

CHALMERS



Barriers to Exploratory Innovation Projects Managing the exploitation bias in large established firms

*Master of Science Thesis
in the Management and Economics of Innovation Program*

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Abstract

Innovation is the way to achieve competitive advantage in the present and the way to secure long-term growth. It is the process (or its result) by which something new and valuable is brought into the market and into widespread use by customers at mutual benefit. It can be a new product, new service, new process, or new business model. While some innovations are *incremental* – mere upgrades – others can be *radical* – products and services that change customer experience or create new markets. Large established firms often resolve to tuning and refinement of what is known and mastered, i.e. technologies or knowledge; the act known as *exploiting*. It is the opposite of searching for, or experimenting with, new knowledge, unfamiliar technologies, and new customers; the act known as *exploring*. Many researchers have pointed out the need for large established firms to balance the two, but that firms often end up with an *exploitation bias*, creating barriers to exploration that inhibits the firm's ability to bring radical innovations to the market.

The purpose of this Master Thesis was to analyze the innovation process at SCA Hygiene Products, in order to identify and elaborate on barriers that large established firms may have towards exploratory innovation projects. This was done by performing a participant observation study and completing 18 semi-structured interviews in an empirical study with SCA employees. The hypothesis was that SCA as a large established firm has organizational barriers towards exploratory innovation projects, and that an exploitation bias exists in the company.

The major findings of the participant observation study and the empirical study were a total of 11 barriers to exploration, out of which five were strongly supported and verified; *Execution mindset rather than exploration mindset, Technology/product mindset rather than customer need, Targeting the ultimate final offering rather than Minimum Viable Product, Project is killed because of poor fit with existing brands, and Not green-lighting nor killing projects.*

The analysis found that SCA is suffering from an exploitation bias, and that the barriers to exploration had a few main causes; an *exploitative, risk averse and consensus-driven organizational culture*; the goal of immediately *targeting a mass market*; and *the lack of exploration enabling structures and processes*. The main effects of these barriers, besides impeding exploration efforts, were found to be: *Harder to respond to changes in the market, stagnation of product and brand domains, impeded customer learnings, and increased project risk.*

Recommendations to SCA were built on the idea of emulating an individual entrepreneur inside the large firm, a process named *Business Prototyping*. Establishing this process means addressing three building-blocks: Exploration-enabling Process and Method, People and Mindset, and Responsibility and Ownership. By drawing on the strengths of the individual entrepreneur along with the strengths of the large firm Business Prototyping overcomes the barriers found towards exploration, and establish a process that enables SCA to successfully bring breakthrough innovations to the market.

KEY WORDS: *Exploration, Exploitation, Breakthrough Innovation, Exploitation Bias, Barriers to Exploration, Business Prototyping, Business Model Innovation*

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Last but not least, we would like to thank our tutor at Chalmers, Professor Sören Sjölander, for his guidance and help during our thesis. Sören possesses great knowledge in the field of innovation, built by many years of first-hand experiences with entrepreneurship. We have had great use of this knowledge throughout the fall and winter, and we are grateful for that.

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Erik Graffner

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1. Introduction

This chapter will introduce the Master Thesis by explaining the background of the thesis subject and purpose, as well as the problem analysis and the research questions. In order to establish the scope of the thesis delimitations are presented, followed lastly by a report outline that aim to provide the reader of an understanding of what each chapter aims to present and convey.

1.1 Background

Innovations have become increasingly important for firm success. In 1990, Michael Porter wrote that the character and trajectory of all successful companies are fundamentally the same, and that it is through innovation that firms achieve competitive advantage (Porter, 1990). In an environment where global competition is increasing, technology is rapidly advancing, and where the economy in many ways has changed from industrial to knowledge-based, innovation is the way to stay competitive (Higgins, 1995). Firm survival and growth do not only depend on the ability to deliver products which satisfies current customers. Hence, innovations are important for serving tomorrow's customers, often in a discontinuously changing environment that is difficult to foresee (Magnusson, 2008).

Innovation is the process (or its result) by which something new and valuable is brought into the market and into widespread use by customers at mutual benefit. Innovations therefore come in all forms: as new products, new services, new processes, or new business models. Some innovations are *incremental* in nature – upgrades to current products, services, or processes – while at the other end of the spectrum innovations can be *radical* – products and services that change customer experience or create new markets.

As an industry progresses through its life cycle, the locus of innovation changes from product oriented to process oriented; see Figure 1. In the early, fluid stage product feature uncertainty is high, but as customer preferences starts to settle, focus shifts towards improving processes to lower costs and increase quality. The transition point is usually when a *dominant design* is reached; the set of product features that adequately meet sufficient customer preferences to become de facto standard in the market. Going into the transitional phase, little effort is put on changing that architectural design, as payoff becomes higher on improving processes. In the mature stage, innovation focus is on incremental improvements, cost savings, and process quality (Abernathy and Utterback, 1975).

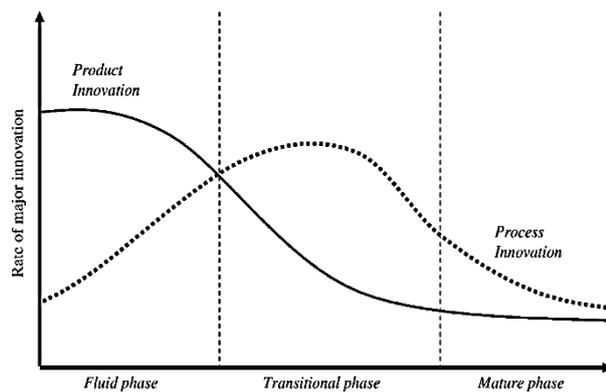


Figure 1 - Industry Life Cycle (Adapted from Abernathy and Utterback, 1975)

In general, when maturity is reached in an industry the players that are left are large established firms. They often thrive on economies of scale, by doing things as cheap as possible, as efficient as possible, as fast as possible. This is the act of *exploiting*, the tuning and refinement of existing knowledge, technologies, and products – exploitation of what is known and mastered (March, 1991; Martin, 2009). In contrast, during the early, fluid stage the number of competing firms is higher, as focus is on finding the right

features and designs that will become standard. This is the act of *exploring*, the search for, and experimentation with, new knowledge, unfamiliar technologies, and new customers (March, 1991). Exploitation is needed for revenue streams in the present and for responding to immediate market needs; for surviving in the short run. On the other hand, exploration of new knowledge is needed for securing future revenue streams and for responding to changes and new opportunities; for surviving in the long run (Greve, 2007; Darroch and McNaughton, 2002; Gilsing and Nootboom, 2006). However, as large established firms tend to prefer predictability and stability, priority is put on defending what they have (Porter, 1990). The result is an *exploitation bias*; through fear of having much to lose large established firms find trust in reliable, low-risk, low-uncertainty projects and innovations.

A. G. Lafley, former CEO and Chairman of Procter & Gamble, explains that as he took over as CEO in 2000 the company had exploited their core brands and technologies for too long only to invest in expanding geographically. He changed focus, opened up the company to outside ideas, and made sure that “consumer is boss”. He was determined to start exploring again, arguing that in the medium and long run innovation is essential to be a winner (Lafley, 2008). In 2011, a rare internal memo was sent out to Nokia employees from CEO Stephen Elop, explaining how the company was standing on a “Burning Platform”. The now notorious memo describes how Nokia, locked in its structures, had exploited its existing products and knowledge for so long that they didn’t perceive the changes that was happening in their industry. They had been run past by Apple and Android so fast, and to the point that they desperately needed to forget the advantages they once had and start exploring new knowledge and technologies (engadget.com, 2011). Nokia’s and P&G’s situations exemplify the challenge large established firms have in balancing exploration and exploitation.

SCA Hygiene Products is the most important subsidiary of Svenska Cellulosa Aktiebolaget (SCA). It is a giant in the personal hygiene and consumer goods industry, today responsible for 79 percent of SCA’s total net sales and 85 percent of total operating profit (SCA Year-end Report Q4, 2012). SCA Hygiene Europe manufactures and markets incontinence care products (SCA Incontinence Care Europe), baby diapers, feminine care products, and consumer tissue (SCA Consumer Goods Europe), and away-from-home tissue products (SCA AFH Professional Hygiene Europe). The products are sold in more than 100 countries under leading global, regional and local brands; see Figure 2. SCA Hygiene Products, and its former version Mölnlycke AB, has a successful history of innovation and entrepreneurship, where breakthrough innovations during the 1960’s, 1970’s, and 1980’s have been largely contributing to today’s strong market position. SCA is the European market leader in incontinence, consumer tissue, and away-from-home tissue products, and the European market accounts for 76 percent of SCA’s global sales. Today, SCA is one of those large established firms in a mature market, where balance between further exploitation and new exploration is a big challenge. Coming from an organizational culture of strong technology focus, the switch to nurturing a customer focused consumer goods culture is easier said than done. Adding the fact that defending the position in



Figure 2 - Main brands of SCA Hygiene Europe

Europe is a strong priority means risk of exploitation bias, and barriers that inhibit exploratory innovation projects are therefore likely.

1.2 Purpose

The purpose of this Master Thesis was to analyze the innovation process at SCA Hygiene Products, in order to identify and elaborate on barriers that large established firms may have towards exploratory innovation projects. It is of interest to analyze the causes and effects of these barriers, how they impact exploratory work, and what can be done to lower them.

1.3 Problem Analysis and Research Questions

The exploitation bias has several consequences for a firm, such as a direct neglect and cancellation of exploration efforts; neglect that could lead to risk of competitors finding the initial business opportunity that the company once explored, coming up with the same or even better solution, and surpassing the incumbent firm (Martin, 2009). But there are also effects that are more subtle, such as consciously or unconsciously nurturing a culture that on all levels works against ideas and concepts that depart from the known (Porter, 1990). The result is barriers on different levels in the firm that inhibits exploration and exploratory innovation projects. As Porter (1990) argues, the risk for the organization is that innovation ceases and the company becomes stagnant over time, and that it is only a matter of time before aggressive competitors overtake or bypass it. It is therefore important to help bring clarity on this issue, in order to build understanding on how to address exploration barriers, and how to avoid exploitation bias.

Building on the background and the problematization above, the hypothesis is that SCA as a large established firm in a mature industry has organizational barriers towards exploratory innovation projects, and that an exploitation bias exists in the company. This has led to three research questions:

RQ 1. What are the main barriers to exploratory innovation projects and what are their likely causes?

This research question serves to clearly identify the main barriers to exploration and the reasons to why they exist. Through participant observation in an innovation project, and by interviewing employees with innovation experience, the answer to this research question should be clear.

RQ 2. What are the main effects of these barriers?

These barriers, besides impeding exploration activities, also have other effects on the organization, short-term and long-term. We aim to identifying these effects and how severe they are.

RQ 3. What can be done to radically improve exploration at SCA?

Finally, given the identified barriers, their causes, and their effects, it is the aim of the thesis to provide recommendations on how to not only improve, but *radically* improve exploration at SCA. This necessitates an important distinction. The answer to this research question will target radical innovation projects – SCA denotes these as ‘breakthrough’ – and thereby not all innovation efforts at SCA.

By answering these questions the purpose of the report can be fulfilled and recommendations to SCA are possible to suggest. Finally, it is our aim to point to where future research on the subject is needed.

1.4 Delimitations

There are many, many factors influencing successful innovation at large established companies. This report will cover three important “clusters” of organizational barriers to exploratory projects and exploratory innovations – *structural*, *cultural*, and *managerial*. As described above, the report will target radical innovation efforts and projects, as they have the strongest need for exploration. It will not cover innovation funding strategies, or successful value capturing of innovations. The focus is on understanding why there are barriers to innovation efforts and projects that are radical and exploratory, and what can be done to neutralize or minimize them. Given time and scope constraints, the end result of this thesis is aimed to be recommendations to the case company.

1.5 Report Outline

This section comprises an overview of the report structure, as well as synthesizes each chapter in order for readers to obtain an understanding of the logic of the report, and what each chapter aims to convey. The report is for reading easiness outlined as below, see Figure 3.

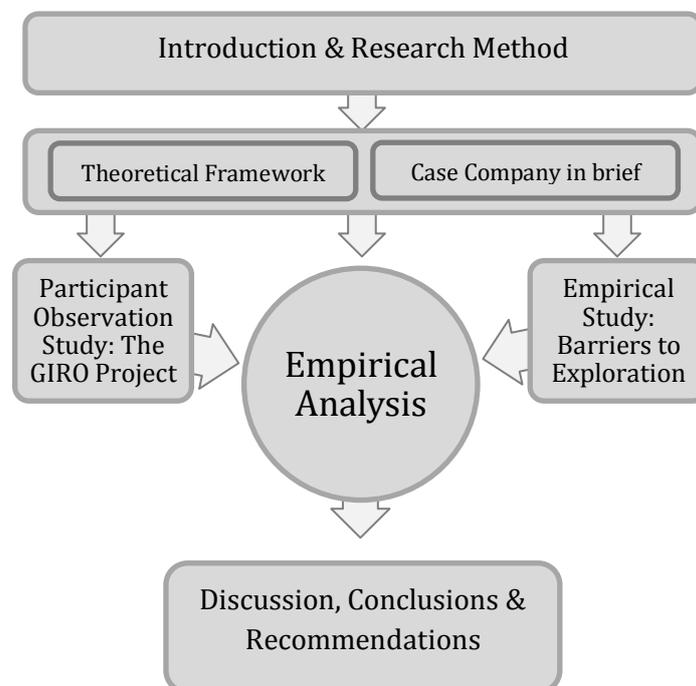


Figure 3 - Report Outline

Introduction & Research Method

1. Introduction

This chapter will introduce the Master Thesis by explaining the background of the thesis subject and purpose, as well as the problem analysis and the research questions. In order

to establish the scope of the thesis, delimitations are presented, followed lastly by a report outline that aim to provide the reader of an adequate understanding of what each chapter aims to present and convey.

2. Method

The method chapter aims to establish an understanding of how this thesis has been undertaken, how data has been collected and analyzed, and how reliability and validity of data has been ensured. In short, a participant observation study was performed, where barriers to exploration were identified. These barriers served as input to the open semi-structured interviews with employees of the case company. Finally, this aggregated empirical data was analyzed in comparison with the literature in the theoretical framework in order to draw conclusions and develop recommendations.

Theoretical Framework

3. Theoretical Framework

This section contains the theoretical framework, which is the result of theory building that initiated the thesis work. The purpose of the theory searching was to provide an understanding of innovation characteristics, the difference between, and balancing of, exploration and exploitation, the exploitation bias and its consequences, how exploratory innovation projects are conducted, what the barriers to exploratory projects are, and finally how the barriers can be overcome. This also served as a kind of “scope control”, by setting the frame for what to include and what to exclude theoretically.

Case Company in Brief

4. Case Company

This section contains an introduction of the case company’s background and structure, the company’s innovation strategy framework, and the innovation project management structure. This information is presented in order to understand the current innovation practices at the case company, and to support future analysis of the barriers to exploratory innovation projects.

Participant Observation Study: The GIRO Project

5. The GIRO Project

This section contains the participant observation study performed at the case company. The study is an actual exploratory innovation project, called GIRO, of which the thesis workers have been part. By being part of an actual innovation project, and deploying exploratory methods, first hand experiences on barriers to exploratory work could be obtained (participant observation study), and through those experiences actual barriers that might not be visible on paper could be identified. This chapter aims at describing the project, how it was carried out and its setting. For the results of the experienced barriers, please refer to Chapter 6.

Empirical Study: Barriers to Exploration

6. Empirical Study

This section contains the empirical study that builds on the participant observation study performed at the company. In the empirical study, each of the identified barriers from the GIRO project is presented and examples are given to build an understanding of each

barrier. The 18 interviews at the case company enabled verification of the barriers participant observation study. Additionally, other findings of importance are also presented, and the chapter ends with a complete summary of the identified and verified barriers to exploration.

Empirical Analysis

7. Analysis

The empirical analysis takes into account all of the previous chapters and findings, in order to reach a point where answering the research questions is possible. The chapter starts with an analysis of how SCA currently balances exploration and exploitation, and how the current innovation project management practice impacts exploration. This leads into the analysis of the verified barriers, the cause of them, and the effect on innovation success at SCA.

Discussion, Conclusions, & Recommendations

8. Discussion and Conclusions

The last section contains the discussion that follows on the analysis, and the conclusions that can be drawn from it. This chapter answers the research questions, and provides the basis for the chapter that follows.

9. Recommendations

The chapter builds on the conclusions in Chapter 8 in order to provide recommendations to the case company, and answer the final research question of what can be done to radically improve exploration at SCA.

2. Research Method

This chapter will explain the research method used in this Thesis, how data has been collected and analyzed, and how reliability and validity of data has been ensured.

2.1 Research Strategy and Design

Bryman and Bell (2011) describes that there are two types of research strategies, *quantitative* and *qualitative*. Quantitative strategy often involves large quantities of data that is analyzed to find statistical evidence of correlation and patterns by the use of numerical analysis. Qualitative data on the other hand aims to develop an in-depth understanding of behavior in the organization through collecting rich, deep data. Our approach is therefore considered to be qualitative since our research aims to result in a contextual understanding rather than through numerical analysis find patterns or to generalize our findings.

According to Bryman and Bell (2011) there are five types of research designs, of which *case study* is the one most applicable to our research questions and our time and budget frame. A case study, according to Bryman and Bell (2011), can be narrowed down to a single case and can be the study of a single organization, location, or even a person. A case study focuses deeply on a specific real-life situation and the data is often analyzed qualitatively. Therefore a qualitative case study can be descriptive or explanatory and is good for answering the questions of ‘how’ or ‘why’ (Yin, 2009). Furthermore, a case study does not try to manipulate the setting, as experiments do, but rather aims at retaining the actual social, cultural, structural and organizational setting for the researchers to study the case in its natural setting.

2.2 Research Process

The research process is illustrated in Figure 4 and is divided in five sections, namely; *Build theoretical framework*, *Participant observation study*, *Semi-structured interviews*, and *Analysis* and *Conclusion and Recommendations*.

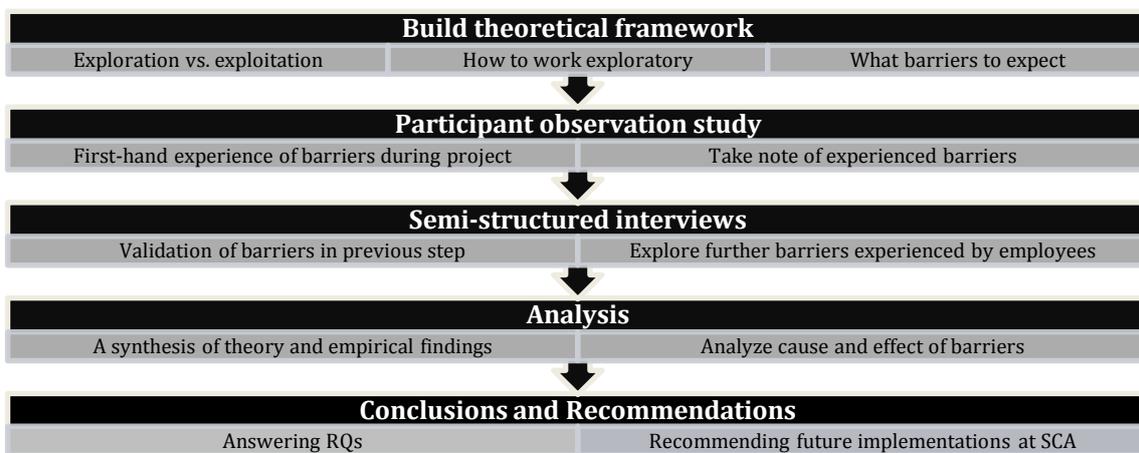


Figure 4 - Thesis Research Process

During the phase *build theoretical framework* a literature study was conducted. The literature review was carried out by searching for keywords in the Chalmers library database as well as Google Scholar. Some of the key words that were used were: “exploratory study”, “exploiting bias”, “explore vs. exploit” “breakthrough innovation”, “radical innovation”, “incremental and radical”, “exploring risk”, “exploiting risk”, “balance

exploit explore”, and “barriers exploratory study”. Furthermore, a common source for searching for literature was the citation of previous work in articles, which led us to new articles. The literature study gave us an understanding of the difficulty of balancing exploration and exploitation in large companies. We also learnt what barriers to expect when trying to conduct exploratory work in our upcoming participant observation study. Even though a literature study was carried out before the next step, relevant literature was added throughout the project as we learned of new theory along the way and the scope changed slightly.

During the phase *participant observation study*, we participated in a project and collected data through unstructured conversation and unstructured observation. We spent time with the project group in during meetings, work-shops, and discussions, but we also spent time with the project group during informal occasions such as coffee breaks, dinners, work-related travels internationally etc.

During the phase *semi-structured interviews* we collected data from 18 interviewees that were held in person in Gothenburg, or over the phone with interviewees who were not located in Sweden. The aim for the interviews was to validate our own findings, but also to search for new insights which the interviewees were encouraged to speak of.

During the phase *Analysis* we compiled a synthesis of the theoretical framework and the empirical findings. Additionally an analysis of the cause and effect of the findings were made in order to explain their existence and the effect they have on the organization.

Lastly, the phase *Conclusions and Recommendations* includes the process of developing and delivering recommendations to SCA. The recommendations were created in such a way that if implemented, they would minimize or eliminate the barriers discovered in the empirical studies. The recommendations are developed while drawing upon literature and our own personal ideas.

2.3 Research method and data collection

According to Bryman and Bell (2011) a research method is the technique used to collect data. Data collection has been made in two phases, during the *participant observation study* and *semi-structured interviews*. The data from the first phase was structured before the start of the second phase. This enabled us to ask questions in the second phase that could validate the data in from the first phase.

2.3.1 Participant observation study

Bryman and Bell (2011) explains how participant observation can either be overt or covert. Overt means that you disclose that you are a researcher studying the organization while participating. Covert means that you do not disclose this fact. Covert participant observation has several advantages, including; no reactivity, meaning people do not act differently than normal; other participants cannot say no to being observed since they are not aware of it. There are several disadvantages, including; cannot interview; cannot take notes; ethical problems; and anxiety for being revealed.

