department as the group is supposed to represent the whole business unit. They are currently developing an innovation/idea process to be able to take care of ideas that are not aligned with the mainstream work and things that go over several business units. The theoretical work is finished and the practical launch will soon take place.

Ideas can enter the innovation/idea process in two ways. Either it can come from anywhere at any time or it can come from a more controlled idea generation, for example is an idea challenge going to be hold twice a year. The idea challenge will have a theme or hypothesis of strategic character that the top management of the business unit will decide. Seminars will be hold to inspire and give fact about the theme or hypothesis. After the seminars, ideas can be deposit during a two-week time. Managers are supposed to lob for that time is given for employees to work with this idea challenge and the Innovation Group will be available for support with formulations etcetera during the two-week period. A simple idea template will be used. After the two-week period is finished the ideas are assigned and every employee has the possibility to learn more and hear about the ideas during a "lunch date". This lunch date offers an opportunity to develop the ideas further by creating collaborations and exchange of knowledge and thoughts among departments. The top management is also invited to the lunch.

After the lunch date the idea givers get time to develop their ideas further to some point, but it should still be very briefly. Then it is time to do a pitch for the top management team. Most probably someone from the Innovation Group is going to do the pitch since it will create more neutrality. The management team includes among others patent representatives' as well as one that has connections to other business units. Discussions regarding the ideas' novelty are hold. After the pitch the top management gives opinions to the idea giver about if anything should be developed, refined, complimented and/or what looks promising or not. To do what is requested, the idea giver gives time to refine the idea and could also be given resources, such as competence, that is needed to think in bigger terms. After that is done, the top management gives a decision on where the idea will be going. The alternatives are to a department/section within the own business unit, to the own business unit, outside the business unit (but inside the company) or that it is giving a stop. The idea giver will present the idea to the whole business unit if it gets an approval by the top management team in this stage. Moreover, the top management takes over the responsibility of the ideas from the Innovation Group at this point.

Company G has a new business unit called *Venture* that deals with things that does not fit with the core activity or those that work over several business units. The *Venture* unit will function as a greenhouse and give extra support to projects to get started. Much support from the top management is given to this unit.

No numbers or goals have been set on what should come out from the idea challenge. The innovation group expects a relatively low amount of ideas the first time since it is a new way of working. A new challenge will be held this autumn (2012) that hopefully will generate more ideas.

The company respondent has not heard of a separate budget for breakthrough innovation, but if it is a sufficiently good idea with the right potential money is not a problem.

There is a big demand for "come up with ideas, we are very eager to grab them" in Company G. It is a great wish to strive forward, especially since the company just started the Venture business unit.

Regarding uncertainties related to breakthrough projects is the chance taking greater. A look at the market, what exists today and what does not is needed. It must be possible to see the potential and that there is a chance. The top management wants to know what is new, what the benefit is and how doable it is. The business is important since it has to generate potential revenue. This is harder for radical ideas since the uncertainties are greater. The market must be taken into consideration, by investigating what is there today and how the needs look like. It must be a potential that looks positive.

Changes in senior management positions are believed to have an impact on the prioritization of breakthrough projects. But as it is a group that takes the decision the impact of the change of one person is probably small. The respondent expressed that radical projects need more push since the risk-taking is higher.

For project that is not breakthrough a stage-gate model is being used. The process described above will be used for projects that are more different, such as breakthrough or that it ranges over a wider breadth, as they require a simpler and not as structured model. They believe that the model needs to be flexible and individualized.

Company G is aware of the importance of a culture that allows for testing new things and failures since they know that it is important to dare and be brave. They talk a lot about it in the company so that they become better at that. A year ago was an event held in the business unit where these questions were discussed. Voting pads were used to receive an immediate response from the employees. Findings were that the company primarily had to work on increasing the amount of ideas and help with idea generation. To get the requested culture, inspiration seminars about thinking differently and thinking new are also held. In the R&D department they try new things all the time and sometimes they fail, so in that department the culture for testing new and fail is good. People might think that you are crazy, but you have to be that since often it is those ideas that are really good. The hard part with changing the culture is that this kind of idea process is outside the core activities. It is easily thought that these parts are outside the comfort zone and that culture has to be changed. The culture is more important than all processes, but the other parts are needed as well. The innovation group works very open with what they do to be able to receive feedback and to have a dialogue. They want to function as a tool so that everyone can be innovative. The innovation group gains great support from the top management.

