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Shooting for the moon

Elements affecting idea generation in the search for new business opportunities at Volvo Cars Corporation

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Management and Economics of Innovation

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ABSTRACT

The urgency for innovation in many industries is driven by global competition and by the rapid pace of technological change. To stay competitive, companies are pressured to expand their value offers by finding new business opportunities in a sustainable and value-creating way. Nagji and Tuff (2012) state that companies might have the required capabilities to generate, develop and test innovative ideas, however, they tend to fail when they do not manage their innovation efforts strategically. One way firms can manage their innovation efforts strategically is by dividing it into three horizons, where Horizon 3 represents the search for completely new business opportunities which may take the form of new products or services that show great promises but are highly uncertain. The literature is limited regarding Horizon 3 and especially regarding idea generation within Horizon 3, which is the focus area of the thesis.

By performing a case study at the department Innovation and Digital Services, IDS, at Volvo Cars Corporation and by building a theoretical framework, the thesis investigates what elements affect idea generation within Horizon 3. The case study findings are compared with the theoretical framework to reach insights about what elements affect idea generation at IDS. The elements found are *Knowledge management, Idea generation workshops, Measuring innovation, Work process, Team effort, and Leadership*. Deriving from these elements, several practical recommendations are suggested to IDS, aiming to improve the idea generation process. Furthermore, the study can act as a source of inspiration for other incumbent firms attempting Horizon 3 Innovation and highlight some important aspects which should be taken into consideration.

Keywords: *Idea Generation, Ideation, Horizon 3, Moonshot, Innovation Management.*

PREFACE

The thesis is our final project in the master program Management and Economics of Innovation, part of the five-year program Industrial Engineering and Management at Chalmers University of Technology. We are proud to conclude our studies with the research and want to express our gratitude for those who have made it possible.

First, we would like to thank Madelene Lindberg at IDS, Volvo Cars Corporation, for giving us the opportunity and the means to conduct the research. We would like to direct a special thanks to Staffan Davidsson, our supervisor at IDS, for guiding and supporting us along the way. Furthermore, we want to express our gratitude to all the interviewees who have shared their knowledge and shown interest in our research, and the entire IDS department for welcoming us.

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1. INTRODUCTION

The introductory chapter presents a background and a problem description of the research area. Thereafter, the purpose of the study is defined as well as the research questions. Lastly, the delimitations of the study are presented.

1.1. BACKGROUND

Frigo and Snellgrove (2016) claim that the world is changing more rapidly than ever, creating risks but also opportunities for businesses. 60 years ago, in 1959, the lifespan of a company listed on the S&P 500 (the 500 largest companies in the US) was 61 years. In 2011, a lifespan had decreased to 18 years and is forecasted to shrink to 14 years by 2026. The shift of companies is the result of many factors including the failure of incumbent firms to achieve profitable growth through innovation. Companies are under pressure to find new business opportunities and to do so in a sustainable and value-creating way, both for customers and the organisation. The urgency for innovation is driven by excessive global competition and by the rapid pace of technological change in many industries (Frigo & Snellgrove, 2016).

The automotive industry is currently facing significant changes created by the introduction of new types of technologies such as autonomous driving and electric powertrain. There is an increasing popularity in shared mobility which likely puts pressure on automotive firms to transform their business model. Novikova (2017) stresses the sharing economy as an emerging phenomenon that shapes the economic, cultural and social landscape as well as affecting the mobility behaviour among people.

When customer behaviour and technology change, it can be difficult for established firms to stay competitive. Christensen (2003) explains how successful companies can do everything right while still lose market leadership or fail, due to the rise of new, unexpected competitors. If firms focus too much on current customer needs and short-term success, there is a chance they will miss opportunities for long-term growth and profits. Christensen (1995) also states that one of the most consistent

patterns in business is the failure of leading companies to stay at the top of their industries when technologies or markets change. King and Tucci (2002) affirm that technological innovation increasingly creates new markets, and for firms to survive they must respond to new markets while attending to existing businesses. Abernathy and Clark (1985) state that in the shift between old and new technology, research has shown that incumbent firms have great difficulty in navigating the transition to radically new technology.