During the beginning of the participation in the project it was at first not intended to write a thesis about barriers for exploratory work, but rather to develop a framework for business modeling by implementing exploratory work. However, in due course we encountered several barriers to implementing exploratory work. As we started to take notes of these barriers the course of this master’s thesis changed into the topic it is now presenting itself as. This has one significant impact. Our intention was not to study the

progress of the project or the people connected to the project. Therefore our participant observation started out as being covert. This gave advantages mentioned above. However, in time we did explain how our master's thesis changed purpose thereby eliminating the named disadvantages. This allowed us to first take notes but also to have interviews and lose the anxiety and also any ethical problems.

2.3.2 Semi-structured interviews

The semi-structured interviews were planned to contain a thorough introduction of who we were, our aim with the interview and the encouragement to speak openly and freely. We saw our previous participation in an SCA project as beneficial, as we were able to identify ourselves as an equal. After our short introduction, we asked the interviewer what type of innovation projects they have been involved in and what view they have on the difference in working in projects that are aimed at incremental innovation vs. breakthrough innovation. This allowed the interviewees to bring up any topic they felt was the most compelling, while still knowing we are here to understand the barriers that exist. If they did not talk about any barriers we could lead them into this by giving examples of our own personal experiences, and thereby allowing them to take a position towards a statement to initiate a discussion. To see the interview guide, please refer to Appendix A – Interview Guide.

Sampling

The sampling for the semi-structured interviews was a non-randomized sampling. Our mentor at SCA was asked to recommend candidates which would be interesting to interview. Hence the sampling was made by deliberately choosing employees that had taken part in projects labeled as a breakthrough innovation projects. We contacted each one personally by sending them an Outlook Calendar invite. The main purpose of doing so was to find a time we knew the invitees were not be occupied and therefore would likely not decline our invitation. This resulted in 17 people accepting out of the 22 that were invited. One additional person was selected by us that would be of interest to interview.

The 18 people who were selected had different backgrounds. We interviewed project managers, innovation managers, marketing managers, brand director, brand innovation managers, product development managers etc. of which one located in China, one in Germany and one in the US and the rest in Sweden.

The sampling method may of course have a large impact on the results. Even though they were chosen deliberately, they had different backgrounds and worked within different categories which allow for some generalizability within the company. However, with more time, a larger sample size ought to be desirable and thereby find the results more conveying.

2.4 Research Validity

Case studies can have high internal validity (Bryman and Bell, 2011). Because of the triangulation performed by first conducting an participant observation study, which includes both observations and unstructured interviews, followed up by 18 semi-structured interviews, our case study can be considered to have high internal validity.

Bryman and Bell (2011) explains that there are four validity parameters to look at in qualitative studies. The first one is *credibility* which is a measure of how believable the findings are. Credibility is closely linked to internal validity which is commonly high in

case studies. The credibility in our study should be considered as high, since an participant observation study have been followed up by 18 interviews who have to some degree confirmed or denied or initial findings. This also strengthens the *confirmability*, which Bryman and Bell (2011) describes is related to the objectivity of the study, since we interviewed employees of different departments and seniority. The *transferability* which is connected to how well the findings are transferrable to other contexts is not seen as being high since case studies generally have low external validity. The fourth and last parameter is *dependability*, which is related to reliability and measures how well the findings are likely to apply at other times. This is not applicable in our case since the case study is conducted at one point in time at one company.

3. Theoretical Framework

This chapter contains the theoretical framework, which is the result of theory building that initiated the thesis work. Going forward, the theoretical framework provides (a) an initial understanding of what exploration barriers that can be expected during the participant observation study, (b) what barriers to continue exploring during the empirical study, (c) how these barriers can be analyzed in terms of cause and effect, and (d) what some implications of these barriers are and how a large firm can reduce or overcome them. This also served as a kind of “scope control”, by setting the frame for what to include and what to exclude theoretically.

In order to address exploratory barriers’ cause and effect, and possible ways to reduce them, there is a need for building a theoretical framework that covers the significant major parts of this “equation”. The following is therefore included in the framework.

First of all, it is important to understand the **characteristics of innovations**. The *source of an innovation* is not only a question of who the innovator is, but also from where the innovation opportunity rise. Given these sources, it is important to understand the different scope and type of an innovation, from incremental to radical. *Incremental versus radical innovations* show differences not only in level of newness, but also in level of risk and uncertainty, which will affect the way an innovation can, and should, be brought to the market. These risks and uncertainties affect how firms treat innovation projects. In addition, it is fundamentally important to understand the role of the Business Model for an innovation to be successful. The concept of *Business Model Innovation* forces established firms to consider all parts of an innovation, not only the actual product or service. Also, as an *industry or firm evolves*, the locus of innovation will change with market competition, influencing a firm’s view on innovation importance, innovation strategies, and innovation management.

Second, fundamentals on the concepts of **exploration and exploitation** is needed and provided in the framework, as it enables the empirical study and its analysis. It is of importance to understand the differences between the concepts, when they are applicable, and why *balancing exploration and exploitation* is seemingly hard. In fact, for many firms the result is an *exploitation bias*, and it is therefore important to understand where this bias originates.

Third, a thorough understanding of the **exploratory way of working** further enables the observation and understanding of current barriers to exploration. It is important to understand the differences between *traditional product development* and *exploratory customer development*.

Finally, building on earlier parts of the theoretical framework, as well as adding specific barriers addressed in theory, the summary of common **barriers to exploration** serves to accumulate the knowledge on the reasons of exploitation bias.

3.1 Innovation Characteristics

“Innovation is the process (or its result) by which something new and valuable is brought into the market and into widespread use by customers on a market at mutual benefit.”

3.1.1 Sources of Innovation

Eric von Hippel (1988) argues that while it historically has been assumed that product innovations are typically developed by product manufacturers, that basic assumption is often wrong. Instead, the functional source of innovation varies; in some industries it is

users that are the most reliable source of innovation, in others it is instead suppliers, and in some the old assumption holds true and manufacturers are indeed the most common source of innovation. The underlying factor that influences the source of an innovation is the perceived benefit from it. Von Hippel argues that the source of innovation in an industry is therefore predictable, if one understands the way that the innovator profits from the innovation (von Hippel, 1988).

Drucker (1985) argues that most business innovations or innovation ideas come from seven areas of opportunities. *Unexpected Occurrences* deals with capitalization of unexpected events or failures. Another is *Incongruities*, in work processes or between expectations and results. *Process Needs* can be a source of innovation, as gaps in current processes are recognized, as can *Industry and Market Changes* that over time enables new business opportunities or close old ones. *Demographic Changes* provide a reliable source of innovation as changes occur in the age distribution, education, occupation, and geographical location of people. *Changes in Perception* can defy quantification, as it can rely on mood rather than fact, but it can also be exploited for large innovation opportunities. Finally, *New Knowledge* has been the source of many history-making innovations. The computer and the airplane are common examples. Of all sources, knowledge-based innovations are the most market dependent. In-depth analysis of the need and capabilities of the intended user is essential. Inadequate customer analysis results in unsuccessful innovations, and the opportunity seized by someone else, as history has clearly shown (Drucker, 1985).

The combined theory is therefore that innovations stem from Drucker's seven sources, and will likely be developed by the firm that sees the strongest potential profit from the innovation, be it a manufacturer, a supplier, a user, or any other industry player (Drucker, 1985; von Hippel, 1988).

3.1.2 Character of Incremental vs. Radical Innovations

While innovations can take the form of new products, new services, or new processes, a way to distinguish them from one another is their degree of newness or differentness. *Radical innovations* are very new and different from prior solutions, while *incremental innovations* make relatively minor changes to existing practice. A radical innovation is significantly different from current practices and can be new to the world, the industry, the market, or the firm (Schilling, 2010 p. 50). However, while new-to-the-world innovations represent either a pioneering breakthrough or a new combination of existing technologies, new-to-the-firm innovations might not (Darroch and McNaughton, 2002). An incremental innovation is on the other side of the spectrum; it often represents a minor upgrade to a product, service, or process (Schilling, 2010 p. 50).

The differences between radical and incremental innovations are perhaps most apparent in regard to their level of uncertainty. While incremental innovation projects are characterized by known processes, a linear trajectory, and detailed planning, radical innovation projects are not (Leifer et al., 2000, p. 18). Since radical innovations often embody new knowledge, producers and customers will vary in their perceived benefit from the innovation, because of uncertainty regarding usefulness and reliability. Radical innovations contain more new elements than incremental innovations, increasing the level of uncertainty. Consequently, the level of risk increases, as uncertainties regarding investment costs, technical feasibility, reliability, and future demand are higher (Schilling,

2010, p. 51). Darroch and McNaughton (2002) further argue that risks with radical innovations are higher because they are more difficult to successfully commercialize.

As a basis of characterization of radical innovations, Leifer et al. (2000, p. 20) establishes four areas of innovation uncertainty and risk: (1) *Technical uncertainty* includes the completeness and correctness of the technical specifications of the product, along with its manufacturing and maintainability. It is an uncertainty connected to the underlying scientific knowledge. (2) *Market uncertainties* include customer needs and wants, the interaction between product and customer, and methods of sales and distribution. (3) *Organizational uncertainties* include management support over time, project team capabilities and composition, and relationship with rest of organization. Finally, (4) *Resource uncertainties* include funding over time, competence availability, and potential partnerships. In fact, the latter two are the ones most likely to impede success of radical innovation projects (O'Connor, 2009).

3.1.3 Business Model Innovation

While understanding the character of innovations in terms of source and type is important, because of how that impact the way an innovation needs to be developed, it is also crucial to understand all parts and variables of a specific innovation. This means understanding the entire business model of an innovation, and how the business model itself is subject to innovation. A business model describes the rationale of how an organization creates, delivers, and captures value (Osterwalder et al., 2009). It takes into account not only the actual value proposition (the product, or service), but also all the surrounding variables that determine market success, see Figure 5.

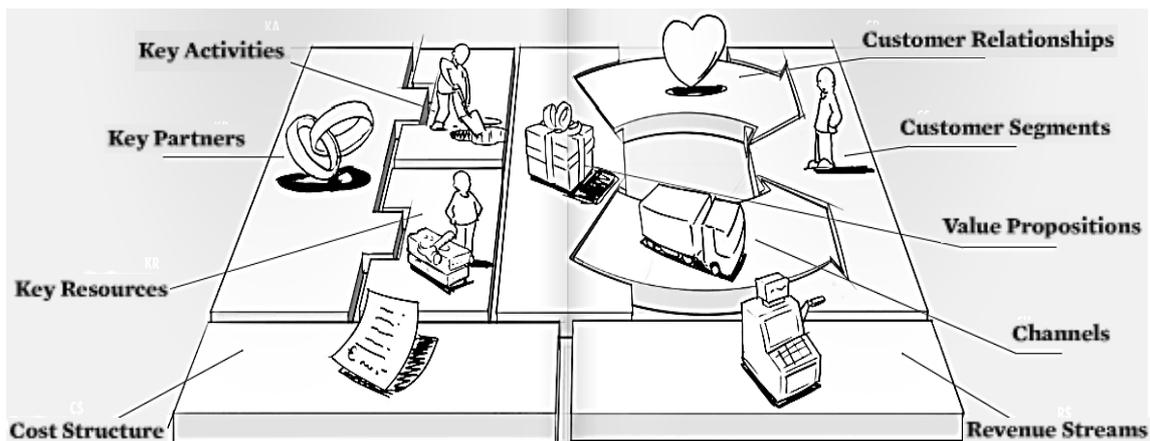


Figure 5 - The Business Model Canvas (Osterwalder et al., 2009)

In the context of this thesis, there are two reasons for the importance of thinking about the entire business model of an innovation. First, if an innovation is on the radical end of the scale, the current business model of a firm, or a brand, could work against the development of the innovation; it becomes a barrier in itself. Second, innovation means not only changing the product or the service! Targeting a completely new segment, selling through a new channel, or establishing a completely new revenue stream, are all examples of innovations in the business model (Osterwalder et al., 2009).

As an example, take Southwest Airlines. Southwest did not change anything about the core product or service; they still transport passengers by airplanes. However, they created a market for affordable, reliable short-haul air transportation thanks to cost-structure innovation. The company uses a single type of aircraft to minimize training and servicing

costs, fast airport turnarounds so planes spend more time in the air, and they use no seat assignments, all to emphasize cost efficiency (Berry et al., 2006).

3.1.4 Industry and Firm Evolution

James M. Utterback and William J. Abernathy, in their seminal work 'A Dynamic Model of Product and Process Innovation' from 1975, introduced the link between an industry's life cycle, the stages it progresses through, and what the implications are for product and process innovations. As an industry matures, it transitions through an early *fluid* phase, evolves through a *transitional* phase, and ends in a *mature* phase (see Figure 6).

In the perspective of innovation, the fluid phase represents the stage where new knowledge and technology is developed, where the firm is searching for the optimal product specification and design. In contrast, in the mature phase innovation is mostly incremental, seeking to improve quality and/or reduce costs. Abernathy and Utterback (1975) also refer to uncertainty and how it characterizes product development in the early fluid stage; product markets

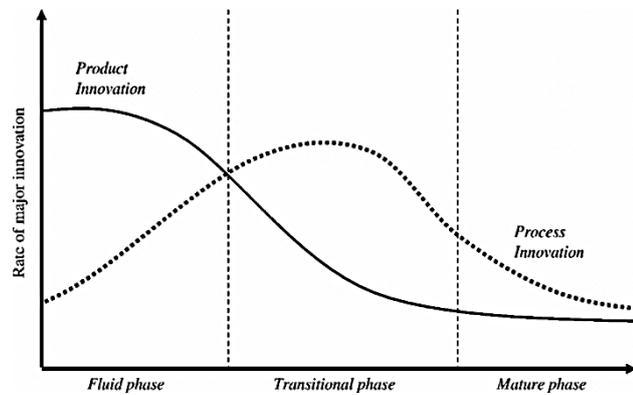


Figure 6- Phases of Industry Evolution, adapted from Abernathy and Utterback (1975)

are ill defined, products are nonstandard, and the production process is undeveloped. During these circumstances, product innovations tend to be driven or stimulated by user insights and new market needs and opportunities, with the critical innovation insight obtained by deducing relevant product requirements. The source of this critical innovation insight is the individual or organization that best understands the underlying needs of the customer/user, often perhaps even better than the customer/user do themselves (Abernathy and Utterback, 1975). Contributing to the uncertainty in this early stage is the difficulties of quantifying needs and requirements. It is under these circumstances that users and consumers are most likely to produce an innovation, and manufacturers the least likely to do so (Abernathy and Utterback, 1978). The characteristics of the different phases in regard to innovation are summarized in Table 1 below.

Table 1 - Industry evolution affecting innovation, adapted from Abernathy and Utterback (1978)

	Fluid	Transitional	Mature
Competitive emphasis on	Functional product performance	Product variation	Cost reduction
Innovation stimulated by	Information on users' needs and users' technical inputs	Opportunities created by expanding internal technical capability	Pressure to reduce cost and improve quality
Predominant type of innovation	Frequent major changes in products	Major process changes required by rising volume	Incremental for product and process, with cumulative improvement in productivity and quality
Organizational control is	Informal and entrepreneurial	Through liaison relationships, project and task groups	Through emphasis on structure, goals, and rules

Martin (2009) addresses the evolution of firms through their life cycle in his *Knowledge Funnel* (Figure 7). According to Martin (2009, p. 7-9) the vast majority of businesses follow

a common path. Firstly, the company is started based on an idea to solve a problem – the exploration of a *mystery* that exists in the real world – through intuitive thinking. It could be the mystery of autism for a research scientist, or the mystery of how and what Americans prefer to eat on the go for a salesman. In the next stage, the business is fine-tuned into *heuristics* – rules of thumb – explaining how the business is carried out. Martin explains heuristics as a way of focusing the efforts of the people working on the mystery. In the example of eating on the go for Americans, the heuristics could be the concept of a quick-service, drive-through restaurant, as exemplified by the very first version of the McDonald’s restaurant. Lastly, as an organization works with its heuristics intensely, it can over time convert from a general rule of thumb into a fixed formula – an *algorithm*. It is the process of taking a quick-service, drive-through restaurant, and scaling it, with all its other items of the final fast food burger concept, into the McDonald’s we know today.

Martin’s knowledge funnel, Abernathy and Utterback’s industry life-cycle and corresponding phases, and the general characteristics of radical versus incremental innovation, leads us to the notions of exploration and exploitation. Exploration is finding and solving a new mystery or acquiring new knowledge and technologies, while exploitation – refining and tuning the existing heuristics or incrementally improving current knowledge and technology – is the opposite (Martin, 2009).

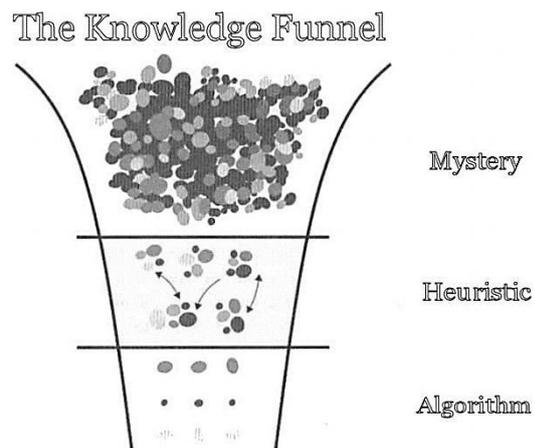


Figure 7 - Knowledge Funnel (Martin, 2009)

3.2 Exploration and Exploitation

Exploration and exploitation are fundamental activities for an organization (March, 1991). Exploration, i.e. the search for new knowledge and use of unfamiliar technologies, deals in terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, and complex choices (Greve, 2007; March, 1991). Exploitation, i.e. use and refinement of existing knowledge, technologies, and products, includes such things as refinement, simple choices, production, efficiency, selection, implementation, and execution (Greve, 2007; March, 1991). Martin (2009) defines the characteristics of exploring versus exploiting in Table 2 below.

Table 2 – Characteristics of exploration and exploitation, adapted from Martin (2009, p20)

	Exploration	Exploitation
Organizational focus	The invention of business	The administration of business
Overriding goal	Dynamically moving from the current knowledge stage to the next	Systematically honing and refining within the current knowledge stage
Driving forces	Intuition, feeling, hypothesis about the future, originality	Analysis, reasoning, data from the past, mastery
Future orientation	Long-term	Short-term
Progress	Uneven, scattered, characterized by false starts and significant leaps forward	Accomplished by measure, careful incremental steps
Risk and award	High risk, uncertain but potentially high reward	Minimal risk, predictable but smaller rewards
Challenge	Failure to consolidate and exploit returns	Exhaustion and obsolescence

3.2.1 Balancing Exploration and Exploitation

Both exploration and exploitation are essential for organizations. They compete for scarce resources, and organizations make implicit and explicit choices between the two (March, 1991). It is hard for companies to be exploratory and exploiting simultaneously. One is not better than the other, since they can both create enormous value and will be critical to the success of any company (Martin 2009).

Many authors have expressed the need to balance exploration and exploitation (March, 1991; Benner and Tushman, 2003; Greve, 2007; Gilsing and Nooteboom, 2006). March (1991) argues that if a company engages too much in exploitation (to the exclusion of exploration) it is likely to find itself in a suboptimal stable equilibrium. However, exploration to the exclusion of exploitation means that the company exhibits too many undeveloped new ideas while ignoring distinctive competences. March (1991, p72) writes: *"It is clear that exploration of new alternatives reduces the speed with which skills at existing ones are improved. It is also clear that improvements in competence at existing procedures make experimentation with others less attractive."* Martin (2009) argues that since exploration is the search for new knowledge it does not typically on its own generate the returns needed to fund further exploration. As nine of ten start-ups fail, total devotion to exploration and the invention of new business is a risky proposal and therefore exploration alone is unstable business. Therefore, maintaining an appropriate balance between exploration and exploitation is a primary factor in system survival and prosperity (March, 1991).

Exploitation is just like incremental innovation needed for revenue streams in the present, and for responding to immediate market needs; for surviving in the short run (Greve, 2007; Darroch and McNaughton, 2002; Gilsing and Nooteboom, 2006). Exploration is just like radical innovation needed for securing future revenue streams and growth, and for responding to changes and new opportunities; for surviving in the long run (Greve, 2007; Darroch and McNaughton, 2002; Gilsing and Nooteboom, 2006). Just like radical innovations lead to follow-on incremental innovations, exploration leads to new knowledge and technologies that move into exploitation (Darroch and McNaughton, 2002; Gilsing and Nooteboom, 2006). And just like radical innovations, returns from exploration are systematically less certain, more remote in time, and organizationally more distant from the locus of action and adaptation. The search for new ideas, markets, or relations has less certain outcomes, longer time horizons, and more diffuse effects than does further development of existing ones (March, 1991).

Martin (2009) explains the fine balance between exploration and exploitation, and how it connects to two very different activities in his Knowledge Funnel. Seeking movement across the knowledge stages – from mystery to heuristics, and heuristics to algorithm – is exploring, while refinement within a knowledge stage is exploiting. Martin explains the problem of balancing the two is partly to do with the fact that many organizations flip quickly from an early exploration phase – solving the mystery behind the business opportunity – to steadily exploit the idea, never to return to exploration. This is the essence of the administration of business, as opposed to the creation of business. It is the idea of not exploring the next mystery, and as it often becomes a dominating part of the business, it explains one part of the rise and fall of businesses (the other being competition). The risk is that in due course, a competitor finds the mystery that sparked the original exploration for the incumbent firm, comes up with a more powerful heuristic, and supplants the incumbent (Martin, 2009).