The brand is not perceived as an inhibitor in Company G since the top management is very interested in thinking big.

Innovation network, such as *Innovation pioneers* and *Innovation round table*, is great tools to learn from other companies. They are necessary since it is hard to come up with everything on your own; it makes the road much shorter. After one discussion in the network, Company G decided not to purchase a system that deals with ideas until they know what kind of ideas they will receive from the idea challenge and how they would like to handle them. They would like to define what is important to have in the system first since the system should be created from the ideas. A system should be a help to reach what you want and hence not decide how you should work.

A dream scenario is hard to define. The innovation group is working on phasing out itself. They would like the process to be natural and a part of the daily work so that it does not feel unusual, but instead equally important to everything else that is done every day. Another goal is that the process can handle both ideas from the teams that are set but also those ideas that just pop up. Furthermore, a dream scenario would be that every employee has the opportunity not being staffed all of the time.

Company G: Respondent 2

Company G is a global company with around 50 000 employees. It is a business-to-business company with its own production and research & development department. The empiric regards one of the business units with around 19 000 employees.

Company G does not have a common terminology for ideas with high novelty. (These ideas will be called breakthrough ideas in the rest of this text for convenience.)

Company G has an innovation initiative group for one part of the R&D department. The initiative started a year ago with a large workshop with the employees. The workshop focused on specific questions related to what the company was in need of and what they were not good enough at. Everyone in the organization had the possibility to express his or her thoughts. The result showed that Company G needs to work more systematic, be better on generating ideas as well as taking care of the generated ideas (give time to test new ideas that does not fall within the scope). The project group work cross-functional with the initiative, but no concrete activities have been performed and thereby has no result been generated so far.

Since they do not have a definition of what a breakthrough innovation is the company respondent does not feel that he/she knows if the focus is on breakthrough projects. The respondent does not know if it is typical for the company, but with personal experience from a high risk project without known result, he/she feel that there is a will to put effort on things that is new. This willingness comes all the way from the top management, which is very important for projects that stretch over two business units as it did in this case. These types of projects demand for reporting, communication, strong willingness as well as the right people.

The company respondent does not know if they have a general way to handle the uncertainties that often is related to projects with high novelty. Criteria that are used in product development projects are for example performance, safety. It is more difficult in competence projects as the work is much freer in those projects and not that goal-oriented. In competence projects, they probably work with more criteria in the same time and catch opportunities rather than decide in advance what will be reached. Since different projects aim for different things the top management request is changed depending on the nature of the project. But it is essential that they achieve what they set as a target for the project.

In product development projects a stage-gate model is used. In competence and platform construction projects, when they create potential to develop new products, they are freer and quite unguided in the organization today. Some follow-up is conducted on the department/section level and on top management level during the projects life cycle. The situation decides how the work will be preceded since there are many different ways of working within the company.

The culture in Company G is perceived as rather good for daring to test and fail, a failure could as well be a learning process. This cultural aspect was one question that was present during the workshop with the whole organization. This climate has been in the walls in many years. It is said to probably come from a management that is well familiar in the work and problems that might arise but also that takes a collective responsibility for risk-taking. Persons in the top management are often recruited internal from the company and hence they come with the company culture making it

easier for them to maintain it. The risk is on the other hand that they do not receive anything new into the organization.

Evaluation of employees differs and depends partly on the person in question. Used criteria are often a technical part, holistic approach and expertise, commitment and motivation, change management, personal development, as well as attitudes and values. The company's core values are important and the goals are short or long-term depending on the employee's position.

If an idea demands for production facilities that is not available in the company, common development with varying intensity with customers and suppliers are often solutions.

Company G has brands that are very sensitive. New products must be tested enough in the project phase since it cannot be launch with bad quality. Systematically use of other brands to test new things is not a used approach in Company G, but they have close relationships with some customers that are willing to test new things in the development phase.

A dream scenario for an idea handling process to a breakthrough offering would be that the process accepts ideas that improve locally on the site but also really big ideas to bring outside of the site. A dream is also that time is given to test new ideas. Probably it is not that hard for people to generate ideas, instead the hard parts are to allow free time for it and to give ideas the possibility to be evaluated. Moreover, a dream scenario would be that all idea givers get the feedback that their idea becomes tested. Today if an idea giver would like to test an idea there is often no possibility to spare a group for it. This is probably something that Company G could be better at and doing more frequently.