On the contrary, Cohen and Tripsas (2018) state that incumbent firms' knowledge in old-technology is not a constraint, rather a prerequisite and foundation from which to learn the new technology. When the inventive performance in the old technology is high, Cohen and Tripsas (2018) found that old-technology knowledge may serve as a valuable resource in the development of new technology. Incumbents with valuable resources and capabilities are more likely to enter new markets (King & Tucci, 2002).

According to Pichler (2016), succeeding in disruptive technology requires an entrepreneurial mindset and the ability to experiment, make mistakes and fail. The author explains that a company benefits from having a unit that provides the necessary autonomy to think outside the box. There is a growing trend of corporations establishing corporate incubators as a strategic tool of transformation (Hirte, 2018). According to Magel (2019), incumbent firms can overcome the dilemma of being disrupted, develop new technology while continuing to run its current business successfully by establishing an internal corporate incubator. The corporate incubator is a safe space for innovation to thrive, separated from the company's day-to-day operations. This enables innovation to be developed effectively, away from the existing commercial and organizational structure.

1.2. PROBLEM DESCRIPTION

The study follows a corporate incubator initiative, as described above, and is conducted at the department Innovation and Digital Services (IDS) at Volvo Cars Corporation (VCC). VCC is an automotive corporation that develops, designs, manufactures and markets cars and services in the premium class. Like other incumbent firms, VCC has the potential of leveraging existing knowledge in the

development of new technology which is essential to stay competitive when technology and industry change, as described by Cohen and Tripsas (2018). Thus, to be up to speed or ahead of transformation, it is imperative for VCC to be innovative and find new business opportunities to stay competitive. The IDS department was founded in 2013. Since mid-2018 the department works on what is called Horizon 3 innovation. According to Blank (2015), Horizon 3 represents the search for future growth opportunities which may take the form of new products, services, capabilities and perhaps markets that show great promises, but which are highly uncertain. H3 represents new value offers that are different from the core product of a company but still in line with the company's values, resources, and capabilities. These are found by exploring new markets and technologies.

The IDS workforce, in 2019, consists of twelve innovation managers, six software developers, one UX-designer and one team manager. The innovation managers search trends, gather knowledge, generate ideas and test them. The software developers help the innovation managers to test if the ideas are feasible by quickly developing the ideas. New business ideas generated at IDS should reach one of the following qualifications; the potential of 1 billion in revenue and/or change the life of 100 million people. It should also address a new market for VCC, have a ready solution in 3 to 7 years as well as creating leverage for VCC. Given the scope of H3 and the ambitious goals, it is a complex matter to generate profitable and sustainable ideas on new business opportunities.

There are few practical cases of H3 innovation and how to best generate new ideas within H3. Innovative ideas at the IDS department are often found in the interface between different knowledge areas. The long-term horizon further increases the complexity due to high uncertainties when making future speculation and prediction. This is difficult due to the current digital age with fast-moving global trends. The IDS department has been working with Horizon 3 since mid-2018, which means the work processes are still undergoing configuration and it is not obvious how they should take shape. The challenge is to find an optimal idea generation process in the combination of a Horizon 3 scope.

The thesis targets the intersect of two main areas; *Idea generation* and *Long-term business opportunities*. The area of research therefore becomes dynamic, as it lies in the cross-section of these two parts, as visualized in figure 1.

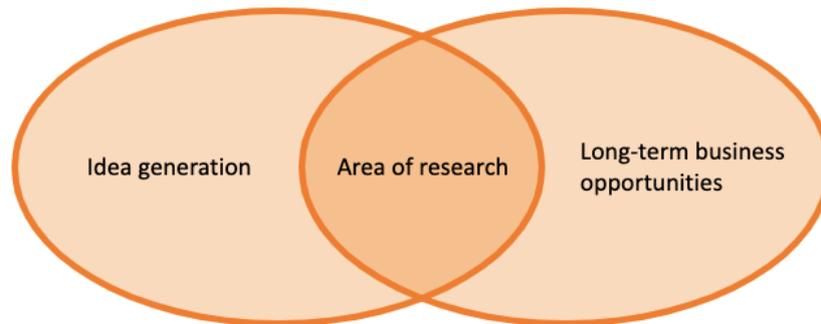


Figure 1. Venn diagram representing the area of research

1.3. PURPOSE

The purpose of the master thesis is to identify what elements affect the idea generation process at the IDS department at VCC and to find potential improvement areas.