3.2.2 The Exploitation Bias

Lafley (2008) explains as he took over as CEO and Chairman of Procter & Gamble (P&G), the company had struggled for long and needed to change focus. He argues that the company had exploited their core brands for too long to only re-invest in other brands or expanding geographically. Lafley means that companies can only exploit their business for so long, and in the medium and long run innovation is key in order to be a winner (he himself devoted the bulk of his time the first years as CEO exploring the ideas of R&D personnel and end customers).

There are several reasons why the balance between exploration and exploitation often tips over into favor of exploiting. The answer lies in the characteristics discussed earlier in the chapter, about returns to investment, benefits, and uncertainty. Greve (2007) argues that exploration in technological domains requires greater diversity of knowledge than exploitation, and therefore also a different set of capabilities. Exploration does not leverage current strengths as exploitation does, and it calls for less attention to the current strategy and lower conformity to current organizational practices (Greve, 2007; March, 1991). The result is a focus and trust in exploitation. Further, an emphasis on routine development and refinement, what Martin (2009) refers to as tuning the heuristics, will benefit exploitation but will suppress exploration. Innovations that leverage an improved system of routines have immediate and predictable benefits, and thereby exploitation becomes increasingly salient (Benner and Tushman, 2003). Cancellation of R&D projects that diverge from strategy and transfer of resources to strategy-congruent projects is an important mechanism for exploitation support, and usually experienced top management teams tend to favor exploitation over exploration (Greve, 2007). However, important exceptions do exist, such as Apple or GE. Levinthal and March (1993) argues that the problems of sustaining exploration is that learning processes are driven by experience. Since exploitation generates clearer, earlier, and closer feedback than exploration, and since exploitation corrects itself sooner and, again, yields more positive returns in the near term, the result is bias towards exploitation. The devil is the tendency of rapid learners and organizations to reduce the resources allocated to exploration, while certain, short run benefits of exploitation is a feedback pattern that easily draws attention and is rewarded by managerial incentives. The exploitation bias is fostered further by wrongly designed incentives and bonus systems emphasizing short term results over long term results (Levinthal and March, 1993).

Martin (2009) presents three strong forces that enshrine exploitation, and marginalize exploration. First, the *demand for proof*, Martin argues, is most probably the strongest of the three. It dominates senior management's considerations when allocating capital. Embedded in the very meaning of proof is the act of looking at the past and analytically determining what is true and what is not. This reliability of past experience almost always prevails against proposals that can only be proven by future events. As exploitation by definition builds on past experiences, past learnings, and past knowledge, it tends to trump exploration every time.

Second, the trust in *data to eliminate bias* serves exploitation over exploration. Martin argues that by relying on "computer code" (the ultimate algorithm) organizations can achieve massive scale and efficiency by honing their decision-making. However, data is not a predictor of the future, and markets do not always respond satisfactory to such reliability-based approaches. How can someone's taste in music or books be reduced to a formula, even if the formula is bias-free?

Third, the *pressure of time* strongly favors exploitation over exploration. A reliable, exploitative system, Martin argues, can generate tremendous time saving; it eliminates the need for subjective and thoughtful analysis by an expensive and time-pressed manager.

In summary, the competition for resources is asymmetric, with exploitation harming exploration, but not the other way around (Greve, 2007). The result is that performing exploitation not only improves the organizational routines for exploitation and increases the likelihood that exploitation will be performed again; it also reduces the resources available for exploration.

3.3 The Exploratory Way of Working

As described, working exploratory is risky. There are however ways to minimize the risks and avoid poor product development. Recent authors (Blank and Dorf, 2012; Furr and Ahlstrom, 2011; Ries, 2011) have published literature describing the need for new businesses to work exploratory, how to search for a business model, and how to avoid pitfalls and instead increase probability of being successful. Therefore, we draw upon this literature.

3.3.1 The Traditional Way of Product Development

According Blank and Dorf (2012), the New Product Introduction Diagram seen in Figure 8 is a good fit only when customers are known, product features can be specified upfront, the market is well-defined, and the competition is well understood. Blank and Dorf are critical to this project execution model as it does not fit new businesses well because very few new business fulfill these criteria.



Figure 8 – New Product Introduction Model adapted from Blank and Dorf (2012)

According to Blank and Dorf (2012) during the concept/seed-phase it is common that statistical market research and a few customer interviews fuel a first guess of what the finished product need to look like. A first guess together with a business plan, creative writing and passion is combined in the hopes to convince an investor or sponsor to fund future development. If successful, the next stage is Product Development where everyone stops talking and starts executing. Each department of the company goes on doing their respective job separately and uninterrupted by changes or new ideas put into the development. This commonly turns into the Waterfall Method, seen in Figure 9, where reversing or revising the product development in light of primary customer and user feedback is virtually impossible. Finally they arrive at a nearly finished product ready for alfa (α) and beta (β) Customer Testing. Preparation for the first shipment starts simultaneously with the Customer Testing to build up PR buzz. Addressing a mass-audience the company tries to go into big spending mode in order to promote and sell the product and create a customer demand. This is their first chance to truly validate their product's success. The model offers no customer feedback until the Customer Testing and by this time it's too late to make any major changes to the product. (Blank and Dorf, 2012, p 4-22)

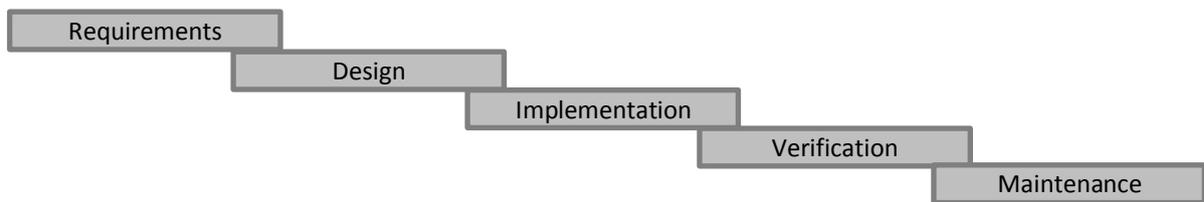


Figure 9 – The Product Development Waterfall Method

According to Blank and Dorf (2012, p. 8-21) there are 9 major reasons for why a new businesses fail when resorting to the New Product Introduction Model, see Table 3.

Table 3 - The 9 Deadly Sins of the New Product Introduction Model, by Blank and Dorf (2012, p 8-21)

The 9 deadly sins of the New Product Introduction Model	
1.	Assuming “I know what the customer wants”
2.	The “I know what features to build” flaw
3.	Focus on launch date
4.	Emphasis on execution instead of hypotheses, testing, learning, and iteration
5.	Traditional business plans presume no trail an no errors
6.	Confusing traditional job titles with what a startup needs to accomplish
7.	Sales and marketing execute to plan
8.	Presumption of success leads to premature scaling
9.	Management by crisis leads to death spiral

The first and second sins or reasons for failure are strongly interrelated, since the second is implicitly driven by the first and both assume an exact understanding of who the customers are, their needs, how to sell the product to them and eventually what features to build into your product. The third sin connects to managerial or investor demands of launching a product at a specific time, e.g. at a trade show, conference etc. This result in low or no tolerance to any delays and little time to revise anything, as it shuts down the “build, test and learn” flow. Thereby presuming the initial guess of what the product will look like is the correct guess. Strongly connected to the previous, the fourth sin does not allow you to build hypotheses and test them to eventually land on one that is validated with customers, but rather emphasize execution of a strict plan. Executing a strict plan should however only be done when customers, problems and business models are all known. Execution ties in closely with the fifth and seventh sins which represent sticking to a business plan and that sales and marketing try to execute according to plan. A business plan consists of milestones along with metrics such as revenue or profitability which is not applicable to new businesses whose goal is to find a repeatable and scalable business model. The sixth sin explains that e.g. a job title like ‘sales’ inaccurately describes the role of any employee at the company because no one is selling any products. There should not be any confusion with a traditional job titles since every employee should be working in search mode trying to find the business model and being comfortable with change, chaos and learning from failure. The eighth sin explains that the premature scaling and expansion of a business can be dangerous when there has not been any validation of the business model, even though a small success leads you into thinking you can succeed on a large scale. If the business model has not been validated, a premature scaling will be extremely costly. The ninth sin required the eighth sin to be fulfilled which states that if the company starts missing its sales targets, the head of sales will be interested in increasing sales , not acknowledging the poor product/market fit. Therefore he will not make the correct move of scaling back and start over if necessary. This will inevitably lead

to spending more money on a new sales strategy and burning through the last bit of cash. As a result the next round of funding may never come. Blank and Dorf (2012, p. 8-18)

3.3.2 Customer Development

Customer Development is a four step process and method of how to develop a product or service and bring it to the market successfully, see Figure 10. It is developed to specifically avoid the 9 deadly sins connected to the traditional New Product Introduction Model.

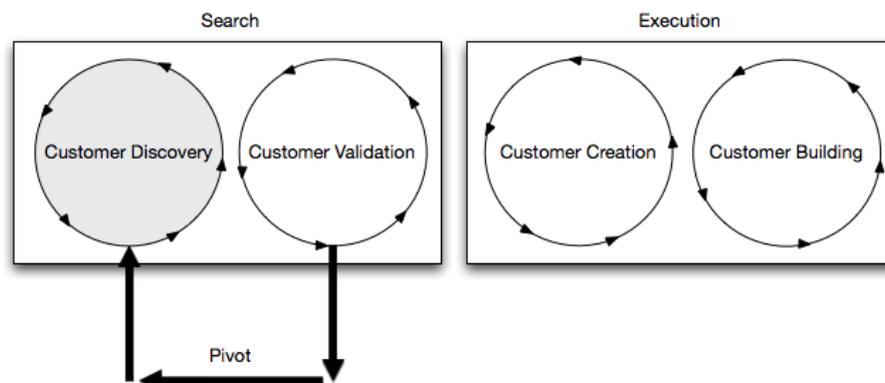


Figure 10 - The Customer Development Process and Method

The first two steps outline the **search** for the business model.

Customer Discovery is the first step where the founder's ideas of a problem that exist in the real world are turned into one or several business model hypotheses of how to solve the problem. These hypotheses are developed and tested on customers and, as they are validated, turned into facts.

Customer Validation is the second step and tests whether the resulting business model is repeatable and scalable. If it is not, then pivot and return to customer discovery

The third and fourth steps are included in the **execution** phase.

Customer Creation is the third step which is the start for the execution phase. It builds a demand from the end-users and drives it into the sales channel to scale and grow the business

Customer Building is the fourth and final step which transitions the organization from start-up to a company focused on executing a validated model

3.3.3 Deploying Customer Development

The most important features in Customer Development together with the most vital features in Customer Discovery are the following (Blank and Dorf, p. 55-97):

First thing first, **get out of the building**. Facts live outside of the building where the customers are and not inside the office. This is the most fundamental part to Customer Discovery, as well as the hardest part. It is much easier to build hardware, write code or go to meetings than find, listen and understand potential future customers. It is essential that it is the founders of the new business who get this experience first-hand because of two main reasons:

- Key customer feedback points are random, unpredictable, and often, not pleasant to hear. Delivering bad news to the founders is something which avoided by employees.

- No one else will be as keen to listen to what the customers are truly saying and the meaning of it. It is too easy for a founder to dismiss or ignore critical points of feedback from employees.

Failure is an integral part of the search. If you are afraid to fail in a start-up you are doomed to do so. In a start-up you are searching and not executing. Therefore the only way to find the right path is to experiment and choose the wrong ones a couple of times before you eventually find the right one. The earlier failure is encountered the better, and the faster a new hypothesis can be tested. That is why **continuous iterations and pivots** are crucial for exploration and search. Continuously going back retesting steps makes sure that you validate your findings and never miss out on any key information. Start-ups will fail several times along several steps and therefore often need to iterate each step several times. Therefore, to **design experiments and tests to validate your product hypotheses** is the key to gaining insights. A strong signal could be a phone call from a customer who explains the need for the product or solution right away.

In existing companies a requirements document is put together, which is filled with feature prioritized requests from which the engineers build the next product release. However, a start-up is not a small version of a large company; products are not designed to fit the mainstream customer. No start-up can afford to address the wide audience with a product containing every feature that the mainstream customer wants. This product would take years to build and be obsolete once it reaches the market. Therefore, **develop the product for the few, not for the many.** Enthusiasts will spread the good news about a great product to family, friends and co-workers. *Earlyvangelists* are a mix of enthusiasts and early adopters; the visionary customers, who buy unfinished and untested products because they want to be first. Therefore, **earlyvangelists are the most important customer** and they are often characterized by actively searching for a solution to a problem. Often, they find the problem so painful they have come up with a temporary solution already.

One of the most important parts of Customer Development is the use of **building a Minimum Viable Product (MVP)**. The goal of the MVP is to build the smallest possible feature set. Building a product with only a few important features should still prompt the earlyvangelists to use or buy your products. If not, then pivot and iterate until you have a solution that fits their needs. It is hard to admit being wrong in the long term, while making progress in the short term. But it is important to make decisions fast as the entire process relies on “learn, build, pivot” and the faster this happens the better and more likely it is to find a scalable business. Therefore, **fast decision making, cycle time, speed and tempo**, are crucial parts of exploration. It is therefore also of importance to **communicate and share learnings**. As everyone learns something outside the building it is important to share experiences and findings with each other so that everyone is on the same page.

Most people are great at execution, while in contrast start-up people are different. Exploration and searching for the new business opportunity **is all about passion**. Entrepreneurs have passion and are highly driven, not looking at their job as a 9-5 job but rather a 24/7 job. For entrepreneurs and start-ups, money is tight in the beginning. It is important to **preserve all cash until needed, and then spend** it once a scalable model has been found and validated.

Finally, **buy in to the Customer Development philosophy**. If the investor or sponsor does not recognize that this is a fluid, nonlinear search for a business model the new business is destined to fail. This becomes especially critical to make sure of if the investor or sponsor comes from a career of executing a plan.

3.3.4 Customer Insights

Lafley (2008) highlights the importance of unearthing the unarticulated needs from customers. P&G did this by employing a program that was called “living it” where P&G employees lived with the customers for some time in order to observe and find contradictions between what the customer says they do and what they actually do. Thereby, to discover unarticulated needs, it is essential to be around the consumer as they live their lives and use products to observe their behavior to find needs they cannot themselves explain or maybe even think of. Lafley (2008) specifically mentioned it can be deceiving to extract the customer from its natural setting, e.g. from their homes to a focus group, or sometimes extract their body parts, e.g. their hair for shampoo-testing. The reason is risk of missing out on important factors surrounding a products use.

3.4 Barriers to Exploration

As theorized above, balancing exploration and exploitation is difficult. The exploitation bias in itself is a massive self-reimbursing barrier to exploration. There is also important literature to draw upon further when speaking of specific barriers to exploration.

Martin (2009) shares the roadblocks (barriers) to exploration, with tendency for corporates to settle at current stage in the knowledge funnel as his main factor. This in itself is the essence of the exploitation trap, discussed earlier. However, there are also other important roadblocks. Letting mysteries remain mysteries, created by the mindset that “they are unsolvable”, will inhibit exploration. With today’s speed of technology development, the notion of what is forever unsolvable and what could soon be possible to solve is hard to determine. Martin also argues that leaving the heuristics (the known, the mastered) in the hands of highly paid executives or specialists with knowledge, turf, and paychecks to defend is another main roadblock. This relates to the fear of change, the risk averseness, and the unwillingness to explore areas that could change what is known and mastered in the present. It is a strong barrier towards exploring new possibilities, new technologies, or new customers and markets (Martin, 2009).

Lafley (2008) draws upon experiences from P&G to establish barriers toward exploration. Lafley argues that a main barrier is the loss of the customer-centric focus. Concepts start from insights, but quickly move from idea to prototyping with a technical focus. In order to do well with exploration, a customer-centric focus is needed in all parts of the innovation process, to the end. That focus is also in risk of being lost when communication between corporate functions is poor – the existence of company silos. There are also problems with a lack of focus on a single project, as too many projects run simultaneously relative to managerial and financial resources. Lafley further argues that there are many causes to barriers to exploration in the management of projects and project teams. Radical (exploration) vs. incremental (exploitation) innovation projects have often wrong leaders; search and exploration is led by a person who is an “incremental thinker”. Leaders are instead appointed for their domain knowledge rather than their ability to inspire, direct, and lead a group to fruitful outcomes. Managers often lack the decisiveness to kill projects early if needed, to reprioritize, or deal with team

dynamics when needed. Lastly, Lafley argues that senior management plays an important role in regard to exploration barriers. By interfering with team and project functioning behind the scenes, by deploying personal agendas, or by refusing to collaborate when expert resources are needed, senior management can inhibit or shut down exploration activities on the wrong basis (Lafley, 2008).

4. Case Company

This chapter contains an introduction to the case company's background and structure, the company's innovation strategy framework, and the innovation project management structure. This information is presented in order to understand the current innovation practices at the case company, and to support future analysis of barriers to exploratory innovation projects.

4.1 Company Background

Svenska Cellulosa Aktiebolaget (SCA) is a global hygiene and forest company that develops and produces personal care products, tissue, publication papers, and solid-wood products. SCA was founded in 1929 by the entrepreneur and industrialist Ivar Kreuger, by merging ten Swedish forest companies. Today, SCA is one of the world's largest companies in personal care products, the world's third-largest supplier of tissue, and one of Europe's most profitable forest products producers. (SCA official website, 2013-01-23)

In 1975, SCA took the first step towards becoming a personal hygiene and consumer goods company by acquiring Mölnlycke AB. This resulted in tissue, diapers, feminine hygiene, and incontinence products being included in the product portfolio. In addition to Mölnlycke, SCA acquired the majority shareholding in German company PWA in 1995, and the two is the core of SCA Hygiene Products AB; the largest personal care products company in Europe (SCA official website, 2013-01-24). SCA Hygiene Products is SCA's most important subsidiary; a giant in the personal hygiene and consumer goods industry, today responsible for 79 percent of SCA's total net sales and 85 percent of total operating profit (SCA Year-end Report Q4, 2012).

SCA Hygiene Europe manufactures and markets incontinence care products (SCA Incontinence Care Europe), baby diapers, feminine care products, and consumer tissue (SCA Consumer Goods Europe), and away-from-home tissue products (SCA AFH Professional Hygiene Europe). The products are sold in more than 100 countries under leading global, regional and local brands. The two strongest brands of SCA Hygiene are the global brands TENA, the worldwide market leader for incontinence products, and Tork, the European market leader for professional tissue. In total, SCA is the European market leader in incontinence, consumer tissue, and away-from-home tissue products, and the European market accounts for 76 percent of SCA's global sales (SCA Annual Report, 2011).

4.1.1 SCA Innovation History

SCA Hygiene (and Mölnlycke prior to the acquisition) has a strong history of innovation and successful entrepreneurship, where breakthrough innovations during the 1960's, 1970's, and 1980's have largely contributed to today's strong market position. Mölnlycke was started as a textile manufacturer in 1849, and used that knowledge in the 1940's to invent an absorbing gauze bandage called Mesorb. In the 1960's, OP-Plast, a surgical drape material protecting against surgical infections, is invented (Mölnlycke official website, 2013-01-24). When SCA acquires Mölnlycke in 1975, all the accumulated knowledge about absorbents and clinical care material enables opportunities with baby diapers and incontinence care products. As shown in Figure 11 below, several breakthrough (BT) innovations (SCA internal label) are realized in the incontinence products category during the years 1960 to 1992. The acquisition of Mölnlycke also launched several next generation (NG) innovations. However, since 2000 the rate of breakthrough and next generation innovation development has decreased. 2002 saw the launch of TENA for men,

and while the target customer is new, it is questionable if the innovation can be considered breakthrough. In 2005 SCA introduced TENA Services, a business model innovation that changed the TENA offer from sole products to services, but the full extent of the success of TENA Services is not yet determined.

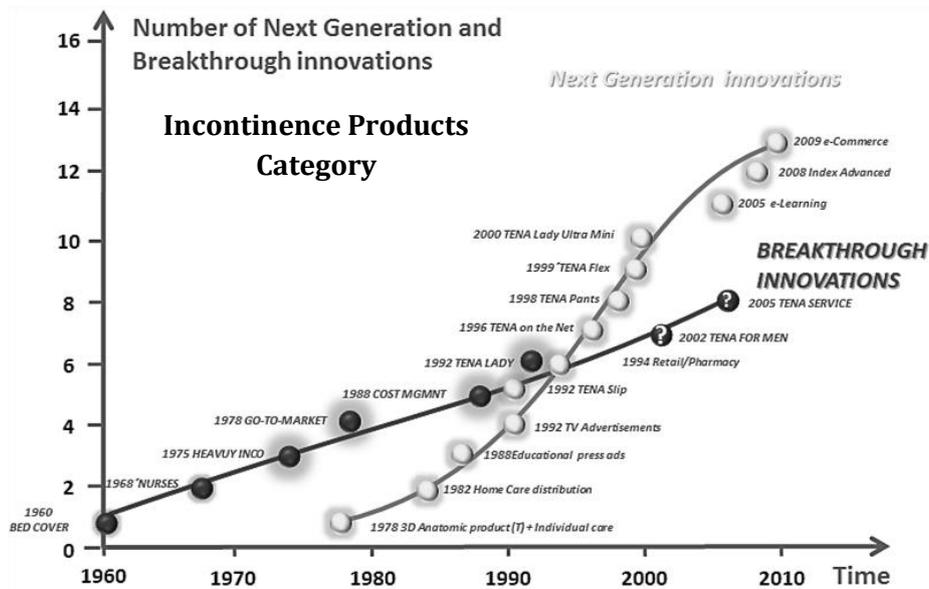


Figure 11 – History of NG & BT Innovations in Incontinence Care (SCA Internal Documents, 2013)

For the Professional Tissue category, the story is similar when it comes to breakthrough innovation, see Figure 12. Since the mid 1980's, only two innovations have been labeled as breakthrough, but SCA notes that while these were breakthrough for SCA, they were not the first to offer them to the market. The number of next generation innovations has increased for AFH Tissue over the last twenty years. However, it can be speculated where many of these innovations would place on the incremental to radical spectrum, as many of them looks to not alter the business model in any radical way.