Company H

Company H is a company with around 10 000 employees that is part of a global company. It is a business-to-business company with its own research & development department. Company H functions as an external venture outside the mainstream organization.

No common definition for ideas with high novelty is used in Company H. Used terms are for example new business creation, radical and breakthrough.

Company H, as an external venture, are allocated a budget that is supposed to grow. Projects from the mainstream organization can be brought in as well as be given away from Company H. Open innovation is used a lot and they are not limited to the corporate organization. Market forces control them.

The word pioneering is used instead of the word innovation when they talk about products that can make Company H market leaders. The reason is that the word innovation has become hackneyed. Four levels of innovation are defined:

- Idea
- Culture (Idea + People)
- Organization and process (To be able to facilitate for idea givers. At this level is virtual incubation for radical ideas present.)
- *Open Innovation* (It is important to be connected with surroundings.)

To succeed with innovation are innovation champions seen as important. It is often skunk work and that demands for persons that act as champions. Virtual incubators are also highlighted as essential for taking care of radical ideas. Company H has used virtual companies in two cases. They have consisted of one CEO, one business developer, one technician, one designer as well as one board group and one advice group. In one of the two projects, the CEO was hired from another external company.

Radical innovation must be a part of the strategy. If the market changes, radical innovation is a must have since otherwise you will not achieve what you need. Small teams and entrepreneurs should be used and recruiting of the right people is important.

Too much money in the beginning when working with breakthrough ideas is by the company respondent perceived as having a negative side as more money leads to higher expectations. Instead, it could be better to build it in levels since breakthrough innovation has big risk.

Company H uses innovation jams. They start with specifying a specific focus of the jam and then ideas are captured during a defined period of time. Ideas are evaluated and the best ones are chosen to do a pitch. After the pitch, some ideas are explored further and pre-commercialization begins. The idea giver is important and ideas are often chosen considering both the idea and the idea giver. It is perceived as important to show the rest of the organization examples of what you have done and that you have come somewhere, a process surrounding a jam is a good way to do that. It is important that someone take care of breakthrough ideas as in other case they will stop. Some project might take ten years.

The company respondent's perception is that Company H lacks courage and is controlled by risks. Disruptive technology is discussed, but the process to take the idea to the market is the hindering

factor. One example is given of a development that was given effort even without a business model thanks to the present CEO at that time. To be able to succeed there is a need for top management commitment, money, venture thinking, a flexible process, few persons, small budget in the beginning as well as that consideration regarding ownership issues is taken when it is a new setup.

There is no universal solution to take care of uncertainties regarding breakthrough projects in Company H. If a breakthrough idea involves new customer segments or distribution/sales channels it is a problem since that type of ideas would not become a project today. The idea with incubation is to early try out if this is a problem.

The *MTOR* model for uncertainties is used to evaluate a breakthrough project during its lifecycle. The model both has benefits and drawbacks but the top management requires that the model is used for evaluation of breakthrough projects. The company respondent does not believe that the company has come far enough in terms of betting on high-risk projects.

Senior management turnover is said to have an impact on the prioritization of breakthrough innovation since it is much up to the person, and to have a champion. The company respondent said that: "It is not in the walls to put effort on these projects". The CEO is of great importance, if the CEO says that they should not take any risks that will influence the risks that will be taken.

The stage-gate model that is used for projects does not work well for disruptive projects, but there is no other specified model. However, the company does not use the stage-gate model anyway. Instead, they try to experiment with the process and to investigate the *MTOR* model's uncertainties. It is much like skunk work. It is important not to miss rules and laws during development projects since they might stop a product.

Company I

Company I is a global company with around 30 000 employees. It is a business-to-business company with its own production and research & development department.

No common definition for ideas with high novelty is used within Company I. They classify activities in quadrants with the axis "new for the market" and "new for the company".

Company I has a group that is responsible for innovation management within one of the business units. They work with all kinds of innovation and create tools that can handle the questions.

The company does not have an innovation portfolio in which the distribution of innovation with different levels of novelty is determined. Instead, the company has an organizational classification in terms of responsibility. A product innovation, which is the main part, is taken care of by the specific business units as appropriate. "New for the market" and "new for the company" are often new technology platforms that a group organization takes responsibility for. There is a group portfolio in which more risky product and process innovations are developed. The funding of this portfolio is either absorbed by the group or shared between the group and one or more business units depending on the purpose of the project (advanced renewal of existing business offering or totally new offering (c.f. classification above). Risk premium for driving various kinds of product or process innovation is present. What differ the portfolios from each other is the time to market of the projects they consists of.