1.4. RESEARCH QUESTION

Within the area of research, in the intersect between idea generation and long-term business opportunities, an overall research question has been formulated. The study aims to answer the following research question:

- *What elements affect idea generation within Horizon 3, and what are potential improvement areas for the IDS department at VCC?*

To answer the main research question, several underlying questions are relevant;

- *Why is the search for H3 business opportunities of interest?*
- *How does the idea generation process at IDS currently work?*
- *What are the challenges inherent with idea generation at IDS?*

1.5. DELIMITATIONS

Since idea generation is the focus of the study, only the early phases of the innovation process at the IDS department will be analysed. Furthermore, the internal idea generation process will be in focus and how the department can improve its process. External idea generation will be included with regards to how it affects the internal idea generation but will not be analysed in depth. Another delimitation is that only the IDS department which works with Horizon 3 Innovation will be analysed, not other innovation departments that focus on horizon 2 and horizon 1 at VCC. The thesis will only study VCC and not how other companies work with idea generation for long-term business opportunities.

1.6. STRUCTURE OF THE THESIS

The master thesis consists of six chapters. In the first introductory chapter, the background and problem are described, as well as the purpose of the study, research questions, and delimitations. The second chapter describes the underlying methods which are used in the study, including research design, data collection and analysis as well as quality of the research. The third chapter describes relevant theory about the research subject. This includes long-term business strategy, the horizon perspective, how quality of ideas is measured, etc. In chapter four, the findings of the study are presented. This is followed by a discussion in chapter five, where the findings are connected to the theory. In the sixth and final chapter, a conclusion is drawn, and practical recommendations presented to VCC.

2. METHODOLOGY

In the following chapter, the methodology of the thesis is presented. The research design is described below and has been chosen based on which is most appropriate to answer the thesis research questions. This is followed by a description of how data has been collected, including a review of theory and practical internal and external interviews as well as observations at VCC. Then follows a description of how data findings have been analysed and compared to literature in order to reach insights. The final section of this chapter consists of reflections regarding the quality of the research including aspects such as validity, reliability, and generalizability.

2.1. RESEARCH DESIGN

A good research design is fundamental to achieving high-quality research, according to Easterby-Smith, Thorpe and Jackson (2015). Sreejesh, Mohapatra and Anusree (2014) describe three types of research designs; *explorative*, *descriptive* and *causal design*. The explorative research design is used to analyse a problem, evaluate alternatives and discover new ideas. It is not used to find a definite result but rather for research to attain conclusive results and understand all related aspects to a problem situation. The descriptive research design is used to collect information by asking pre-defined questions through surveys or interviews. The causal research design is experimentation and is used to identify the cause and effect relationship between variables. Given the complex nature of the thesis research area and the dynamic perspective involving present ideation methodology and future business strategy, an appropriate research design is explorative. The aim of the thesis is not to find a definite result, but to understand related aspects to the situation, reflect upon potential improvements, and present practical recommendations, hence the explorative research design is of best fit.

From the outset of an explorative research design, the thesis follows an abductive approach called *Systematic combining*, as introduced by Dubois and Gadde (2002). Systematic combining is a process where theoretical framework, empirical fieldwork and case analysis evolve simultaneously. The main characteristic of systematic

combining is the continuous interplay between an empirical world and a model world, contrasting the linear process of case studies described by most textbooks (Dubois & Gadde, 2002). The preliminary analytical framework consists of preconceptions, which over time are developed according to what is discovered through empirical fieldwork and analysis. Systematic combining is visualised in figure 2 below. In the research, the approach was used in the following way. At first, unstructured interviews were held together with observation to understand the situation and what areas to research, then research was made in the relevant areas and from the information in literature, interview guides were formulated for further interviews. Findings from these interviews enabled the theoretical focus to redirect once again towards relevant areas. Therefore, matching, direction and redirection between the theoretical framework, empirical fieldwork and case analysis was made, as described above.