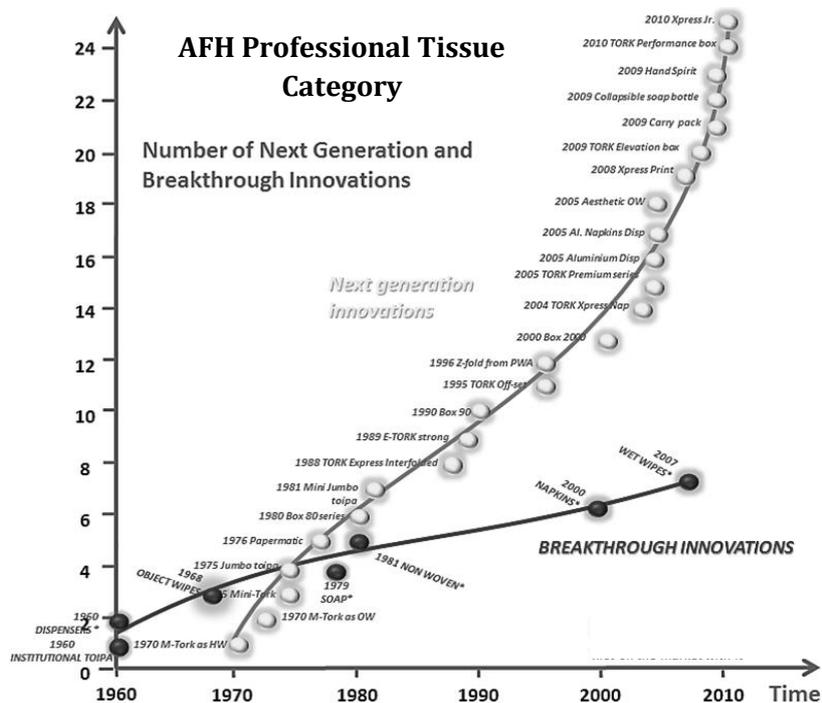


Figure 12 - History of NG & BT Innovations in AFH Professional Tissue (SCA Internal Documents, 2013)

4.2 Innovation Strategy Framework

Today, SCA has an Innovation Strategy Framework that, at least on paper, looks to address and nurture the innovation culture in the company. It is centered on the concepts of Create, Combine & Deliver: “We *create* and *combine* solutions to *deliver* innovations that strengthen our brands and drive growth and profit.” In total, there are seven key issues that comprise the Innovation Framework (SCA, 2012). The innovation framework tries to contribute to an innovation culture that is built on customer insights paired with technology insights, where innovation is cross-functional, and where breakthrough and radical innovation initiatives have strong incentives, see Figure 13.

By **Create**, SCA means the following:

- Innovations are built on **consumer and customer insights**.
 - Insight Way of Working is agreed and cascaded in the organization.
 - Significant part of innovation time is spent close to consumer & customers to understand behaviors and needs.
- We create **visions** and **guidelines** for our innovation portfolio by combining our knowledge of consumers, trends, technology, competitors and markets.
 - Product and service visions and development roadmaps for strategic assortments are developed and updated yearly to guide innovation work short and long term.
- We have an **innovation culture** that promotes creativity in an open, cross-functional, close to consumer & customer way of working.
 - We drive Innovation Culture by embedding this in all what we do.
 - Incentive systems are developed to promote New Generation and Breakthrough projects as well as team work and external co-operations.

Figure 13 - Innovation Strategy Framework (SCA, 2012)

The innovation framework also tries to establish an exploratory way of working with potential radical or breakthrough innovations. The idea is quick testing of new concepts in order to understand what customers want, see Figure 14. On paper, this is a way to reduce uncertainties and risks with innovation projects that are unfamiliar to the company.

By **Combine**, SCA means the following:

- We **combine** our own competence and creativity with **external** partners and expertise to get access to key competencies and resources.
 - Based on defined focus areas we have:
 - i. Fast and relevant processing of external proposals (out-side in).
 - ii. Focused in-side out activities: identify what could/should be done externally and actively look for partners.
 - A Way of Working with key partners to establish and manage balanced partnerships (win-win, trust, IP rights) with special focus on asymmetric partnerships (SCA and small companies or start-ups) is agreed.
- We drive breakthrough innovation through **combining insight derived product & service offers** with **relevant business models** using the **Iterative** way of working.
 - New potential breakthrough innovations are tested quickly and cost effective in small scale, to learn what works and not.

Figure 14 - Innovation Strategy Framework (SCA, 2012)

Finally, the innovation framework also tries to establish an innovation portfolio that is balanced between improving current knowledge and creating new knowledge, see Figure 15. However, the notion of ‘Deliver’ indicates, perhaps unintentional, focus on execution and implementation, something that does not coincide well with the concept of exploration.

By **Deliver**, SCA means the following:

- We have a **balanced innovation portfolio** to support growth and profit short and long term.
 - Portfolio value and balance in innovation areas and types are matching strategic ambitions for each specific category.
 - Portfolio prioritization allows projects to be manned effectively.
- Projects have **early business commitment** and are delivered to markets in **agreed time**.
 - All projects include a launch plan and business model confirmed in co-operation between GHC and markets.
 - Project portfolio is agreed upon in Category Executive Teams and launches are discussed and agreed with receiving markets at an early stage.

Figure 15 - Innovation Strategy Framework (SCA, 2012)

4.3 Innovation Classification

SCA distinguishes innovations and corresponding innovation projects to be one of four different types (Table 4). At SCA, the most basic type is Cost Saves (CS), which together with Upgrades (U) forms the basis for all incremental innovations. Cost Saves are focused on the decrease of costs for sourcing, producing, or delivering current products or services. For Upgrades, the focus is solely on existing offers and customers, not looking to stretch the brands or more then slightly change the way the products or services are used or consumed. SCA’s Next Generation (NG) innovations look to radically upgrade current offers and can be seen as being in between incremental innovation and radical innovation. Finally, with Breakthrough (BT) innovations SCA means innovations that are completely new to the market and the company (SCA, 2012).

Table 4 - SCA Innovation types (SCA, 2013)

Innovation Type	Main Purpose
Breakthrough (BT) 	Creating new-to-market offers such as brands introductions, services, logistic solutions, partnerships or products expected to fundamentally alter the growth of the business and to provide new platforms for growth
Next Generation (NG) 	Developing new-to-company offers, such as brands introductions, services, logistic solutions, partnerships or products or creating next-generation replacements for existing offers
Upgrade (U) 	Supporting existing offers by altering the performance of an existing offer such as brands introductions, services, logistic solutions, partnerships or products in order to grow or maintain our business
Cost Save (CS) 	Increasing operational productivity by decreasing costs anywhere in the supply chain or in the go-to-market process.

SCA further uses a Consumer/Customer Technology Matrix (Figure 16) as a tool to create visibility of the portfolio balance between the different types of innovations. One dimension of the tool covers the technical or business model challenge connected to the innovation. SCA believes that a radically new BM can be protected by its sheer difficulty for competition to apply, while a radically new technology is protected via patents, and hence could be breakthroughs. An evolutionary new BM or technology may also be protected to some extent, at least technically. An offer without a change in BM or technology cannot be protected and hence cannot lead to breakthroughs (SCA, 2012).

		Consumer Perception of novelty in use			
		New behaviour	New way to apply	Variants	No Change
Technical or Business Model Challenge	SCA <i>Life</i>				
	Radically new	BT	NG	U	CS
	Evolutionary new	BT	NG	U	CS
	No change	NG	U	U	CS

Figure 16 - Consumer/Customer Technology Matrix (SCA, 2012)

The second dimension of the tool is the customer or consumer perception of novelty in regard of the innovation. SCA says that it is vital that the role of the external receiver of the innovation – the consumer and/or the customer – is involved in the classification of the projects. The consumer perception is divided into four different levels: No Change is exactly the same as before; Variants could be an offer that has increased functionality; New Way to Apply covers products or services that in a moderate way changes the way the consumer uses the product, and; New Behavior products or services drastically change the way the customer uses the offers from SCA. An example of New Behavior could be going from using incontinence diapers to treating incontinence medically.

4.4 Innovation Management

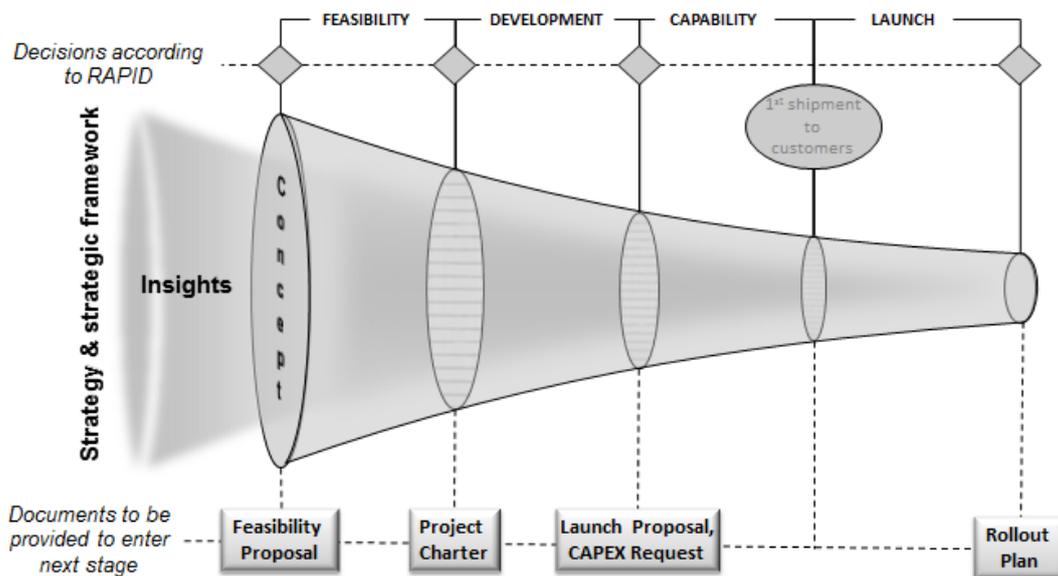


Figure 17 - SCA Innovation Funnel (SCA, 2013)

At SCA, Innovation projects are managed as one project through an Innovation Funnel (Figure 17), from feasibility to launch, and structured in four stages: *Feasibility*, *Development*, *Capability*, and *Launch* (SCA, 2013).

The **Feasibility Stage** starts based on a Feasibility Proposal, a document where the project members make a case for why the innovation would be worth going for. Main activities in this stage are development of a marketing concept, qualitative consumer/customer assessment of product or service, business modeling, evaluating technical and commercial feasibility, assessment of business size and preparation of high level business case and project plan including assumption on technology and suggested launch plan (SCA, 2012).

The project then progresses into the **Development Stage**. The starting point is a Project Charter that summarizes the preliminary Business Case and the Project Plan. Once the Project Charter has been accepted, the project will be formally added in the 8 Quarter Activity plan (Figure 18) and the Consumer Technology Matrix (see Figure 16). Key activities are development of product, service, manufacturing technology and model campaign. It will lead to the creation of a detailed business case and project plan including launch plan. Quantitative consumer/customer assessment will take place in this stage. The delivery from the development stage is a Launch Proposal and a Capex Request when Capex is necessary (SCA, 2012).

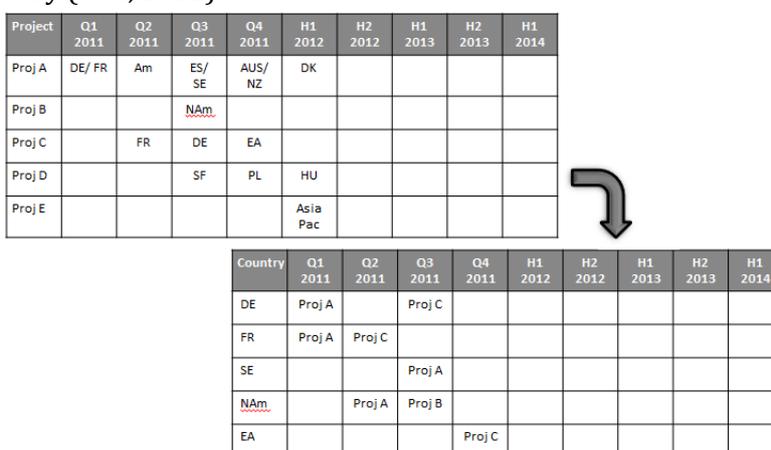


Figure 18 - 8 Quarter Activity Plan (SCA, 2012)

The decision to enter into the **Capability Stage** will be based on the Launch Proposal and the Capex Request approval. In this stage the main activities are finalization of a financial plan, to be embedded in an annual budget and strategic plan, as well as all marketing activities (communication, media and trade/customer presentation in the test market) and a launch timetable. Equipment installation, process validation and supply chain set-up will take place (SCA, 2012).

Entering the **Launch Stage** is triggered by the “first shipment to customer”. The main activities are to make and execute first market launch, in line with overall business plan. Focus is on monitoring the results and adjusting the plan towards action standards (e.g. listing speed, brand awareness increase, sales development) in a real environment, regular reviews and corrections are taking place. If the launch in first market meets its action standards, a proposal for roll-out (Roll-out Plan) will be developed and submitted. SCA notes that the funnel is not a tunnel; a project not passing a stage-gate will by consequence exit the funnel (SCA, 2012).

5. The GIRO Project

This section contains the participant observation study performed at the case company. The study is an actual exploratory innovation project, called GIRO, of which the thesis workers have been part. By being part of an actual innovation project, and deploying exploratory methods, first hand experiences on barriers to exploratory work could be obtained (participant observation study), and through those experiences actual barriers that might not be visible on paper could be identified. This chapter aims at describing the project, how it was carried out and its setting. For the results of the experienced barriers, please refer to the next chapter.

One of SCA Hygiene Products' strongest brands is TENA, the worldwide market leader for incontinence products. Today, TENA is sold to the retail market as incontinence protection for men and women, as well as to institutions like nursing homes, elderly care facilities, or hospitals. TENA is considered to be a premium brand in the market, and all TENA products are said to have better absorption, better hygiene, easier handling, and less volume-generation due to premium quality. Additionally, towards institutional care, TENA is now sold through TENA Solutions™, a service package that institutions receive when purchasing TENA. TENA Solutions look to plan, coach, and monitor incontinence care at each nursing home, and to make significant contribution to the quality of care by supplying individualized products to residents, by educating and coaching staff and caregivers, and by reducing costs of care through best practice product consumption.

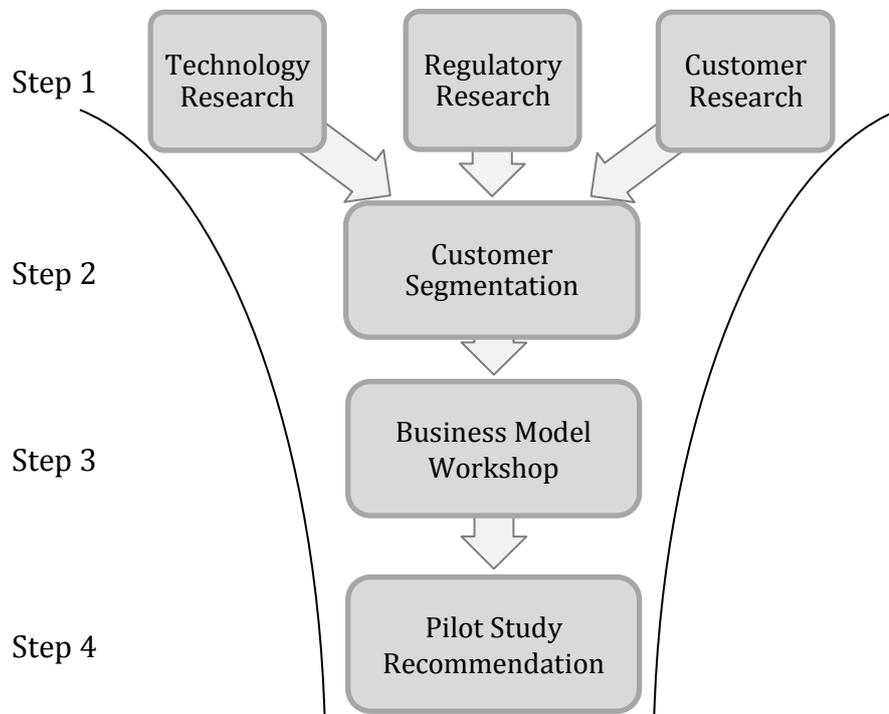


Figure 19 – GIRO Project Process

5.1 Deploying Customer Development

From the start, the focus for the customer research was to deploy the mindset and methods of Customer Development to get to the bottom of what the 'pain' exactly were for these SCA customers. The project was set to conduct a large-scale questionnaire collection from 20 nursing homes in five different countries. Since the questionnaire was largely quantitative (aimed at quantification of waste handling parameters such as waste types,

generated volume or weight per week, cost structures, and actions thought of or already performed in order to either reduce waste generation or reduce cost of waste handling), the visits to the nursing homes was much more qualitative in an attempt to work exploratory. Focus was on on-site watching and observing the current situation and process for waste handling in order to understand the needs and potential problems, as well as conducting semi-structured interviews using open questions in order to clarify the level of 'pain' that the waste handling process constituted. A second desired outcome of the semi-structured interview was to get an understanding of other management issues that nursing home directors and staff face in order to compare and relate these issues with the pain of waste handling.

5.1.1 Exploring an International Situation

The international takeaways were first of all a general understanding of the waste generation and disposal flow throughout a nursing home. An understanding of challenges connected with manual handling of wasted incontinence products, the time it 'steals' from caregiving each day, and cost structures for disposing of waste was also acquired. In summary, main takeaways were:

- **Waste handling requires a lot of manual work.**
- **Waste disposal is paid out of nursing home's own budget.**
- **Given size of nursing home, waste handling requires heavy lifting and unhygienic handling.**
- **Storing of waste before disposal done outside, meaning smell and pest growth in summer when weather is hot.**
- **Keeping up with laws and regulation is very important and found stressful.**
 - E.g. number of minutes of care given to each patient per day.
- **Getting rid of waste costs a lot of money.**
 - In some municipalities disposal cost per diaper almost equals purchasing price of the diaper.
 - Either charged a tax or a tariff (most common).
 - Tariffs are either based on weight or on volume generated.
 - Volume is currently the most common tariff, although shift to weight is happening and is expected to be standard practice in the future.
- **Apparent 'quick fix' for some SCA customers by offering solution to waste volume generation.**
 - One customer had already acted on its own and invested in one technology (from a Swedish company). Able to reduce volume (and cost) of waste by 50%, and payback on investment achieved after 7 months.
 - Another technology supplier possible partner for volume reducing needs.
- **Long term changes hard to assess. Trend towards charging per weight instead of volume, meaning more delicate solutions may be needed in the future.**

5.1.2 Exploring the Swedish Situation

In Sweden visits included, in total, 9 nursing homes and the Renova incineration facility of Sävenäs, an interview with a Waste Manager at Renova, an Environmental Auditor at SCA, and sales staff from SCA. Building from the experience of the international market, the goal with visiting Swedish nursing homes was to understand how well the international issues match the issues perceived at Swedish nursing homes. Key insights from visits and interviews were the following:

- **Waste is not a considerable issue/pain**

- First reactions were telling: *“we don’t think about that much at all.”*
- 2 out of 9 NH’s expressed some concern over waste handling procedures
- **Great differences in waste handling procedures**
 - Very hygienic and convenient automated chute systems at one end of the spectrum, and local manual handling procedures at the other end
 - Possibility of sorting out incontinence products when disposing waste differs accordingly
- **Waste disposal cost structure is more complex and differs between municipalities**
 - Three different and important situations for waste handling incentives:
 1. Waste handling/disposal is on the NH’s budget, as they pay the municipality to get rid of waste. NH **can** directly affect the costs of waste handling and will benefit from cost reduction as well as increases in hygienic/safety/environmental factors.
 2. Waste handling/disposal is paid by Real Estate owner (of the NH) who in turn pays municipality. NH **cannot** directly affect its waste handling costs, but can still benefit from increases in hygienic/safety/environmental factors, but no clear incentives to reduce waste costs.
 3. Waste handling/disposal is paid by municipality directly (the municipality owns the facilities of the NH). NH **cannot** directly affect its waste handling costs, but can still benefit from increases in hygienic/safety/environmental factors, but no incentive to reduce waste costs.
- **In regard to other problems, waste handling is not as pressing**
- **Other concerns that take a lot of the managing directors attention at the moment**
 - Administration
 - Scheduling
- **Most important challenges considered currently**
 - Personnel issues
 - Work environment

Compared to the international situation, the Swedish nursing homes that were visited did not view waste handling nearly as troublesome. In many cases (5 out of 9) the nursing homes themselves did not control the budget or cover the costs for waste disposal. In those cases, waste disposal is either included in the rent paid to the real estate owner (and money to pay rent is provided by municipality), or it is paid by the municipality directly. In either case, the benefactors of reducing waste costs are currently non-SCA customers. Furthermore, out of the nursing homes that do cover costs for waste disposal, and thereby has an incentive to reduce those costs, some have garbage chute systems (automatic and non-automatic) installed in their facilities. These homes already have an easy, safe, hygienic process for waste disposal, and unsurprisingly do not view the waste handling process as cumbersome. The usage of chute systems also limits the ability to sort out incontinence waste from all household waste, something that would be required for certain technological solutions. In summary, the stakeholder structure for Swedish nursing homes can be seen below (Figure 20).