Information is gathered externally from different sources as well as internally, such as from business units and specific market segments. The company tries to identify areas that could be of interest for them.

Company I has some strategic platforms in which breakthrough innovation should be generated, but ideas are generated outside of these as well. It is important not to have a model that is too strict even if structure is important. Breakthrough innovation is perceived as difficult to manage, not the least due to uncertainties surrounding such efforts as well as the need for strategic alignment. Company I has put much effort in breakthrough innovation, but it has been hard since the organization within the company has changed several times during a reasonably short time-span, which has made follow-through on the ideas more difficult. Reorganizations have probably led to that the company have cut more critically in projects that perhaps should have been left. Changes in senior management positions are not perceived as affecting prioritizations of breakthrough innovation. However, reprioritizations, like changes in amount of employees, have affected prioritizations of breakthrough innovation.

Company I handles the risk related to ideas with high novelty on a portfolio level. That may have hindered some cases, but they try to look at the portfolio instead of at specific cases. Company I try to quantify the risk but still has much more to learn within that area. It exist a venture unit within the company in which ideas are bought in as a complement to their other ways of work.

Regarding the culture of daring to fail, the company respondent think that the company has more to learn, as they have not reached the maturity that a failure is celebrated; this is not due to lack of encouragement from top management, but probably due to inertia in the changing company culture. The culture has become better but still there is more work to do. Since many operational activities

have been cut off it is difficult for the management to speak for large risky innovation projects that go beyond what they can handle today.

The brand is not perceived as a hinder to try or launch breakthrough innovation. The CEO has been clear about the change possibility in the new organization and examples can be seen in some of the business units.

A dream scenario for an idea handling process to breakthrough offering would be to handle risk in a better way to be able to use failures as learning. It would be a boost for the creative climate.

The company respondent told about a company in India that uses a system to learn from its failures. They have tools and systems to systematically go through ideas that have not succeeded and reward idea givers that have learnt something. There are similar examples of companies in the United States as well.

How breakthrough innovation is defined is not obvious, it has much to do with what experience the company has and how the company is working.

Company J

Company J is a global company with around 3 000 employees that is part of a bigger global company. It is a business-to-business company with its own production and research & development department.

Company J does not have a common definition of innovation with a high degree of novelty. The term being used has much to do with the current trend in the company. The term radical is sometimes used but more often are the terms faster, bigger or bolder used. Radical is perceived to aim more towards questioning and to deal with different concepts than the "normal".

The company has recently appointed an Innovation manager that is responsible for innovation tools, such as the idea system. According to the company respondent, the tools might not make the company more innovative but it helps them become faster in coming up with ideas, develop ideas and to get ideas to the market, which makes them more innovative.

Company J has a scouting group that looks at potential external technologies to buy. The company also has a group that takes decisions about ideas that come globally and they use internal open innovation to take care of existing knowledge.

Company J does not have an innovation portfolio in which it is decided how the proportion of innovation with different levels of novelty should be. An ongoing discussion if they should have a more systematic portfolio is present. R&D is divided in product range or in market areas/needs. The development of products is the biggest but making processes more effective is also a great part.

The different parts of the R&D have its own budget that they together with a management team is very free to use like they want to. One part is called *New Business Opportunities* and that part focuses on things that the company does not have a business in or processes for today. This part has nearly ten percent of the development activities budget.

Company J has exploratory programs within some important large areas, which means that they try to create new things in other ways than what they previously have done. This program gives opportunities to finance PhD projects as well as the opportunity to do things without asking for permission all the time. If you have to ask for permission all the time you are strangling the innovation climate. The program is sold in to the top management as if any important project needs more resources they can use the program's budget as a buffer, something that happens quite often. In the end, projects that lead to sales are prioritized over more long-term projects.

Incoming idea is no longer rejected or accepted in Company J, which psychologically is important. All ideas end up in a database and the ones that are believed in receive a sponsor. The other ideas wait for the right timing or the resources to receive a sponsor. Idea givers that have not received a positive response are encouraged not to give up if they really believe in their idea.