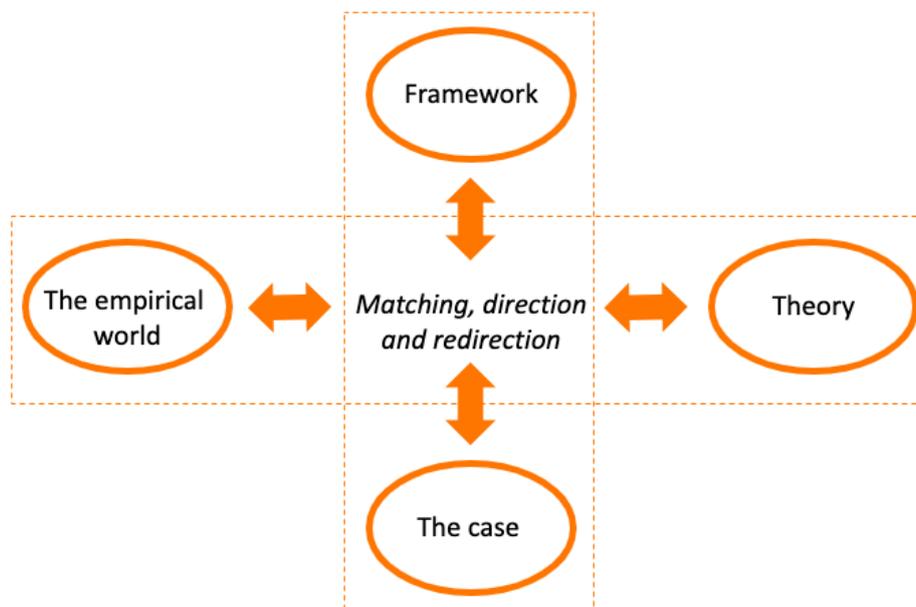


Figure 2. Systematic combining, inspired by Dubois and Gadde (2002)

2.2. DATA COLLECTION

The explorative research of the thesis is conducted by gathering qualitative data. Sreejesh et al (2014) explain that quantitative research generally has a pre-defined set of answers which the respondent must choose from irrespective if the answers reflect the respondent's true feelings. Given the broad spectrum of potential answers to the research questions of the thesis, a qualitative approach is more appropriate. It enables generating richer data and helps to interpret information through interaction and observation.

Primary data has been gathered through observation and interviews with employees at the IDS department, as well as specialists within the field H3 innovation. Initially, the data collection methods used were informal interviews and observation. The work process was explained by senior innovation managers, and ideation workshops were observed, and notes were taken. This helped lay a foundation for how to proceed in building the theoretical framework, as well as interview guides for the more structured interviews which followed.

One of the most common methods when collecting qualitative data is through conducting interviews (Gill, Stewart, Treasure & Chadwick, 2008). Interviews can be used to explore the views, beliefs and motivations of individual participants. According to Gill et al (2008) qualitative methods, such as interviews, provide a deeper understanding of social contexts than purely quantitative methods, such as questionnaires. Gill et al (2008) state that interviews are best suited when the studied area is unknown or where detailed insights are required from individual participants. There are three fundamental ways of carrying out interviews; unstructured, semi-structured and structured interviews. In structured interviews, a list of predetermined questions is asked with little variation and no follow-up questions in order to elaborate further on the topic. Structured interviews will only provide limited responses and do not generate depth in the topic (Gill et al, 2008). On the contrary, unstructured interviews are performed in an unorganised way with no preconceived theory or ideas. Such interviews are time-consuming and the use of such an approach is therefore suitable when nothing is known about the subject area (Gill et al, 2008).

In the study, unstructured interviews were initially conducted to gain an understanding of the subject area. Thereafter, semi-structured interviews were conducted to gather more in-depth data. The semi-structured interviews allowed the interviewer and interviewee to go off course in order to pursue a more detailed response. The flexibility of the semi-structured approach enables the discovery or elaboration of areas that are important for interviewees, which might not have been thought of in forehand by the researcher (Gill et al, 2008).

The interviews with the IDS team were conducted to gain a deeper understanding of the challenges, success factors and elements affecting the ideation process. The preparation of the interviews followed Gilham's (2010) structure. Key topics were first identified and then questions around these topics were constructed. The questions were composed in an open manner i.e. to let the interviewee determine the answer and not indicate a preferred answer. For memory sake, the interviews were recorded at the approval of the interviewees.