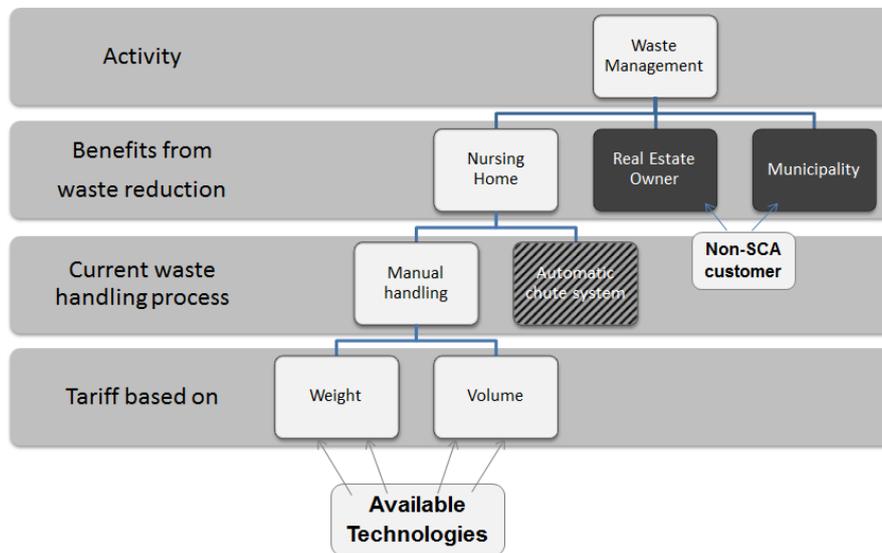


Figure 20 - Stakeholder breakdown of Swedish nursing homes

5.2 Additional Findings

By interviewing an Environmental Advisor at SCA, a Waste Manager at Renova, and by visiting the Sävenäs Incineration Facility, additional inputs to the projects were found. Today, Sweden is one of the countries that have an infrastructure built around incineration of waste. Incineration facilities are paid per weight they incinerate, meaning incentives to collect as heavy waste as possible. Incontinence products have high energy value and lots of moisture that creates a balanced incineration level, and the moisture is turned into vapor that is used for electricity generation (Environmental Advisor SCA, 2012; Waste Manager Renova, 2012). This means that municipalities want to incinerate as much as possible and it also means that reduction of such waste (diapers make up about 5-6% of total household waste) might not benefit the municipality, at least short term (Waste Manager Renova, 2012). As the Waste Manager at Renova expressed:

"If the municipality operates an incineration facility you need it to be profitable. Therefore you want to burn diapers. On the other hand if you don't operate an incineration facility, and instead need to send the waste a long way, then you are more likely to encourage the reduction of waste."

5.3 Customer Segments & Business Modeling Workshops

The findings that were generated from exploring the international situation and Swedish situation, as well as the key insights from the additional interviews served as input to two different project workshops abroad- one in November and one in December.

The first workshop was done in order to bring everyone in the project up to speed on the current understandings in all areas of the project. The customer research was used for understanding the fact that the market that SCA faces in regard to waste management is very fragmented, with a complex chain of stakeholders, and with large differences on national, regional, and municipal levels. The outcome of the first workshop was five different target customer segments, mapped up using the Business Model Canvas.

The second workshop was done in order to do business modeling and risk analysis on two out of the five customer segments identified in the first workshop. The two customer segments chosen were the two with the highest potential for action in the present:

Segment 1. Nursing homes with a variable cost/tariff for waste disposal based on generated volume of waste, and who also have clear interest in Environmental, Hygiene, and Safety issues.

Segment 2. Nursing homes with a variable cost/tariff for waste disposal based on generated weight of waste, and who also have clear interest in Environmental, Hygiene, and Safety issues.

The outcome of the second workshop was two business models for the two segments, with calculations supporting a business opportunity under certain necessary variables. The risk assessment resulted in identification of main risks going forward. The three most important risks were identified as *Risk of cost assumptions being wrong*, *Risk of rejection because of bad fit with SCA long term strategy*, and *Risk of economic and market failure due to too few customers accepting offer*.

5.4 Project Summary

The research that was done in Step 1 led to important insights in the customer situation. The market for waste management for nursing homes is very fragmented, and differences in both legislation and processes exist on national, regional, and local levels. The main takeaways from the international customer research was that the situation was considered to be problematic for many nursing homes struggling with high cost and regulatory procedures that have to be adhered to. In Sweden, the need for new solutions was much lower, as many already have working or sophisticated solutions. Additionally, in a country where incineration of waste is a well-established part of the infrastructure municipalities might wish or even need to incinerate the type of waste that this project looked to remove or reduce.

In Step 2, two types of international customers, or segments, were developed from the information that was gathered in Step 1: Nursing homes that pay a variable waste disposal tariff based on volume of generated waste, and nursing homes that pay a variable waste disposal tariff based on weight of generated waste. Both segments also have a clear interest in Hygienic, Environmental, and Safety issues.

During the Business Model Workshop in Step 3, these two segments were mapped up on a business model canvas to build an entire business model proposal for meeting them. Calculations were made and the results showed promising return on investment for both segments under certain conditions such as number of patients and tariff level.

The project is now in Step 4, waiting to present the case for the steering group in order to decide if and how to proceed with a pilot study.

6. Empirical Study

This chapter contains the empirical study that builds on two parts; (1) the participant observation study performed at the company and (2) 18 interviews with company employees. In the empirical study, each of the seven identified barriers from the participant observation study will be presented and examples will be given to build an understanding of each barrier. As a result of 18 interviews at the case company, different levels of support for each barrier have been obtained and are also presented. Additionally, four more barriers were discovered in the interviews which are also presented. The chapter ends with a complete summary of the eleven identified and verified barriers to exploration.

The chapter contains the observations made by the two authors and shall be regarded as such. Some observations may have been slightly misunderstood or taken out of a context, but were chosen not to be double-checked again afterwards by the interviewees or the observed persons to get their re-verification, as that may have decreased the emphasis of the first observations made.

During the GIRO Project described in Chapter 5. The GIRO Project experiences which had a direct or indirect negative impact on the possibility to work exploratory were noted. Many of these points have been experienced and acknowledged multiple times, and therefore examples are given to illustrate the barriers. In total, seven barriers to exploration were recognized in the participant observation study.

In the next stage of this thesis an attempt to find support for the findings in the GIRO Project was made. As described in Chapter 2.1 Research Strategy and Design, 18 interviews have been conducted with employees from different departments to get their view on innovation projects at SCA. The interviews were semi-structured and lasted approximately 50 minutes on average, with the shortest being 30 minutes and the longest being 70 minutes.

During one of the first interviews it was decided to try to quickly move through all seven barriers and talk about each of them. This resulted in a quick introduction, shorter time spent on any one single barrier and very shallow communication. When efforts were made to extract the personal opinion of the interviewee, he/she continuously kept answering question with the view of the company by using the term “one” instead of “I”, in order to generalize and keep a distance from any personal views. As this was not the desirable outcome of the interviews, a decision was made to turn to having more open interviews. As a result, the interviewee got a chance to speak about the topic and barriers he or she think were interesting. The goal for each interview was not to ask questions about each barrier, but rather to get an intimate conversation to avoid socially desirable answers. This allowed for elaborative discussion and led to the discovery of four additional barriers which the interviewees explained caused problems in projects. These four barriers were then added to the matrix seen in Appendix B – Interview Result Matrix.

6.1 Barriers to Exploration

Of the total of eleven barriers, the first seven have been experienced during the GIRO Project and verified in the semi-structured interviews. During the interviews, another four barriers (#8-11) were identified. The barriers are presented in Table 5, below.

Table 5 - Barriers to Exploration

Barrier identified in participant observation study
#1 Limited direct access to lead-users/customers
#2 Execution mindset rather than exploration mindset
#3 Technology/Product mindset rather than customer need
#4 Slow communication and different perceptions of project aim and purpose
#5 Targeting the ultimate final offering rather than Minimum Viable Product
#6 Poor re-use of prior insights
#7 Lack of sufficient focus on current project
Additional barriers for exploratory innovation projects, discovered in interviews
#8 Project is killed because of poor fit with existing brands
#9 Projects are not green-lighted nor killed
#10 Established distribution and/or sales channels hampers the launch of new products
#11 Rigid project structure impede flexibility and speed

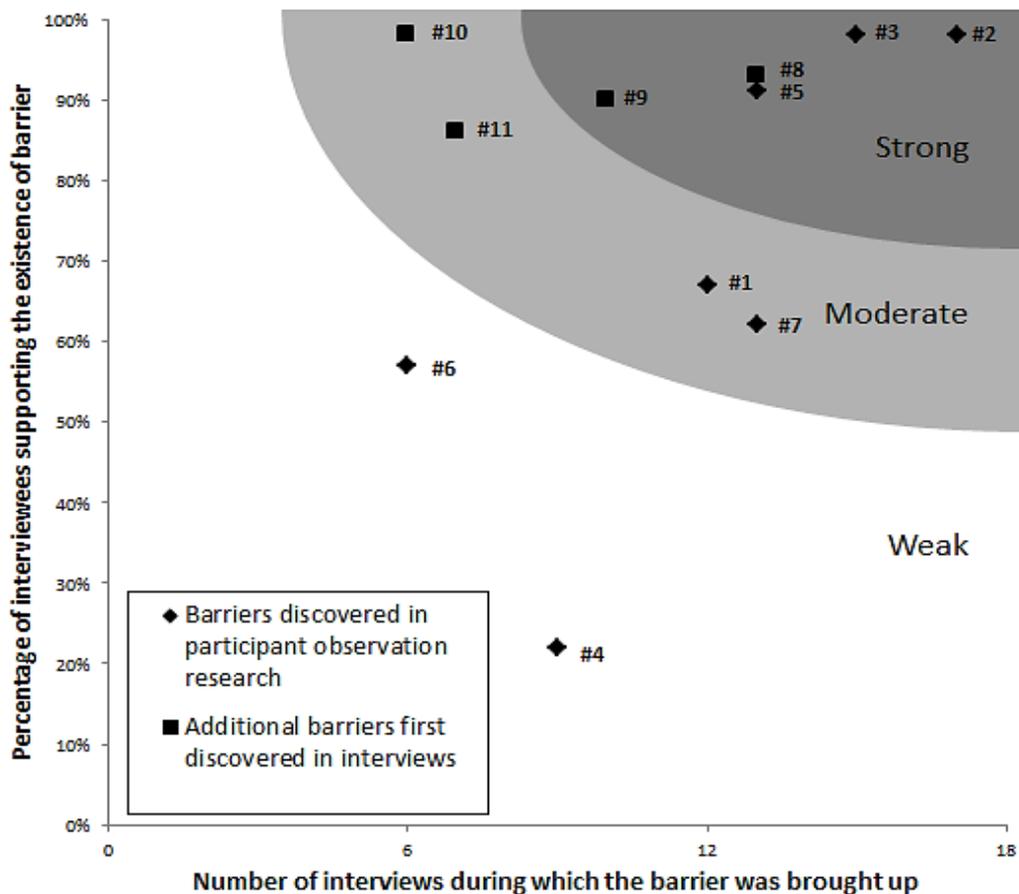


Figure 21 - Barriers to Exploration Validation

The above described method of interviewing generated variation in the interviews. Therefore all 11 barriers have not been discussed in each interview. Figure 21 illustrate the number of interviews during which each barrier was brought up, and the percentage of those interviews that confirms the existence of the barrier. The more times the barrier has been brought up and the higher the percentage confirming the existence of the barrier,

the stronger the support. The level of support has been divided into **strong, moderate,** and **weak.**

6.1.1 Barrier #1 - Limited direct access to lead-users/customers

- **Definition:** *Limited direct access to lead-users/customers* means that it is hard to access contact-details, get in touch with, or meet with customers of SCA.
- **Why the barrier is of significance:** Talking to customers frequently is important in order to understand their need, ask them what they think of ideas, get feedback from them, and quickly test prototypes of new product ideas.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#1 Limited direct access to lead-users/customers	Majority think it is difficult to access customers due to sales organization	Some have their "own network of people" within the sales org. thereby not a problem	Moderate (8/12)

GIRO Project findings

Throughout the project it was difficult to reach existing customers of SCA in order to understand their situation and possible problems they have. In order to reach the customers a contact with the sales organization had to be established. There was no standard procedure of whom to contact in order to get in touch with the customers. In short, there was a large barrier to getting access to customers and lead-users.

Example 1: The sales organization are the only ones in contact with customers today, no other channel is established. The project group did not know who to contact in order to reach the customers, only that it would have to be someone special within the sales organization; someone that 'anyone' implicitly was not allowed to talk to directly. Instead, it would have to go through one of the people "who knew someone" within the sales organization.

Example 2: No one knew if anyone from the sales organization had an office inside the headquarters, reducing the chances of establishing the needed connection to reach customers. This demonstrates the long distances from the sales organization and innovation teams.

Example 3: When declaring the intent of making a list of nursing homes from the yellow pages and contact them directly, a regional sales manager – who was finally reached – promptly discarded the proposal. Claiming that it would be a huge disaster to contact a nursing home, which already was a customer to SCA, without informing the corresponding sales representative, the sales manager specifically said: "that can absolutely not happen."

Example 4: When finally reaching three customer-responsible inside the sales organization they needed to be convinced before allowing meetings with their customers. They explained the need to have a meeting to discuss suitable customers, if any. The result was that weeks went by without the possibility to meet with a single customer. In the end bargaining was needed – i.e. I scratch your back; you scratch mine – in order to gain access to customers. Eventually contact details to customers were acquired from the sales representatives and visits to nursing homes was possible.

Example 5: One visit with an SCA customer was planned through a personal contact of an employee at SCA. The sales representative of that customer was noticeably upset and concerned about the visit, explaining that previous customer visits had not been very successful. The sales representative also said "I have not visited them in a long time; it might be weird if you visit them before I do."

Interview validation findings

Level of support from interviewees: **Moderate (8 out of 12)**

A mixed view on whether employees think it is easy or hard to get in touch with customers was compiled, depending on an employee’s relationship with the sales force. Nevertheless, the direct access to customers is limited.

Those who did not experience a problem had direct access to customers through established connections with the sales organization. One person illustrated this as “I have my own network of sales people which is a huge advantage”, and several other agreed that having a “way in” to the sales organization is a must and that the sales people need to trust you as a person before they take any risks of letting someone else within SCA to meet them.

However, many people noted how difficult it is gaining direct access to customers. On the extreme end of those, one expressed the situation with an example, saying: “Eventually, we gave up going through the sales organization because of the hassle, and spent a lot of money to hire an external party who conducted market research for us. It was foolish and expensive, but we had to circumvent the sales organization somehow.”

Several comments included the need to please the sales organization; “If you are taking up their time or want their help, you should be prepared to give them something in return.” This could be anything from giving them the sensation of being a hero for helping out, or promising them a great new product to sell next year. If you were unable to do this it was hard to argue why you should meet their customers.

After explaining that it is expected of the employees to meet customers and learn from them, one person described the situation as the following: “It is expected of you to travel in our line of work, so we do, and the company has arranged to help you do this with a travel agency. It is also expected of you to get out there and meet customers, so we try doing so, but the company hasn’t arranged for any easy way to do so.” As of today the sales organization are the only ones with a formal direct contact with the customers.

The reason for the, sometimes, reluctance from the sales organization to help SCA employees reach the customers was coherent among the interviewees. The sales organization lacks incentives for helping out in these situations. In fact, the KPIs the sales people are measured on only involves the volume of sales, and any activity not supporting this is therefore considered to be unnecessary or even interfering.

6.1.2 Barrier #2 - Execution mindset rather than exploration mindset

- **Definition:** *Execution mindset rather than exploration mindset* means that the perceived mindset at personal, group or organizational level is heavy towards execution (planning, calculating, implementing) rather than exploration (searching, experimentation, learning)
- **Why the barrier is of significance:** Being comfortable, allowed and encouraged to explore (search, experiment, learn) is vital to be successful in exploratory projects.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#2 Execution mindset rather than exploration mindset	Majority feels searching or exploring is not perceived as actual work	Not even one person felt they could be searching and exploring w/o need to deliver results	Strong (17/17)

GIRO Project findings

During the project there has been an overly structured approach to many situations. The mindset has not been to fully search for the voices of potential customers, but rather to

focus on listing and eliminating solutions. (Knowledge in which type of mindset a person possesses tends to be very tacit; it becomes hard to give concrete examples of activities that demonstrate a certain type of mindset.) While formal titles may contain words like “Exploratory Concepts”, it does not automatically mean that an exploration mindset is dominating the way of working.

Example 1: In the beginning of the project a whiteboard was filled with a table, and a group member commenting that this was “all the possible solutions, I don’t think there could be any other out there, let’s use these and move forward”. A systematic approach and deadlines to meet was preferred throughout the project.

Example 2: Early in the project, ideas about exploring other possible sources of waste were shut down: “in this case we already know what we are dealing with; there are not that many additional sources”.

Example 3: The project was structured with clear investigation points, e.g. one said “we have now found these five technologies, there cannot possibly exist any other, so let’s find out which one is the best”. Explore any other investigation points were not to be carried out.

Example 4: An external consultant was hired, whose area of expertise lies within waste management and technical system solutions. During the project this consultant was focused on the technical capabilities that could be applicable to the situation and listed what was referred to as “all the possible solutions”. The list of solutions was compiled by combining four different modules of technical solutions and the permutations added up to over 30 different solutions. Then an elimination of the poorest solutions started until there was only a few left.

Example 5: A questionnaire with quantitative response alternatives was sent out through SCA’s sales representatives in six different countries to create a hypothesis of the customer demand for a product. The question whether to do qualitative research instead of quantitative was brought up, to which an answer was “We cannot afford to do qualitative research, it is way too costly, and therefore we send out the questionnaire instead.” The questionnaire reached a total of approximately 100 nursing homes. The questions dealt with average number of tenants at the nursing homes, amount of waste disposal, money spent on waste etc.

Example 6: We asked if we should not pay more attention the customer and look into how we find their true desire and try to solve them. The response we received from the external consultant was “You list all the needs, you list all the solutions, and then you connect them to find the best total system solution.”

Interview validation findings

Level of support from interviewees: Strong (17 out of 17)

The only innovation process that exists in reality today at SCA is the SCA Innovation Funnel which fosters execution, uses predictable stage-gates, and does not allow iterating or going back in the process to revise.

Many agreed that looking back at SCA’s history an execution mindset have been fostered, and still is. One illustrative example explained that understanding and exploring the customers was not considered to be doing any actual work. The work that is performed before the SCA’s Innovation Funnel, does not have a formal name, it is however called pre-feasibility-phase by many. This pre-feasibility-phase is merely considered a frustrating non-progress phase. One person said “It does not feel as if the project has

started until you enter the funnel and start executing, therefore no one wants to be stuck in trying to figure out what the insights are.”

The role of senior management is a clear influence to the mindset. Projects with a clear path of execution is said to be preferred by senior management than a project which is unclear and uncertain. The encouragement of execution is therefore larger than the encouragement of exploration.

The expressed reason for not taking on potentially high rewarding projects is mainly connected to the risk. As one manager put it “If I am responsible for an organization with EUR 2bn in sales, and 500 people working in this organization, is it worth taking 25 of those and putting them on something new and uncertain, and lose the equivalent proportion in sales? I am not so sure of that.”

Many interviewees describe the situation as quantitative measures are preferred by the decision makers. Even though we found that some interviewees argue that qualitative input can be converted into qualitative measures. The attitude towards how easy it is to convert qualitative data to quantitative differs between employees. Therefore, some believe it is no problem to present a business case built on qualitative data while other believes it is hard.

One person who recently moved over to more elaborate concepts with less certainty and less quantitative forecasts said, “Now when I am working on adjacent concepts we have some trouble estimating quantitative forecasts of revenue, profit or market size. I am scared our projects will be dismissed just because we don’t have any good data to show to decision makers.”

6.1.3 Barrier #3 - Technology/Product mindset rather than customer need

- **Definition:** *Technology/Product mindset rather than customer need* means that during development of new products the focus lies on technology or product features rather than on satisfying a need of the customer
- **Why the barrier is of significance:** Habits of only exploring technology or product features do not automatically create products which have customer demand. Understanding customer need is absolutely crucial for exploratory projects.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#3 Technology/Product mindset rather than customer need	Majority thinks cost-save or upgrade products w/ technology focus are prioritized	Several argue that shift has been made towards customer need	Strong (14/15)

GIRO Project findings

The mindset of the group has been to find a technical solution that works. Little time and effort has been made to understand the situation of the customers.

Example 1: Right from the start the focus of the project was on the technology and what it could do. While the project was initiated because of a customer complaint (expensive and unhygienic waste handling), focus then shifted to what kind of technologies existed. A deeper understanding of the need was not prioritized. The first plan for the project was to buy a EUR 200 thousand machine from Japan and run a pilot study on what it could do. Fortunately, that plan was revoked by decision makers and more research was to be done first before a suitable pilot could be determined.

Example 2: During the first workshop, the aim was to share knowledge that everyone had acquired and to business model exercises. During the four hours of knowledge sharing, three hours were allotted the external consultant to present findings

about technological system solutions, 30 minutes was spent on regulation regarding waste handling, and only the last 30 minutes was spent on customer insights.

Example 3: During the two workshops there has been a strong focus on technologies. However, the exercises with business model creation had focus not only on the technologies but also the customer. In fact much time was spent debating how to satisfy the customer and how the different solutions will impact them. While this is excellent, there were only one person who had visited, let alone talked to, actual customers and had the insight needed to truly understand their situation.

Example 4: In the beginning, setting out to visit customers, the aim was to understand the whole process of disposing of waste of the incontinence care products for the personnel at the nursing homes. This would allow for finding other problems that SCA could possibly help out with during the entire process from the removal of incontinence care products, all the way from a patient to final destination in trash containers. This was however discouraged and it was explained that the project is only to look at the process and possible technical solutions from the endpoint where the incontinence products are thrown in to the trash container. By those means, it was implicitly told there was nothing that should be done to try to help the nursing staff, but rather just look at what is possible to do with the waste that is disposed, limiting the project very narrowly.

Interview validation findings

Level of support from interviewees: Strong (14 out of 15)

A very large proportion agrees on that the company have a mindset that leans towards a technology or product mindset. However, most, if not all, point out that the company is slowly trying to move towards a mindset that is focused on the need of the customer. Specifically, they argue that the directives from above are clearly stating that the customer's needs to be more integrated in the product development.