Past in time, the company had a strategic business unit in where breakthrough ideas were created. They are now trying to change that picture into thinking new and not be locked-in.

The company respondent perceives that the company has potential to put more effort on breakthrough ideas. They are good at generating ideas but could be better on systematically work

with ideas. An upcoming reorganization will make it easier to develop new concept in the prioritized technologies.

Regarding uncertainties related to breakthrough innovation it is important in Company J to have a feeling for cost efficiency and the value that is created. At the same time it is also important not to calculate too much as in the beginning many things look expensive but by looking forward into the bigger volumes and application possibilities that picture might look more attractive.

A study within the Swedish part of Company J showed that successful breakthrough projects in the company had in common that there were no connection with the amount of resources and the size of the budget. The only strong correlation that was found was an enthusiast that fought for the project as well as top management support that gave them more time to succeed.

It is perceived as hard to launch a new concept with old sales and market teams since it often is hard to convince them of the new concepts benefits and to make them feel comfortable with it. It is also much harder to do things that involve new customer segments or new sales/distribution channels. It is easy to say that they should go for it but in the actual situation it is harder. They now are building their strategy from a technical base hence they can avoid “the forbidden box” new technology and new customer. Instead, the company will have strength in the technical foundation. In order not to be locked-in in the technology base it is essential to continuously expand the technology platform.

The first step in the evaluation of breakthrough projects is that someone believes in it. A sanity-check is made directly when an idea is received to make sure that the idea does not need to be treated confidentially. The next step is that 25 global reviewers with different competences make comments on the idea. These comments are then the basis for the decision whether or not to start a project.

The idea system or the sponsor does not have any budget. It is up to the sponsor’s experience and power in the organization if a budget will be allocated. The sponsor is chosen in collaboration with the idea giver. Sometimes people are coming and say that they would like to be a sponsor, especially if they have heard of new ideas with potential. Money for ideas/projects is applied for from the different business categories, often without problem if it is smaller amounts.

The easiest ideas to handle are the really good ones since they attract resources or the uninteresting ones since they do not need any time spent on them. Breakthrough ideas demand for more time and resources as well as a need for someone that believes in them. Breakthrough ideas demand much better arguments. The interest from the top management has been low but has increased since Company J has decided to grow organically.

Senior management turnovers result in that a project might be re-revised, which could be both good and bad.

The framework for breakthrough innovation projects in Company J is a stage-gate model. They try to have a more expressed pre-project phase that is supposed to see if the responsible team believes in the idea to make sure that they will do a good job. It is a wish that the idea giver takes part in the project since that employee believes in the idea and sees the potential. The stage-gate model is used with common sense and is not exactly followed. Instead, the stage-gate model functions more like a checklist to see what needs to be investigated before the project reach the market. The company

respondent believes that the companies that see the stage-gate model as inhibiting for breakthrough projects often follow it to the letter.

The culture in Company J regarding trying new things and daring to fail could be better. Caution has become a greater part of the culture in many companies, which might have to do with more and more signals from the top management, for example code of conducts. The company respondent expressed that: "The safest way not to do something wrong is not to do much at all". Company J sees a failure much more as something positive today than what they have done historically. All development is an investment. The company had a project a couple of years ago that was given many resources as the potential looked really good. However, when the project reached full-scale they realized that it was not that easy. The project was shut down but there were no negative reactions. An argument for taking on more risky projects that almost always works in Company J is to say that what if our competitors do it and succeed? That makes the management more interested. Company J rewards the most promising ideas in three different categories with 2000 Euro each per year.

The brand is not perceived as an inhibitor for breakthrough innovation, it is rather the contrary.

A dream scenario for an idea handling process to breakthrough offering would be to have a core team. Having the best people can do wonders and be more essential than technical resources. Different knowledge has to be present in the team. The process should not be seen sequential or scaled in different processes. The speed forward is more important than the cost focus. The cost is important in development projects but not in breakthrough projects. Also, having the top management commitment is important, as it is a good driving force that triggers everyone. Breakthrough innovation can create new divisions and business units. The company respondent believes in having a base that is complemented and developed. It is important not to have too narrow core business definitions, as it can be devastating for the creativity. A too narrow strategy can be an inhibitor for a development department as being free in mind is important.

Company J has the ideas but could be better at systematically developing them, that is allowing more time and focus as well as taking risks.

Breakthrough innovation is a great topic. Nevertheless, it is very important to have incremental development as well.