The sampling of interviewees was made with regards to the research area. Initial unstructured interviews were made with senior innovation managers in order to understand the work process at the IDS department. From these unstructured interviews, along with insights from literature, the semi-structured interviews were prepared. These were conducted with all innovation managers at the IDS department, working with ideation within H3, as well as strategic managers. A software developer and UX designer were also interviewed to gain a broad perspective and understanding of the department. Furthermore, semi-structured interviews were held with external specialists within the area. The snowballing method was used to identify relevant interview objects. A complete summary of the interviews can be found in table 1. The guides used in semi-structured interviews with employees at IDS, the team leader and external interviewees can be found in appendix 1 to 4.

Table 1. Conducted internal and external interviews

Internal	Role	Date of interview
	Innovation Manager A	2019-03-05
	Innovation Manager B	2019-03-11
	Innovation Manager C	2019-03-12
	Innovation Manager D	2019-03-08
	Senior Innovation Manager A	2019-02-19 & 2019-03-12
	Senior Innovation Manager B	Continuously
	Senior Innovation Strategist	2019-03-11
	Senior Manager of IDS	2019-03-22
	Software Developer	2019-03-04
	UX Designer	2019-03-05
External	Role	Date
	Founder of an innovation consultancy firm	2019-03-11
	Consultants at an innovation consultancy firm	2019-03-08
	Chief Digital Officer at a mid-size company	2019-04-08

2.3. ANALYSIS OF THE DATA

As described above, an explorative research design together with a systematic combining approach was followed, meaning analysis of data was done continually throughout the project. In figure 3 below, the process is visualised from left to right. Initially, unstructured interviews and observations took place. The collected data was interpreted and analysed in order to direct the focus of the literature research. The case study was conducted in parallel with reading of relevant literature, as can be seen in figure 3. Following the systematic combining approach, matching, direction and redirection between case study and theory were done. This enabled reaching insights early on and ensured the relevance of both theory and practical focus.

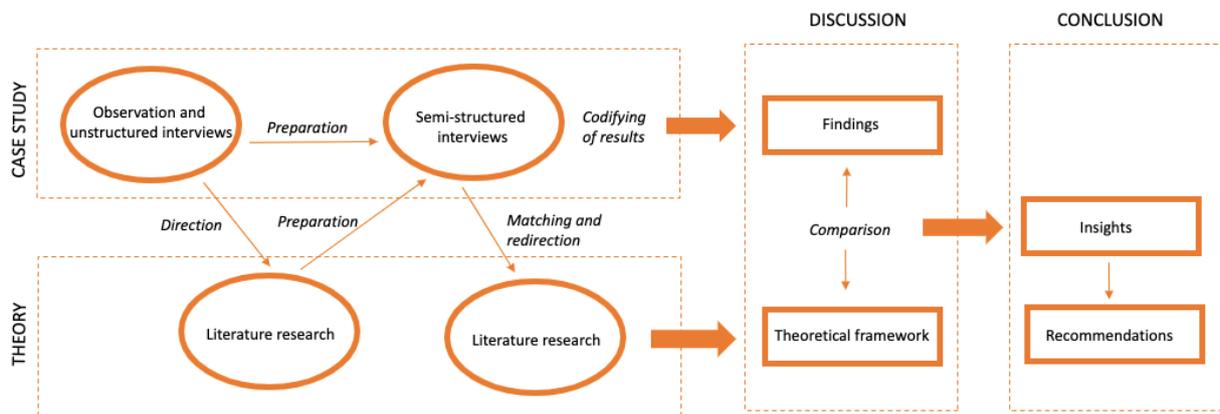


Figure 3. The Analytical Process

The initial findings were useful for preparing and constructing interview guides for the upcoming semi-structured interviews. The results from the semi-structured interviews were analysed by codifying and grouping the answers to different challenge areas, together with exemplifying quotes. This was done by first dividing the answers of the interviews into different challenge areas. The challenge areas were in turn grouped into four different topics, namely knowledge gathering, the work process, managing ideas, and organisation. Then, a list was made for each challenge area. All the interview notes were analysed and findings regarding a certain challenge area were added to that certain list, together with quotes from the interviews. This enabled a clear structure of the findings and well illustration by using quotes. Table 2 below shows how findings are presented as described above.