It is said from the top of the organization that innovation is a high priority and that customers should be highly involved in the process. However, there exist expressed feelings from several that using customers to explore and find new ideas to new business opportunities is not the reality when it comes to deciding on which projects to pursue. Many projects based on customer insight have been left aside in favor of upgrade or cost saving projects. In several cases the interviewees explained how the company has been driven by cost eliminating activities to make the company more efficient, and a goal to be profitable through economics of scale. When it comes to which project that are prioritized, more than a few clearly state that when the company is in an economic down-cycle, the first projects to be let go are the projects aimed at bringing novelties to the market. The cost-cutting and small upgrades with high certainty are being pursued and left in the pipeline, while the uncertain projects are being parked, put on hold or dismissed.

One person said "in the mid 80's we were extremely close to the customer but in the mid 90's we started moving towards a technology focus. Eventually customers were forgotten until the end of the process and people exclaimed 'oh, shit the customer', but at that point the product is already finished."

Another person said that it is not very necessary for the employees to meet with the customers to gain insight. "I think there is enough knowledge about the customers in this building, I'm not so sure that is the issue for us."

One person also gave the example that it is much easier to get funding for purchasing a machine with the purpose of testing it, even though it is very expensive.

While, on the other hand, it is not at all easy to get funding for research ‘of the soft kind’ with the purpose of just understanding customers. The given reason is that the aim of the research of customers is not always that easy to motivate, due to the uncertain outcome of the research. Then the motives for the funding are questioned and you are unable to argue for your cause.

6.1.4 Barrier #4 - Slow communication and different perceptions of project aim and purpose

- **Definition:** *Slow communication and different perceptions of project aim and purpose* means that the communication among team members in a project is slow and that the infrequency of communications has led to different perceptions of the project aim and purpose.
- **Why the barrier is of significance:** Rapidly sharing information will allow for fast learnings and understanding of the ongoing business, thereby, learning loops are short and frequent.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#4 Slow communication and different perceptions of project aim and purpose	Only a few slightly agreed	It is not perceived as an issue	Weak (2/9)

GIRO Project findings

At times there has been confusion among team members of what the focus is or should be. There is a lack of fast information sharing.

Example 1: Main purpose for the international team has been to find a solution as quick as possible to their customers. They are not as interested in finding new business opportunities for other markets. The international project member said several times, “whatever the result of this project, I have to offer something to my customers”.

Example 2: There are long learning loops inside the project. The day-to-day informal information sharing did obviously not exist because of the geographical distances. Among the Swedish project members there were not always frequent knowledge sharing either. During a short informal meeting with two project members, the project manager came in and asked one of the project members if “anything valuable came out from that meeting you had last week”. The answer was “not really” and the project leader moved on. This exemplifies the fact that the interest in knowledge is not of high priority and that it is not shared quickly.

Example 3: The team communicates fairly seldom via telephone or video. Much of the communication was done by email. This does not fully allow for good communication. One project member based in Sweden had a strong belief of the international customers which was wrongfully understood since weeks back. Misunderstandings, however small, were frequent and several times during the workshops a correction of someone’s understanding had to be made.

Example 4: A stage-gated innovation process does not facilitate short and fast learning loops. Setting out early to understand the customer need, a relatively fast conclusion was made that the market is fragmented and customer situation differs heavily even in the same municipality and country. However, even though this was presented early, it took several weeks until this was accepted in the entire group.

Interview validation findings

Level of support from interviewees: Weak (2 out of 9)

In a few cases, where people have worked in international projects together with other nationalities, they agree that the communication has not been as good as it could have. However, it is not seen as any major obstacle.

No one was found to agree that the lack of quick communication exists. Some explained that it is not always fast, but on the other hand mentioned that within a company you must expect people to be busy and have other things to do, resulting in a communication which is not always as fast as you wish.

6.1.5 Barrier #5 - Targeting the ultimate final offering rather than Minimum Viable Product

- **Definition:** *Targeting the ultimate final offering rather than Minimum Viable Product* means that there is a focus of trying to nail the complete solution rather than a simple prototype product for a small targeted audience (the ones most in need of a solution to a problem).
- **Why the barrier is of significance:** Quickly testing the **X** simple product with customer will allow for fast feedback from customers whether the product solves a problem they have or if the problem they have is not worth solving.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#5 Targeting the ultimate final offering rather than Minimum Viable Product	Everyone agreed that new products are only tested w/ customers immediately before big market launch	Only one person (from non-European market) opposed this	Strong (12/13)

GIRO Project findings

There has been no focus on trying to build a prototype for the customers to try out and evaluate their reaction to the product. A plan was made to let one or two customers try it out before a larger launch, but this was only to make sure the manufacturer of the machine lives up to the technical performance promised.

Example 1: As a result of rarely working with customers, the project group has not developed a Minimum Viable Product that can be tested on a select few potential customers. During the second workshop in the aim was clearly stated to be “to develop and then purchase at least 20 products from a manufacturer”. However, the project group has decided to ‘test’ the product on one or two customers. This is however not an attempt to see whether or not customers like it. The idea behind a testing the product is to make sure the manufacturing of the product is technically satisfactory. The international SCA team member expressed several times that their current customer would purchase whatever solution they came up with, though none of the customers have seen a prototype of the product, not even a digital one.

Example 2: The project group was not specifically targeting lead users or early adopters, but rather targeting a large potential customer segment. During the workshop an attempt was made to estimate the size of two different customer segments. This was to see potential revenue and profit after penetrating the total potential market. The purpose was to make an estimate that can be presented to the decision makers in January who will then decide whether to develop a specific product, which will not have been tested on any customer. If the decision makers decide this project should move forward, the plan will be to develop the product together with the manufacturer and start selling to customers.

Example 3: The project group decided to go with premium supplier to collaborate on product offering, rather than someone suited for quick and easy access to an MVP. The project group has from the start been looking for a supplier that can supply a large amount of products, satisfying a large market, again instead of a few lead users. They were also

talking about the possibility of acquiring the supplier long before customer needs had been approached properly.

Interview validation findings

Level of support from interviewees: Strong (12 out of 13)

Targeting the ultimate final offering rather than trying to build an MVP and testing it with customers was found to have strong support in the interviews. The only point which testing a product with customers is at the end of SCA’s Innovation Funnel.

Some argued that it would be hard to show off a ‘half-baked’ version of a product to customers. It is hard to motivate the risk of showing something “bad” to customers.

One interviewee suggested that time to market should be an important factor, suggesting that a mechanism to enable projects to speed up should exist. She further explained the reason being that today they are stuck in the funnel for too long simply because it is a protocol which needs to be followed, even though a product might be ready for the market.

Another motivating factor for targeting the ultimate offering at once is that projects are not aimed at targeting a small customer segment that is in great need of the product. Projects are, on the contrary, often aimed to launch product to the entire European market at once.

6.1.6 Barrier #6 - Poor re-use of prior insights

- **Definition:** *Poor re-use of prior insights* means that there exist previously discovered insights within SCA, but they are not being re-used to the extent they could have.
- **Why the barrier is of significance:** Insights are hard and sometimes costly to discover. To re-use insights could therefore be economically better and above all, help generate great innovations.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#6 Poor re-use of prior insights	Many do not bother searching for old research	There is a knowledge database (however few actually use it)	Weak (4/7)

GIRO Project findings

Example 1: When in discussion with the Environmental Auditor at SCA it was found that he had earlier been involved in a project very similar to this one. It became clear that he was not involved this time even though he had specific knowledge that was useful to the team. He had very good knowledge of the waste management regulations. Specifically he had knowledge that made parts of the external consultant’s research redundant. Thereby, knowledge that existed within the walls of SCA could have been used, but instead money was spent on an external consultant who, to some extent, discovered the same facts during his research that was already known.

Example 2: During another discussion with the Environmental Auditor at SCA it was discovered that yet another project had been carried out where they had made an extensive qualitative market research of how incontinence products are taken care of all the way from delivery to the waste management at different nursing homes in several countries in Europe. Even though this is not a first-hand experience with customers, this input could have been valuable early on in the project, and had perhaps sped up the learning.

Interview validation findings

Level of support from interviewees: **Weak (4 out of 7)**

This issue was brought up with several interviewees. Supportive comments that there are poor use of prior information and insights were established. However, it was not seen as any major negative driver. “Some redundancies are expected and surely it could have been avoided from looking into prior learnings in previous work.”

Several pointed to the poor interfaces of databases where previous market research and other documents are stored. The low usability of these databases has caused an unwillingness to search for prior studies and information. Therefore, an attitude of “it is easier to do it yourself again” has emerged. Furthermore, not all information is stored in the databases. Several interviewees said they probably have lots of information stored on their private storage space which has not been shared to large database that is accessible for all employees. Therefore, the best way to find this type of information is to ask around if anyone “knows anyone” who possibly have important information that would be of value as intake for a new project.

6.1.7 Barrier #7 - Lack of sufficient focus on current project

- **Definition:** *Lack of sufficient focus on current project* means that there is not enough focus on a project to which members belong to.
- **Why the barrier is of significance:** Strong focus on a project can be crucial for having high passion for the project.

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#7 Lack of sufficient focus on current project	Several think they are involved in too many project to focus enough on any singly one	Several say they are involved in adequate amount of project to keep them busy enough	Moderate (8/13)

GIRO Project findings

At several occasions it has been hard setting up meetings or deciding on when to do certain activities. The team is not one tightly knit projects group that is clear focus every day. There has been limited feeling of a “war room”, where a team is constantly on top of things and one hundred percent engaged in the project. No one has the studied project as their sole project, but they are instead engaged in other projects in parallel.

Example 1: Again, the example mentioned for barrier #4 illustrates that weeks can go by between knowledge sharing between two team members who have offices on the same floor. If total focus would have been dedicated to this project, letting weeks go by without sharing important information would likely not be possible. Having 3-5 projects running simultaneously causes focus to be poor at times.

Example 2: We acknowledged the poor focus on this project as we tried to book a meeting with two team members to go to Renova’s incineration facility near Gothenburg to speak with waste managers. It was hard finding a time that would suit other team members. Other duties in other projects or other line of work made them inflexible to find time to book a trip to the incineration facility. Eventually a date was booked only two days away, while the other team members had to go a month later. Thereby, time was spent to inform and share insights to the whole group instead of everyone having a first-hand experience.

Example 3: The person who had done major research before the first workshop was the external consultant. As an external consultant he was paid “by the hour” (3 weeks in total), in contrast to the rest of the group who were full-time SCA employees. He was

perceived to have done the majority of the research compared to the rest of the group, even though three other in the project group had been involved in the project for many weeks.

Interview validation findings

Level of support from interviewees: Moderate (8 out of 13)

A very diverse view was compiled in the support for how important people think it is to focus on one specific project. A few said they are involved in too many project to be able to focus sufficiently on any of them. On the other hand several said they wanted to be placed on several projects so that they always have something to do. The most extreme comment was made claiming a need for at least seven or eight projects simultaneously in order not to become bored.

The most common argument for involvement in at least two projects was that the intensity in projects is not consistent. At times there would hardly be anything to do in one project, and by being able to work on another project would thereby help keeping people busy. Another argument for being committed to several projects was that it could be nice to stop thinking about a specific project for some time and return to it another day when the mind has cleared and start fresh again. One person also expressed “if you do not like a person in a project you can spend more time on another project, thereby you don’t spend so much time with people you don’t like.” Despite these comments several felt they could not concentrate on as many as four or five projects.

6.2 Additional Barriers Identified in Validation Interviews

In addition to finding different level of support for the barriers experienced in the participant observation study in the GIRO project, the interviews gave an opportunity to discover barriers the interviewees have experienced, which were not discovered in the GIRO project. The empirical data presented below is of four additional barriers that was brought up in the semi-structured interviews and was not found earlier in the participant observation study.

6.2.1 Barrier #8 - Project is killed because of poor fit with existing brands

- **Definition:** *Projects fit poorly with existing brands* means that projects with products having great potential have been killed because it is deemed not to fit with any of the brands that exist under the SCA umbrella.
- **Why the barrier is of significance:** Potential future revenue and profit are killed just because it deemed not suitable for the company.

Level of support from interviewees: Strong (12 out of 13)

The level of support from the interviewees for this barrier was found to be strong. Several mentioned the difficulty many projects had when launching a product that was new to the market. A very common reason for the project to be cancelled, even though it might have a working business model, was that the product does not fit with the brand. No brand within SCA was willing to take on a new product into their brand because the risk of eroding the existing brand and its strong sales. “If something bad happens with the new product, maybe it will erode the brand and people will stop purchasing our current diapers. That risk no one is willing to take on.”

6.2.2 Barrier #9 - Projects are not green-lighted nor killed

- **Definition:** *Projects are not green-lighted nor killed* means that projects are not given support to go into the next phase, nor are they killed but instead put in a state of limbo.
- **Why the barrier is of significance:** More research in the same project phase is costly and takes time from employees that could spend time on other activities.

Level of support from interviewees: Strong (9 out of 9)

The level of support from the interviewees for this barrier was found to be strong. Everyone who was asked supported the statement that projects are often neither green-lighted nor killed. This leaves many projects in a limbo-state, which means they are in no-man's land, parked or left to be decided on later. The reason for leaving projects in limbo-state is what has been phrased as a result of the consensus driven culture that has been fostered at SCA. A consensus driven culture means that if not all decision makers agree to say 'Yes' or 'No', it will not be decided on therefore put on hold.

Furthermore, it has been suggested that this is strongly connected to a risk averse culture. A feeling amongst the employees suggest that decision makers do not want to say 'Yes' or say 'No' because they would then put them in a position in which they can be wrong. Not taking action eliminates the opportunity of being wrong. One person said "SCA comes from a corporate consensus driven culture, and therefore cannot take on any risk; it is contradictory. I also believe too many people have been involved in every decision making, it is something we have to move away from." Another escape route of not saying 'Yes' or 'No' is to ask the project group for more research in order for the decision makers to buy time and ask for more data to base their decision on. These decisions are made at a time when it should be clear whether they should continue with the next stages of the project or not, but instead they are left to continue even though no clear 'Yes' has been exclaimed.

6.2.3 Barrier #10 - Established distribution/sales channels hampers launch of new products

- **Definition:** The established distribution or sales channel causes a barrier to introduce a new product because of already established relationships.
- **Why the barrier is of significance:** Potential future revenue and profit are killed.

Level of support from interviewees: Moderate (6 out of 6)

The level of support from the interviewees for this barrier was found to be moderate. In a few occasions a new product has the technical capabilities along with the customer demand, but no business model that would seem to work. "In the cases where a customer demand has been validated for a product and the technical side has enabled the production of that product, we sometimes struggle with finding the right business model for it."

One specific example illustrated how SCA's business model of current products could be in the way of selling new products. In this particular case, they sold one product via a distributor, but the distributor would not take on the new product. Due to these circumstances they were not able to sell this new product (adjacent product) via the distributor, nor were they able sell the new product directly to the customer, because of the risk of upsetting the distributor and perhaps even damage the relationship with them.

Another issue that has been brought up is the inability for the sales force to sell two different products from SCA that carries two different brands. One person said "If the

sales people are selling diapers, perhaps the customer would be confused if they also sold nutrition products such as dietary pills. You don't want your customers to confuse you for selling things that go into your body as well as go out of it".

6.2.4 Barrier #11 - Rigid project structure impede flexibility and speed

- **Definition:** The rigid project structure requires everyone to follow it, despite poor suitability for some project to follow it.
- **Why the barrier is of significance:** Those projects that could move quicker through, or even skip, some required steps in the processes are slowed down.

Level of support from interviewees: Moderate (6 out of 7)

The level of support from the interviewees for this barrier was found to be moderate. A couple of people mentioned the anxiousness and frustration of being locked into the SCA Innovation Funnel. One person expressed the frustration of this by saying "We had a product which was ready to go, the customers liked it, the production was set up. When I approached the project manager and said 'let's go', I was told we still had three months left on the calendar to develop the product further." Complaints about the number of documents and unnecessary steps in the SCA Innovation Funnel were expressed. At times, some steps seemed unnecessary and caused delays in the project.

6.3 Summary of Barriers to Exploration

Table 6 below summarizes the 11 barriers found along with supporting data and opposing data from the semi-structured interviews, and also the level of support.

Table 6 - Summary of Barriers to Exploration

Barrier identified in participant observation study	Supporting data in interviews	Opposing data in interviews	Level of support from interviewees
#1 Limited direct access to lead-users/customers	Majority think it is difficult to access customers due to sales organization	Some have their "own network of people" within the sales org. thereby not a problem	Moderate (8/12)
#2 Execution mindset rather than exploration mindset	Majority feels searching or exploring is not perceived as actual work	Not even one person felt they could be searching and exploring w/o need to deliver	Strong (17/17)
#3 Technology/Product mindset rather than customer need	Majority thinks cost-save or upgrade products w/ technology focus are prioritized	Several argue that shift has been made towards customer need	Strong (14/15)
#4 Slow communication and different perceptions of project aim and purpose	Only a few slightly agreed	It is not perceived as an issue	Weak (2/9)
#5 Targeting the ultimate final offering rather than Minimum Viable Product	Everyone agreed that new products are only tested w/ customers immediately before big market launch	Only one person (from non-European market) opposed this	Strong (12/13)
#6 Poor re-use of prior insights	Many do not bother searching for old research	There is a knowledge database (however few actually use it)	Weak (4/7)
#7 Lack of sufficient focus on current project	Several think they are involved in too many project to focus enough on any singly one	Several say they are involved in adequate amount of project to keep them busy enough	Moderate (8/13)

Additional barriers for exploratory innovation projects, discovered in interviews	Supporting data in interviews	Level of support from interviewees
#8 Project is killed because of poor fit with existing brands	Majority have experienced cancellation of a project because a product does not fit with any existing brand within SCA	Strong (12/13)

#9 Projects are not green-lighted nor killed	Many felt decision makers cannot make up their mind, instead asks for more research	Strong (9/9)
#10 Established distribution and/or sales channels hampers the launch of new products	Several argue that new products have been cancelled because established channels needs to be protected	Moderate (6/6)
#11 Rigid project structure impede flexibility and speed	Some found frustration of being stuck in too rigid project phases and thereby lost valuable time to launch or test the product	Moderate (6/7)

7. Analysis

The empirical analysis takes into account all of the previous chapters and findings, in order to reach a point where answering the research questions is possible. The chapter starts with an analysis of how SCA currently balances exploration and exploitation, and how the current innovation project management impacts exploration. This leads into the analysis of the verified barriers, the cause of them, and the effect on innovation success at SCA.

7.1 Innovation Management at SCA

The SCA Innovation Strategy Framework states how employees at SCA is supposed to work in order to create, combine, and deliver innovations. In reality, there are many parts of the Framework that is not followed.

First of all, the Framework states that a significant part of innovation time should be spent close to customers, but in reality this is not the case. Interviewees have different reasons for this including lack of time, lack of connections, or lack of seeing the purpose with it.

Second, the Framework states that the organizational culture promotes creativity and customer centric way of working. As seen in the empirical study, this is not cascaded through the organization, as the culture most often is focused on technology and execution. The organizational culture is coming from a technology heavy industrial setting and is now trying to change into a culture suited for Personal Hygiene and Consumer Goods. Senior management at SCA has expressed the vision of becoming an FMCG-company (i.e. Fast Moving Consumer Goods). It is clear that historically, SCA has been dominantly technology focused, while not really customer focused. As SCA's Innovation Strategy Framework tries to establish, current focus is very much on customers, and all innovations are now to build on customer/consumer insights. But while organizational strategy is relatively easy to change – after all it is only words on paper – changing an organizational culture takes both time and significant effort. As Peter Drucker said, “*culture eats strategy for breakfast*”. As have been found in the empirical study, only because something is expressed in a vision, in a framework, or in a strategic intent, it does not mean that employees on all levels will follow it.

Third, while the Innovation Framework also states that an iterative version of the funnel is to be applied to breakthrough innovation projects, in reality this is not the case. Several employees describe that no matter the innovation type, all projects are run through the same Innovation Funnel and stage-gate process. It is the stage-gated approach to product or service development, where quantification-oriented evaluations decide if a certain project will get a go or no-go call. What this means for next generation or breakthrough projects is that, most often, a decision gate is reached before the project team has had the possibility to iteratively reach an understanding of growth percentages, market sizes, correct customer segments, expected sales volumes, possible distribution channels, expected revenue generation, potential profitability, or any other quantifiable measurement. The consequence is naturally that the project is at high risk of getting shut down.

The usage of the Innovation Funnel, with its rigid stage-gate, supports exploitation over exploration. Indeed, when a project is classified as Cost Save, Upgrade, or Next Generation – i.e. known product, known customer – the Innovation Funnel should work well to structure the progress of the project. For sure, the goal of every innovation project at a large company is to get as soon as possible into a structure such as the Innovation

Funnel, in order to be cost efficient and organized. But the crucial key word in the last sentence is *possible*. No matter what type of innovation, or what type of target customer or market, entering into a stage-gated funnel *before nailing the real pain* of the customer is detrimental. For incremental Cost Saves, Upgrades, or Next Generation, the amount of exploring, experimentation, or searching needed to arrive at the adequate knowledge is probably low, and the Funnel can be entered sooner. For Breakthrough projects, the adequate amount of exploration needed is by all measures much higher. But the main difference is not only the amount of exploring needed, it is also the need for BT projects to iterate, to pivot back to an earlier stage when new knowledge is obtained; to re-explore. Therefore, it is not only a question of taking longer before entering a funnel, Breakthrough projects must also be able to go backward as well as forward inside it.

7.2 The Exploration and Exploitation Balance

From the literature review it is clear that it is a common challenge for large companies to handle exploration and exploitation simultaneously. Exploiting is needed, near crucial, for short term profitability for large companies. It develops and tunes the cash cows of the business. But no product, service, market, or industry started in exploitation mode; they started with an unsure, uncertain, unpredicted exploration. In fact, exploitation is very much the result of successful exploration. Whether you explore a new technology or a new customer need, the process will often be unpredictable and uncertain. The dual relationship between exploration and exploitation is in part the fact that successful exploration enables exploitation, but also the fact that successful exploitation enables further exploration. As Martin (2009) noted, exploration is very seldom capable of funding further exploration by itself. It needs the transfer of resources – most often in the form of funding – from exploitation in order to survive. This relationship is depicted in the adapted version of the industry life cycle by Abernathy and Utterback (1975) below (Figure 22). It describes how the reimbursing process of using revenue from established products or markets in order to fund exploration should work, in theory.

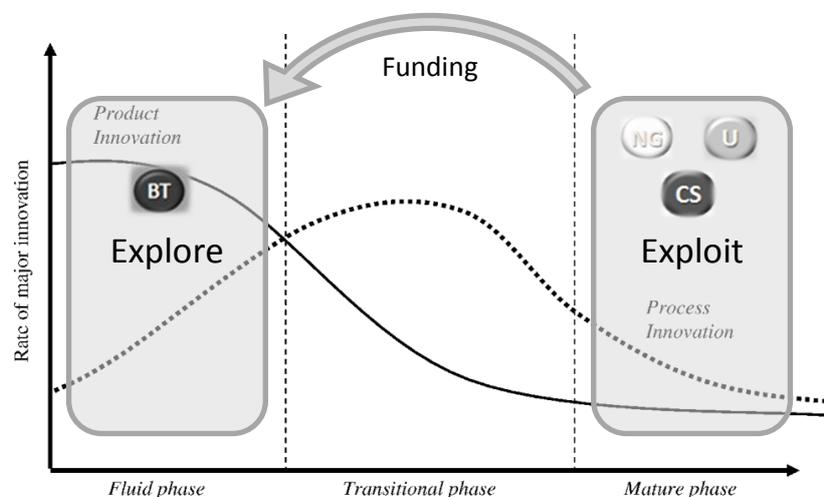


Figure 22 - The explore/exploit relationship (adapted from Abernathy and Utterback, 1975)

However, in practice at SCA, evidence of the killing of reciprocation from exploiting to exploring is plentiful. It is the act of building the culture of a company around continuous exploitation, and as Martin (2009) described, never returning to exploration which got you there in the first place; the strong history and tradition of SCA in innovation and entrepreneurship. The experiences that were gathered during the participant observation

study and the insights from the follow-on interviews leads to the analysis that SCA today is consistently exploiting its existing knowledge, products, and markets, to the point that new exploration is in practice neglected. It is a case of exploitation bias, which strongly affects the company's possibilities of finding new and breakthrough business opportunities.

The European market is by far the most important market for SCA, all brands included. Without the European market dominance, SCA would be a much smaller company, with a much smaller turnover. The majority of innovation efforts at SCA therefore target the European market. What this creates is the situation described by Porter (1990) as defending what you have; it is the bias of predictability and stability. The idea of risking the position in Europe is unbearable, and protection of that position becomes the top priority. As a consequence of defending the European position, SCA Hygiene Products is very risk averse. There is a fear that there is much to lose by experimenting with completely new products and services, or new markets and customers. The result is Martin's (2009) 'demand of proof' before accepting innovation projects; quantitative feasibility documents are the first big gate to get through in the Innovation Funnel. In order to reduce uncertainties and risk, senior management looks to "unbiased data" to get guidance of which projects to approve and develop. It is the trust in the quantitative numbers instead of resolving to qualitative judgment and gut feeling. What that means is that ideas, proposals, concepts, and knowledge that do not conform to existing knowledge, products, or customers are very hard to get approved and turned into projects.

Additionally, exploratory projects that do get approved and started at SCA face harder progression than exploitative projects. Interviewed Innovation Managers explain how projects they have been a part of get put on hold or get canceled in favor of transferring resources to more certain, less risky projects. It is the case that Levinthal and March (1993) describes; the strong tendency of organizations to reduce resources allocated to exploration, while certain, short run benefits of exploitation gets reimbursed. It is what Greve (2007) calls one of the strongest mechanisms for exploitation support; the cancellation of R&D projects that diverge from organizational strategy and the transfer of resources to strategy-congruent projects.

In short, SCA today is risk averse in regard to experimenting and exploring new concepts, products, and customers, and protectionist about its market position in Europe. As a result, exploration efforts are at large neglected, exploratory projects are often shut down, and resources are often transferred to cost saving projects with less uncertainty and risk. It is a clear case of exploitation bias, something that is steadily rooted in the company culture. As the following subchapter will show, this has specific negative implications to working exploratory.

7.3 Barrier Cause and Effect

The barriers which have showed strong support from interviewees, previously shown in Table 6, are here analyzed to find the causes but also the effects of each of them. The decision to analyze barriers with strong support was made because those barriers have a high likelihood of existing on wide spread basis within the organization. Therefore it is important to understand the reason why they exist and what impact they have, see Figure 23.



Figure 23 - Process of Barrier Analysis

7.3.1 Barrier #2 - Execution mindset rather than exploration mindset

Cause of barrier

There seem to be two major reasons for the existence of an execution mindset rather than an exploration mindset. The first reason has to do with the culture. SCA has for the past years moved strongly towards activities dominated by execution (planning, calculating, implementing), which is the mindset that have been fostered and encouraged. An execution mindset culture has been fostered to the degree where “doing work before the Innovation Funnel” is not considered actually working, meaning that exploration is not considered to be working. Additionally, it is perceived harder to convince decision makers to fund exploration research than to purchase technical equipment.

The second major reason can be directed to the lack of enabling structures for exploratory work. The Innovation Funnel described in the empirical studies is a stage-gate type of process in which all innovation projects run through, even the exploratory projects. The Innovation Funnel demands a linear process without radical iterations and insights-based pivots, but with clear delivery points carefully planned forward in time.

Effect of barrier

There are three major effects from having an execution mindset. Firstly, the execution mindset does not allow searching, experimenting, or learning about customers or problems to the same extent as exploration. An execution mindset therefore has negative effect on the organization’s ability to learn about their customers and the market. The long-term effect is that the organization cannot bring radical innovations to the market because it has not fully understood what the customers truly want.

Secondly, if an insight is changed during a project there is very little flexibility for the project to change its course. Team-members of the project are evaluated on how well they execute, not explore. Therefore, it is highly likely that they are more interested to move a project forward and implementing the next step than to raise their voice and try to go back one step in the Innovation Funnel.

Ultimately, a culture dominated by executing projects is continuously fostered, and failure in executing is not encouraged or even accepted (as in exploration). Projects with high uncertainty and high risk of failing will thereby be unfavorable to take on. Radical innovations are always associated with uncertainty and if the organization cannot capitalize on projects with high uncertainty then it is unable, by definition, to successfully bring radical innovations to the market.

7.3.2 Barrier #3 - Technology/Product mindset rather than customer need

Cause of barrier

There are three highly influential causes for choosing a technology/product focus rather than customer focus in innovation projects. One cause is related to the decision making process of which innovation projects that are given a ‘go-ahead’ versus those which are killed. The interviews gave a clear picture that, especially in an economic down-cycle, cost saving innovations and upgrade innovations are prioritized. These types of projects tend

to have small changes in technical capabilities and therefore have high certainty and therefore little risk.

The other important cause relates to the comfort zone and history of the individuals. Most employees have a technical background and have for the last years with SCA developed successful products by having strong focus on improving its technical capabilities. Thus, the urgency to speak with customers has not been very high, and still is not. Some employees do not feel they need to speak with customers in order to understand them, but rather argues “this building has enough information about our customers”, displaying a culture not integrating the customer to the innovation process.

Finally, the lack of enabling structure to integrate the customer throughout the entire innovation process causes a technology mindset. Even though all interviewed employees have learnt that “all innovations should build on a customer insight”, the customer is forgotten along the way until a customer testing right before the launch of the product. Consequently, during the development the customer is left out of the equation and focus can only be on the technology or product features.

Effect of barrier

A clear effect of too much focus on technology or product features is the development of products which have good technology but uncertain demand from customers. According to Blank and Dorf (2012), assuming to know what the customer wants and assuming to know what to build has a clear effect of high risk of failure to meet customer demand. Consequently, money spent on development has a high risk of not generating the expected returns because of poor product and market fit.

7.3.3 Barrier #5 - Targeting the ultimate final offering rather than Minimum Viable Product

Cause of barrier

There is no encouragement in the organization to develop a prototype and test it with customers. In fact, the only time the customer will be involved is in the beginning and at the end of an innovation process. In the beginning of the innovation process there is, by default, no prototype and at the very end of the process there is a finished product, i.e. the customer is not involved in any prototype stage of the product to give feedback.

Furthermore, the company is only interested in developing products which have potential to contribute significantly to net sales. Therefore the company is only set to develop products delivered on a massive scale immediately, targeting the mass market.

Effect of barrier

The effect of not developing a Minimum Viable Product, or any business prototype to slowly scale up from, is that uncertainty and risks at product launch increases. Creating a product that will fit the needs of the mass market means that all features of the product will have to be developed, instead of creating a product with few features which the Earlyvangelists – the early customers – are willing to pay for, and then continue developing and scaling from that point.

Developing a product, without careful testing and slow scaling, for a mass market may not be very risky for projects with *low uncertainty* such as cost-save innovation and upgrade innovation. On the contrary, it may be extremely risky for projects with *high uncertainty* such as next generation projects and especially breakthrough innovation. If a project is doomed to fail based on invalid initial assumptions, the cost of finding out at the

end of SCA’s Innovation Funnel can be very high compared to finding out early through building an MVP and testing with customers. This is illustrated in Figure 24 where the effort and money increases rapidly towards the end of the funnel and product launch and the failure will be costly, compared to failing early which will not have as costly impacts.

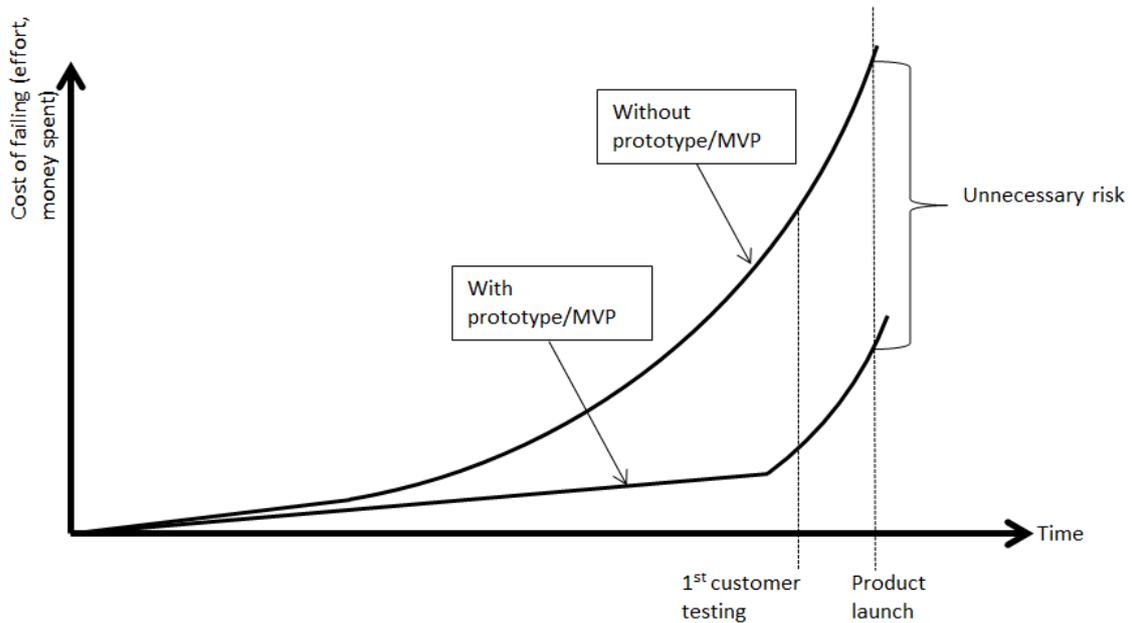


Figure 24 - The increased risk of not developing early prototypes

7.3.4 Barrier #8 - Project is killed because of poor fit with existing brands

Cause of barrier

The cause for the barrier is very closely linked to the amount of risk taking that is accepted from decision makers. The decision makers are not willing to take on the risk of pursuing some projects which are not seen to fit with any of SCA’s existing brands. If the new projects would deliver a product which have possibility of deteriorating the existing brand it will fairly easy be dismissed. Hence, projects that aim to develop concepts aiming too far away from the current product portfolio or have any other risk associated with it will be killed.

Effect of barrier

Projects which are not upgrade innovation or cost-saving innovation are limited to develop ideas that are limited to the scope of what the brand stands for. Per definition, this will not allow the firm to develop anything which is not very similar to the current product portfolio, and thereby strongly limits the ability to develop something which is radically new for the firm or for its customers.

7.3.5 Barrier #9 - Not green-lighting nor killing projects

Cause of barrier

The strongest cause for this barrier is the corporate consensus driven culture which has been fostered. Several decision makers are involved in one decision and if consensus is not reached the projects are put on hold.

Another cause is the unwillingness actually making a decision. If the decision makers do make a decision, they would put themselves in a position in which they can be wrong. To eliminate the possibility of being wrong a decision would not be made.

Effect of barrier

A clear effect is that decisions for projects with high uncertainty are likely to be postponed or never to be taken on. In some cases the effect is that projects are prolonged and delayed because a decision is not made fast enough. Further down the road this could lead to missed opportunities in the marketplace.

8. Discussion and Conclusions

This chapter contains the discussion that follows on the analysis, and the conclusions that can be drawn from it. This chapter answers the research questions, and provides a logical step towards developing recommendations to the case company.

This report set out to investigate large, established firms' organizational barriers to exploratory projects and exploratory innovations. With exploratory innovation projects, we meant innovation projects based on radically new knowledge, ideas, concepts, or technologies, which aim to target existing customers or current non-customers. The goal of the participant observation study, the follow-on empirical study, and the empirical analysis, was to reach a point of understanding where the research questions can be answered. As stated, the final aim is to radically improve exploration efforts at SCA. While all innovations in different ways can benefit from exploration, the type of innovation project where there is room to *radically* improve exploration is the radical innovation projects. For large established firms this is equal to projects that are more uncertain, more risky, and less facilitated by established structures, than are the bulk of regular innovation efforts. This means that the conclusions and following recommendations is aimed at what SCA denotes as 'Breakthrough' projects, while 'Next Generation', 'Upgrade', and 'Cost Save' projects are not targeted for exploration improvements.

Through the theoretical framework we established an understanding of the complex nature of radical innovations and of the crucial need to think of the entire business model of an innovation. As firms and industries evolve the locus of competition changes, and the role of innovation follows suit. We drew upon to concepts of exploration and exploitation to exemplify this, and we pointed at the common problem of balancing the two. The reasoning and logic of the exploitation bias is fundamental to understanding the existence of cultural, structural, and managerial barriers to exploration.

The participant observation study and the empirical study identified and verified the existence of such barriers at SCA Hygiene Products. The barriers come in different form but they all impede exploratory innovation projects and the likelihood of successfully bringing radical innovations to the market. As the empirical study concluded, five out of eleven identified barriers were deemed having strong support from interviewees who agreed the barriers had a negative impact on exploratory innovation projects at SCA. The result of the analysis was the underlying causes of these barriers, and the effects that they have on the firm, short-term and long-term. This result provides us with answers to our research questions.

RQ 1. What are the main barriers to exploratory innovation projects and what are their likely causes?

The main barriers to exploratory innovation projects are: (#2) **Execution mindset rather than exploration mindset**, (#3) **Technology/product mindset rather than customer need**, (#5) **Targeting the ultimate final offering rather than Minimum Viable Product**, (#8) **Project is killed because of poor fit with existing brands**, and (#9) **Not green-lighting nor killing projects**. These barriers that exist towards exploratory innovation projects at SCA have a few main causes.

First of all, SCA has a recent history that is strongly technology-centered. Out of an earlier culture that was customer driven and experimental (remember the legacy of Mölnlycke), SCA has for the last decades instead been focused on its current technologies.

This has created what we refer to as an **exploitative organizational culture**, an underlying cause for barriers to exploration (see Barriers #2, #3).

Second, the culture at SCA is **risk averse** and **consensus-driven** (see Barriers #3, #8, #9). Risks are everywhere for an established firm. SCA perceive risks of losing market positions (defend the present), risks of being wrong in decision making, and risks of diluting existing brands by developing radical, new-to-the-firm concepts and innovations. Together with a consensus-driven decision making process that is biased towards low risk, reliability, and certain outcomes, this causes strong barriers towards exploration efforts.

Third, SCA has a mindset towards new product or service development that looks to immediately **target the mass market** of existing customers (see Barrier #5). This is the opposite of a scalable business model, and causes strong barriers to exploration efforts that look to address *new customers*.

Finally, if an exploratory innovation project does get approved in spite of existing pre-project barriers, the **lack of exploration enabling structures and processes** at SCA severely inhibits its likelihood of success (see Barriers #2, #3, #5). The innovation funnel and the stage-gated process currently deployed for *all* innovation projects, remove possibilities of iterative development and successful prototype testing.

RQ 2. What are the main effects of these barriers?

As barriers to exploration have certain causes, they also have certain effects. What all barriers have in common is a general impeding effect on exploratory innovation projects, but specific effects can also be distinguished.

First of all, exploitation cultures nurture themselves, as pointed out in the theoretical framework. This means that an execution mindset and trust in quantitative methods will increase over time. For SCA, this means that it will become harder and **harder to respond to changes in the market**, or to new customer demands (see Barrier #2). What this means is ultimately that long term growth could be put at risk.

Second, one of the strongest effects of the barriers that we have verified is a **stagnation of product and brand domains**. Barrier #8 and #9 justify this conclusion. Quantifiable, secure, certain, low risk projects do not produce great new discoveries. They improve the current product and brand domain, but they do not expand it. If exploration efforts that look at radical new concepts are shut down because of high uncertainty, inability to produce quantitative data, or bad fit with current brands, then not only is the product portfolio of each brand stagnant, so is the brand portfolio at large. Long term, this could result in competitors ceasing opportunities that should have been seized by SCA, but instead was discarded because of poor fit with existing knowledge.

Third, even though customer insights should be the foundation of innovation efforts at SCA, more radical innovations are still in a sense a “shot in the dark”. Barriers #2, #3, and #5 all **impede learning about customers** and the possibly successful development of new ideas. The barriers create situations where the act of failing fast and cheap is not possible.

Lastly, we have an interesting point to make about the effect of risk and uncertainty at SCA. The reason for some (many) of the barriers to exploration is the unwillingness to take on projects that are seen as risky, or develop products that would risk eroding existing brands. But the effect of barriers #2, #3, and #5 is actually **increased risk**. It is a vicious feedback loop; risk averseness creates barriers to exploratory innovation projects (because they are seen as risky), and the effect is an increased risk

with attempted Breakthrough innovation. By having an execution mindset (#2) and a technology focus (#3) there are risks of spending resources on building a product with the wrong features, or even on the wrong project all together. By not working iteratively with sufficient prototyping (#5), changes are realized later than needed which results in increased costs. The main point of the exploratory way of working is the exact opposite; make sure to fail as fast as possible to a very low cost.

RQ 3. What can be done to radically improve exploration at SCA?

To recap, the main five causes to barriers at SCA have been verified to be the **exploitative** (C1), **risk averse** (C2), and **consensus-driven organizational culture** (C3), the immediate **targeting of a mass market** (C4), and **the lack of exploration enabling structures and processes** (C5). As stated in the analysis, the effect of these barriers are mainly that risks increase and that product and brand domains become stagnant, but also the fact that it becomes harder to respond to changes in the market, as learning about customers is impeded.

To radically improve exploration at SCA, the five main causes to exploration barriers must be addressed. Causes C1, C2, and C3 concern the culture and the managerial structure, cause C4 concern innovation strategy, and cause C5 concern innovation management and innovation processes. A solution must therefore stand tall against exploitation bias that stems from the organizational culture. It must provide an “arena” for radical innovation projects where search and exploration is unhindered. It must also make sure that risks of uncertain innovation projects are kept as low as possible. Radical innovation projects will by definition always be uncertain, as is its nature. But the risk of exploring such a project can be kept low, and it is important that this is done. The consensus-driven decision making process for these exploratory projects must be removed and reworked, so that decisions are made by the person running the project and a senior manager as the project owner. The notion of ‘owner’ in comparison with ‘sponsor’ is crucial. A sponsor agrees to funding, but an owner has a much stronger connection to the project. The involvement and commitment in terms of both time and resources of a senior manager is therefore needed. But mainly, the solution must establish an iterative, search-driven, exploratory innovation process that is customer-centric and focused on fast learning loops as well as hypothesis and prototype testing. It must enable the search for a scalable business model, unhindered initially from potential non-fit with current products and brands.

Looking at an individual entrepreneur fostering a business idea and developing it into a start-up, exploratory barriers simply do not exist. There are surely challenges of being small, but organizational barriers to exploration are the result of being large. We therefore draw upon the characteristics of an individual entrepreneur to develop a process for exploration and breakthrough innovation at SCA. An entrepreneur has a mindset of experimentation, exploration, and search. He or she is willing to take risks; without risks there can be no big reward. An individual entrepreneur do not obey to consensus-driven decision making; he or she can take any decision necessary, on gut feeling or on acquired data. All entrepreneurs dream about going big, but the initial target is never the mass market. As long as the business model is scalable the first aim is to be a big fish in a small pond. And perhaps most important of all, an entrepreneur does not obey to rigid company-developed structures or processes. He or she can engage anyone, call any potential customer, ignore any unofficial restriction or company silo, explore any insight, turn any rock, or walk down any road.

We argue that this is what true exploration needs to do, be it for an individual entrepreneur, in an SME, or in a global multinational company. Therefore, by emulating an individual entrepreneur backed by the strengths of the large firm would be a way for SCA to be ambidextrous; to allow the growth of radical business opportunities without letting them get eaten alive by rigid project structures and exploiting biases. By drawing upon the advantages of the individual entrepreneur, while using the facilitating capabilities of the large company, successful breakthrough innovation will be possible for SCA.

9. Recommendations

The final chapter builds on the conclusions and the discussion in the previous chapter in order to provide recommendations to the case company. Specifically, the recommendations concerns the third research question; “What can be done to radically improve exploration at SCA?” As have been stated before, the answer to this question targets only radical, exploration-heavy innovation projects, labeled at SCA as Breakthrough.

If SCA want to successfully bring breakthrough innovations to the market, an exploratory method and process is essential. As stated in the discussion and conclusion to RQ3, we suggest that this process should emulate the individual entrepreneur. The five mentioned causes for impeding exploration have been concluded to be an **exploitative, risk averse,** and **consensus-driven organizational culture**, the immediate **targeting of a mass market**, and finally **the lack of exploration enabling structures and processes**. To raise awareness of what this currently means for potential breakthrough innovations at SCA, consider a simplistic example.

Example:

An employee learns an insight about (Technology is black-boxed). This insight, making it all the way to a market, would render incontinence products meaningless and obsolete. What would be the best way to bring this idea to a market: (a) quit SCA and develop the idea as an individual entrepreneur, or (b) create a project within SCA to develop the idea?

In order for a company to secure long-term sustainable growth, the answer to the question in the example above **must** be (b). However, with strong enough barriers to exploration, the answer could be (a). We argue that there must therefore exist a process that enables exploration and drive successful breakthrough innovation. Our proposed solution is to enable a small structure within SCA to operate under the circumstances needed to successfully explore new business opportunities. We chose to call this new breakthrough innovation process Business Prototyping.

9.1 Implementing Business Prototyping at SCA

Business Prototyping emphasizes the need for working iteratively with breakthrough innovations. Testing, verifying, prototyping, and pivoting are the essence of the process. The goal is to emulate the individual entrepreneur inside the large firm, and by leveraging these combined strengths, the aim is to implement a process that facilitates development of breakthrough innovations and the successful launching of them on the market. In order to build this process, a review of the pros and cons of the individual entrepreneur and the large established firm is needed. This is presented in Table 7, below.

Table 7 - Individual entrepreneur and large firm comparison

Pros/cons of individual entrepreneur	Pros/cons of project within SCA
<ul style="list-style-type: none"> + Passion for the project, enough to start own business + Self-selected stakeholder + Freedom to choose other passionate people to work with + Liberty to define business opportunity with gut feeling + High focus, because of dropped safety net and determination to succeed with new business + An innovation process that does not require her to move linearly forward + Can quickly change the course of the project when gaining new insights + Can fail as much and quickly as she wants + Build cheap prototype to see response (quick feedback if her insight is correct/wrong) + Quickly keen to listen to customer’s response + Quickly start selling to early customers + Careful with resources in early stages – High uncertainty, no income without success of start-up – Lack of innovation method or process – Limited resources and scaling ability – Limited knowledge and network connections – Unknown, no brand strength 	<ul style="list-style-type: none"> + Resources to finance + Network <ul style="list-style-type: none"> + of knowledge within firm + of customers for prototype testing + of geographical spread + Capacity to scale the product <ul style="list-style-type: none"> + Production + Logistics + Marketing + Sales channels + Permanent job placement – Exploitative organizational culture – Risk averse culture – Consensus-driven organizational culture – Immediate targeting of a mass market – Lack of exploration enabling structures and processes – “Silos” preventing from talking to customers

The table above suggests that synergies exist if combining the individual entrepreneur and the large established firm. The recommendation is therefore based on how to enable a structure that will draw the benefits from both. In order to implement a new process for successfully bringing breakthrough innovations to the market, we have identified three building-blocks that need to be addressed. The three are: (1) **Exploration-enabling Process and Method**, (2) **People and Mindset**, and (3) **Responsibility and Ownership** of breakthrough innovations. Each block contains important key factors that combine the strengths of the large firm and the individual entrepreneur, in order for the breakthrough innovation process to be possible and successful.

9.1.1 Exploration-enabling Process and Method

First of all, forget everything about the Innovation Funnel. Looking at any individual entrepreneur, anything close to an Innovation Funnel or a Stage-Gate process is non-existent. However, individual entrepreneurs may face difficulties by having no methods or process to follow at all. While there is no place for rigid innovation structures when developing breakthrough ideas, there must be some form of process to adhere to. What is needed is an *exploration enabling process*, a method to follow, on how to organize the development of breakthrough innovations. We call this process the *Business Prototyping* process, i.e. the process should generate a prototype of what a large scale business will eventually look like. Business Prototyping will allow for several iterations and failures of building the business before scaling it and launching it to the mass market. This is what is needed for breakthrough innovation projects at SCA.

Drawing upon the theoretical framework, it is clear that Customer Development provides an exploratory process and method that is very useful. As described in Chapter 3.3, the first two parts of Customer Development, i.e. *Customer Discovery* and *Customer Validation*, outlines the search process (Figure 25).

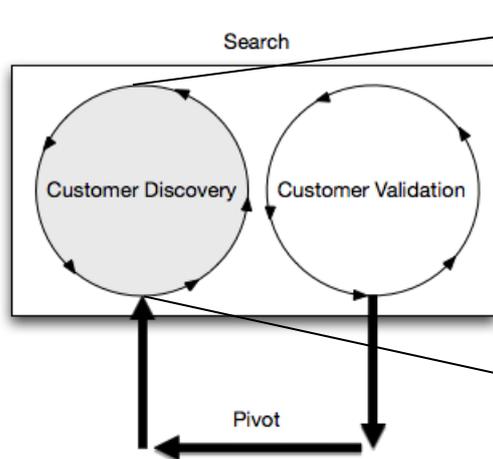


Figure 25 - Customer Development Search Cycle

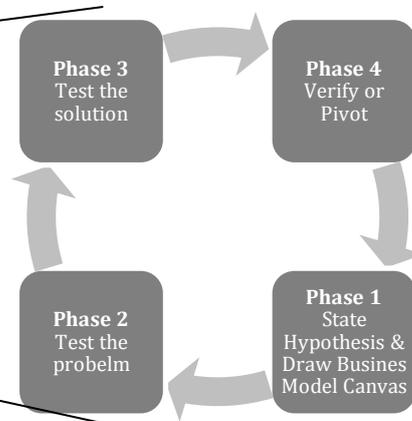


Figure 26 - Customer Discovery Iteration Process

Customer Discovery is the first phase where the entrepreneurs initial idea or solution of a problem that exist in the real world are turned into one or several business model hypotheses of how to solve the problem. These hypotheses are developed and tested on customers and, as they are validated, turned into facts. Customer Discovery is therefore a method of constant verifying and iterating in order to reduce uncertainties and risks, and to make sure to develop what the customer truly wants. As shown in Figure 26, the Customer Discovery phase focuses on quickly testing a hypothesis on the problem and on the solution. Before moving on to the next search phase, Customer Validation, the hypotheses stated need to be verified, i.e. it is crucial to make sure that enough people have given consistent answers, you have knowledge about the customer’s top problems, there is a high demand for a solution and how much they are willing to pay for it. Furthermore, you should know the customers well enough to be able to draw “a-day-in-their-life” to make sure you understand them fully and are able to put yourself in their situation.

Customer Validation is the second search phase (see Figure 25 and Figure 27) that tests whether the resulting business model is repeatable and scalable. This includes building a Minimum Viable Product (MVP) and starting to sell it. The MVP is the smallest possible set of features, and will prompt your lead customers and earlyvangelists to commit to a purchase. If not, then the problem has not been understood well enough or the MVP does not satisfy the problem well enough. The Customer Validation process is iterated until it is validated through building orders. Slowly scaling the selling process will allow for validation of the business model to prove it is scalable to a larger audience. While doing this you validate the scalability by proving that each dollar spent on acquiring a new customer generates more than a dollar in return. If not, another iteration is needed, or possibly pivoting and going back to Customer Discovery.

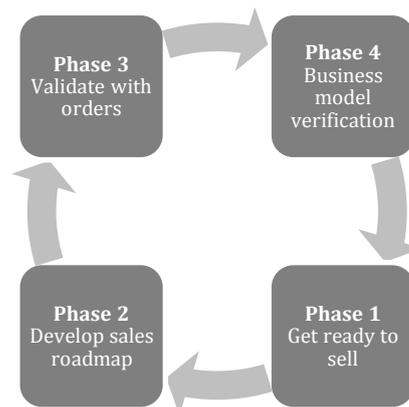


Figure 27 - Customer Validation Iteration Process

Besides the important method of how to conduct exploration, there are other key factors to establishing an exploration enabling process. Drawing on the advantages of an individual entrepreneur, the process must come with *no restrictions*. Everyone is eligible for contact and engagements. While it is imperative that lead customers are classified as such, the process must enjoy free access to these customers. This cannot be stressed

enough. Without fast and direct customer contact and feedback, exploration is impossible. This requires the projects that are taken on as Breakthrough to be sanctified as such towards the rest of the organization.

Lastly, the last part of the process concerns evaluation of running breakthrough projects. The focus cannot, and should not, be on delivering quantitative guesses about future revenue streams or volumes. Business Prototyping is not a stage-gated process. The focus is at first on delivering strong and fast customer verification about the problem and the potential solution. The second is to make sure that the verified business model is *scalable*. If it is, then move on; if it is not, pivot or kill the project.

9.1.2 People and Mindset

Besides the crucial part of an enabling exploratory process and method, bringing breakthrough innovation successfully to market also calls for specific characteristics and mindset of the people or team that set out to do it. As Lafley puts it, the trouble is often that “search and exploration is led by an incremental thinker”. While incremental and fairly incremental projects – Cost Saves, Upgrades, and Next Generations – benefit from an “incremental thinker”, breakthrough innovation and exploration does not. Picturing an individual entrepreneur, words like ‘execute’, ‘implement’, or ‘incremental’ does not come to mind. The mindset of Business Prototyping should be anything but execution; it should be governed by search, experimenting, and the notion of failing fast, iterate and pivot to reach the real customer need as quick as possible.

This put certain demands on assigning these projects. We argue that they are to be run by one person, an internal entrepreneur who possesses passion and drive. The key is that this person must chose the project, not be assigned it. We argue that it is hard to achieve the passion and the drive equal to an individual entrepreneur when doing something assigned to you. Also, complete freedom to recruit, *when needed*, additional people to the project is needed.

Depending on type of innovation, Innovation Managers at SCA can have up to 4 or 5 projects at once. For the breakthrough innovation process, we strongly recommend having only *one* project to focus on. Again, it is crucial to have complete focus and passion for the innovation in order to as quickly as possible either reach a scalable business or kill the project.

9.1.3 Responsibility and Ownership

To establish this process in the organization demands anchoring it at top management level. By this we mean as high up in the SCA organization as possible. The role of process owner means being responsible for the process itself, as well as all the breakthrough innovation projects that it runs. Therefore we recommend *at the very least* this to be the responsibility of an Executive Vice President, if not the CEO.

There are several benefits with this set-up. First of all, support and need for breakthrough innovation projects are communicated clearly to the whole organization. Second, the consensus-driven decision making process is removed, in favor of a fast and agile process. The set-up means that decisions on if to proceed with a project will come down to the entrepreneur running it and the top manager owning it. It also means that this top manager must have mandate to decide on launch of a new product or service. Regular communication between the two will therefore be important, and the top manager must commit a certain amount of time each month for this purpose. Third, a sense of urgency and importance is put on the entrepreneur running the project. Knowing that this is

important enough for reporting directly to a top manager, we think creates a focus and passion to succeed, something that is much needed for breakthrough innovations.

The top manager must have access to resources when needed, *without constraints*. This does not mean throwing cash at something blindly. On the contrary, we argue that funding for each project must be long-term and impatient. The focus must be long-term; demands of returns in the present are pointless. But it must also be impatient; every breakthrough innovation project must justify its existence by showing progress and customer data. Again, that does not mean demanding market estimations and future volumes, but rather demanding strong support for the problem hypothesis, its solution, and the scalability of the business model. This is the balance between the individual entrepreneur and the large firm; resources should be scarce, but when scaling is justified the large firm must, and can, commit to it fully.

9.2 From Business Prototyping to Innovation Launch

Business Prototyping, including the steps of Customer Discovery and Customer Validation, is the exploratory search process for a scalable business model. Key important building blocks that constitute the process have been outlined above. The effect of using Business Prototyping is overcoming barriers to exploration, and facilitating breakthrough innovation success. By going back and forth through Customer Discovery and Customer Validation, a scalable business model should be developed. At that point, SCA must make a corporate decision. As the business model then should be verified and stated, a decision has to be made about owning the innovation or divesting it. If it fits the long-term strategic goal of the company then keep it, if it does not, sell it or spin it off. This is where the strength of Business Prototyping as an exploratory process comes in. At the point where that decision has to be taken, resources and time invested is kept to a minimum, see Figure 28.

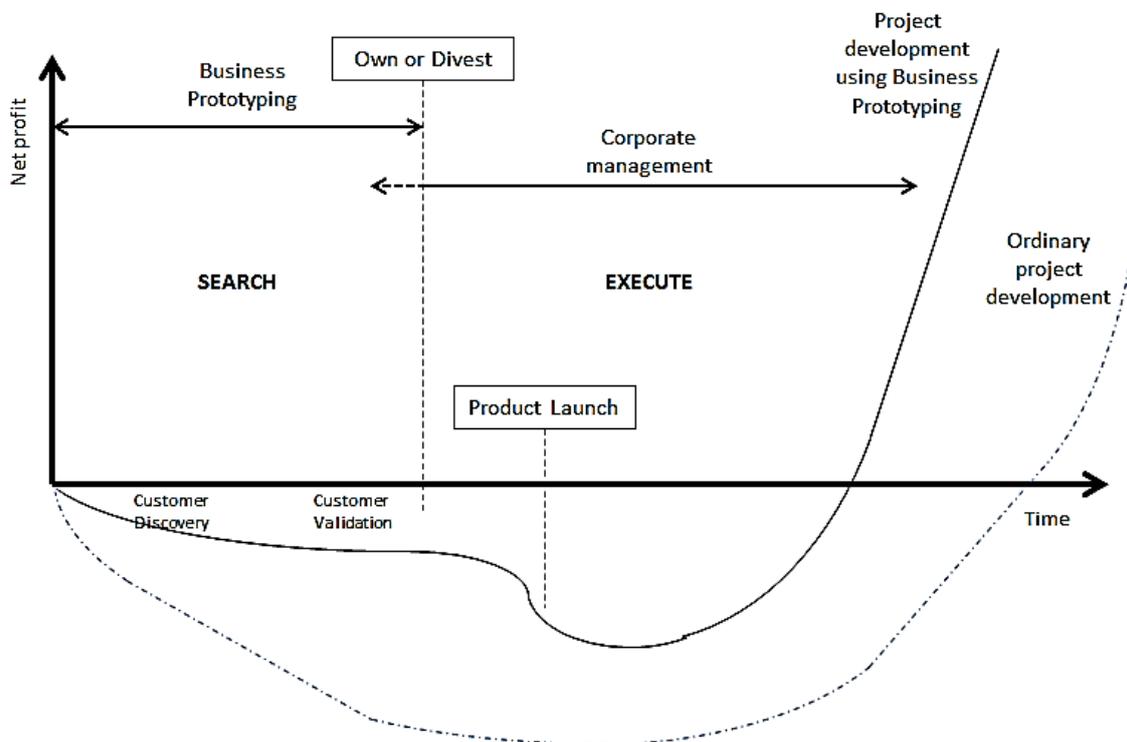


Figure 28 - Business Prototyping Project Development

In the figure above, a Business Prototyping project is compared to an ordinary project. It is important to note that not only does risks (in regard to money spent) decrease in the early phase, but also that when launching a new product or service that has gone through rigorous customer validation and exploration, the uncertainty of customer willingness to buy is dramatically decreased. Compare this to a waterfall model of developing a product where it is fully possible to hit upon a great customer insight, but then stay inside the building and develop something that in the end does not match what the customers want. There are examples of this at SCA, meaning that Business Prototyping is even more applicable.

9.3 Synthesis

We have in this chapter recommended SCA to establish an exploratory innovation process, called *Business Prototyping*, in order to enable breakthrough innovations to successfully be brought to the market. The logic of Business Prototyping is simplistic, as it draws on the strengths of an individual entrepreneur who is free of all barriers that large firms have towards exploration. We recommend SCA to establish this process thinking of three important building-blocks; (1) **Exploration-enabling Process and Method**, (2) **People and Mindset**, and (3) **Responsibility and Ownership**. Each block includes key factors for Business Prototyping to be successfully implemented. The process is synthesized in Table 8 below.

Table 8 - The Business Prototyping Process

Exploration-enabling Process and Method	People and Mindset	Responsibility and Ownership
Forget everything about the Innovation Funnel and Stage-gated processes.	Mindset characterized by exploration, search, and experimentation.	Anchor at top management level – Executive Vice President at least. Must have mandate to decide on new product or service launch.
Customer Development provides exploration-centric methods.	One person driving project – the internal entrepreneur.	Establish support and need for breakthrough innovation.
State hypothesis, verify problem and solution, and pivot until scalable business model is found.	Must be passionate and driven, project is chosen and not assigned.	Decisions made by internal entrepreneur and process owner. Avoids consensus-driven culture.
Free access to Lead Customers.	Freedom to recruit anyone in the organization if needed, as long as that someone agrees.	Access to resources without constraints.
No organizational restrictions.	One project only, 100% focus.	Funding characterized by long-term thinking, and impatience.
Evaluate on level of support for scalable business model, not quantified market guesses.		Regular communication with internal entrepreneurs important and needed.

By establishing the type of process that we have recommended, SCA would clearly facilitate the development of breakthrough innovations. The main barriers to exploration would be overcome by implementing Business Prototyping for all breakthrough innovation projects, given that a serious effort is made from top management and cascaded down through the organization.

To conclude, the recommendations set out to eliminate the causes for impeding exploration which was concluded to be an **exploitative**, **risk averse**, and **consensus-**

driven organizational culture, the immediate **targeting of a mass market**, and finally **the lack of exploration enabling structures and processes**. Firstly, changing an exploitative organizational culture requires the change of people's mindset and changing their deeply rooted ways of working. Rather than trying to do so, we suggest bringing in an internal *or* external person possessing an exploratory mindset should be done in order to remove this barrier to exploration.

Secondly, the risk averse and consensus driven culture is removed by anchoring breakthrough innovation projects at top management level and thereby enable decisions to be made quickly from a person with mandate to take risk and without having to wait for consensus to be reached.

Thirdly, by adapting the Business Prototyping process described, a structure enabling searching, experimenting and learning and the development of radical innovations. It also removes the immediate targeting of mass markets by allowing for validation of the business model before scaling.

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Appendix A – Interview Guide

Explanation in the beginning of the interview to make sure they understand our situation and purpose

- To enable extraction of intrinsic and personal feelings and information from the interviewee, have a relaxed, down to earth attitude, make them laugh and tell them a “secret” in order to let them into your personal space.

In general start the interview conversation with our purpose and that we have conducted a participant observation study where we found interesting ideas about innovation, that we would like to have a discussion about with the interviewee.

“Hi,

We are two students from Chalmers University of Technology here in Gothenburg. We are doing our master’s thesis here at SCA. We actually came across SCA during one of our courses where we had Bengt Järrehult as guest lecture. Do you know him? He was very enthusiastic during the lecture and we thought he would be a fun guy to work with. We asked him if he had anything that would be suitable at SCA for our master’s thesis, and now we are here in this room with you!

We have been involved in a “breakthrough” innovation project where we helped out to understand the customer situation and then try to build a business model around this. During this project we discovered something which you might call challenges which we would like to see if you have any experience with as well, or if it was just a one-time experience from our side.

Just so you know, we won’t be printing any names so don’t worry about talking openly and freely of what you think is good or bad.

Could you tell us what your experiences have been in innovation project, how they have differed and how you see a difference in working with incremental innovation projects and the contrast to “breakthrough” innovation projects?”

From this point on, let the interviewee talk about what he/she believes is interesting and direct them towards other topics if necessary. If they are not talking constructively about any of these topics, direct them to one of these by explaining an example of how we experienced a barrier or challenge. The following barriers were in different amounts covered during interviews:

- #1 Limited direct access to lead-users/customers
- #2 Execution mindset rather than exploration mindset
- #3 Technology/Product mindset rather than customer need
- #4 Slow communication and different perceptions of project aim and purpose
- #5 Targeting the ultimate final offering rather than Minimum Viable Product
- #6 Poor re-use of prior insights
- #7 Lack of sufficient focus on current project

Appendix B – Interview Result Matrix

	#1 Limited direct access to lead-users/customers	#2 Execution mindset rather than exploration mindset	#3 Technology/Product mindset rather than customer need	#4 Slow communication and different perceptions of project aim and purpose	#5 Targeting the ultimate final offering rather than Minimum Viable Product	#6 poor re-use of prior insights	#7 Lack of sufficient focus on current project	#8 Project is killed because of poor fit with existing brands	#9 Projects are not green-lighted nor killed	#10 Established distribution and/or sales channels hampers the launch of new products	#11 Rigid project structure impede flexibility and speed
Person #01	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #02	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #03	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #04	Not brought up	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #05	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #06	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #07*	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #08	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #09	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #10	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #11	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #12	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #13	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #14	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #15	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #16	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up	Not brought up
Person #17	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Person #18	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
#Confirm	8	17	14	2	12	4	8	12	9	6	6
#Non-confirm	4	0	1	7	1	3	5	1	0	0	1
#Brought up	12	17	15	9	13	7	13	13	9	6	7
%Confirmed	67%	100%	93%	22%	92%	57%	62%	92%	100%	100%	86%

Comment on Person #07: This person did not work at SCA Europe and did not experience any of the barriers which were brought up. Rather this person confirmed the situation being very different in Europe from the region she/he was working nowadays.

Comment on Person #16: This person was unable to contribute to any of the barriers, rather the person kept talking about other topics despite frivolous attempts to steer this person back on to topic.