Table 2. Codifying of Results

Specified area	Challenges	Example quote
Name of challenge area	<ul style="list-style-type: none"> • Challenge 1 • Challenge 2 • Etc. 	“Quote regarding challenge 1” “Quote regarding challenge 2” Etc.

Although analysis was done continually, there was a final analysis as well in which the tables described above were very useful. For each challenge area, the findings were compared with the theoretical framework, as can be seen in figure 3, and it was discussed if and how the findings aligned or contradicted the theory. The discussion, which can be found in chapter 5, was organized and mapped against the research questions to ensure they were answered. The comparison of findings and theory generated valuable insights regarding the main research question of what elements affect idea generation at IDS and what potential improvement areas exist.

2.4. RESEARCH QUALITY

The thesis research has been subject to criteria by Easterby-Smith et al (2015) to assess the overall quality of the research. These criteria are *validity*, *reliability*, and *generalizability*. Easterby-Smith et al have grouped different research designs as either positivist or constructionist. In positivist methods, it is usually assumed there are true answers and the researcher should from a hypothesis prove or disprove it. In constructionist methods, it is assumed that verifiable observations are subject to different interpretations, and the research should illuminate different truths to establish these and reality are constructed. Depending on the type of research study, Easter-Smith et al formulate different questions with regards to the quality criteria. The thesis is of the constructionist type, hence the aimed questions for each criterion are the following;

- Validity – Have a sufficient number of perspectives been included?
- Reliability – Will similar observations be reached by other observers?
- Generalizability – Is the sample sufficiently diverse to allow interferences to other contexts?

Regarding validity, all IDS team members who are involved in ideation i.e. all the innovation managers, have been interviewed. Therefore, it can be assumed the findings reflect well on reality. The validity of analysis at the IDS department can, therefore, be regarded as high. Externally, the number of perspectives has been small. This due to the novelty of H3 innovation and the focus of the research which has been directed towards the IDS ideation process. The low validity regarding external perspectives means it is not possible to draw conclusions much further than IDS. When it comes to reliability, similar observations would most probably have been reached by other observers. The innovation process at IDS is continually undergoing configuration, therefore at another given time, observations would probably change but if this exact research would have been done by other observers, it is most likely similar observations would be found. The generalizability of the thesis is low since it is focused on a single department. However, due to the limited number of similar cases, it can still be interesting and relevant for other organisations attempting H3 innovation.

3. THEORETICAL FRAMEWORK

The following chapter contains a theoretical framework, created from relevant literature, functioning as a knowledge base needed to answer the thesis research questions. The literature was found in books, academic journals, newspapers and blogs to map why firms venture long-term innovation and to understand how to generate ideas. The theoretical framework summarizes existing knowledge regarding the innovation process, searching for long-term business opportunities, idea generation methodology and organizing for ideation.

3.1. THE INNOVATION PROCESS

Innovation can be defined in many ways. The Cambridge dictionary (2019) defines innovation as *(the use of) a new idea or method*. Ness (2012) defines innovation as *creativity with a purpose*. Josef Schumpeter introduced the distinction between invention which is a novel idea for how to do things and innovation which is carrying it out in practice. Adner (2012) explains that in a world of aggressive competition and easily bored customers, innovation is not a choice but a necessity. Drucker (2007) explains that in times of rapid change, the only way a business can hope to prosper, if not to survive, is to innovate. He claims it is the only way to convert change into opportunity. However, this requires that innovation itself is organized as a systematic activity and that the business is organized to be a successful innovator.

To be first with a new idea can be advantageous. There is an early-mover advantage when a pioneer can capture mind share and establish standards while fields are uncrowded (Adner, 2012). Early-movers can block followers through patents, by pre-empting acquisitions of scarce resources, etc. These are all motivating factors to why it is important for companies to be at the forefront of innovation. However, it is worth noting that when pioneering in new markets, there is also great uncertainty and risk. Adner further explains “there is no prize for those who get it wrong first” and that latecomers can reap the benefits of pioneering failures. Being first to market with an idea that is easy to imitate and implement, the prize will be less than for pioneering with a harder-to-implement idea (Adner, 2012).

According to Börjesson, Dahlsten and Williander (2006), an innovation process cannot be viewed as a waterfall-type of activity, going from one sub-phase to the next. It is rather an iteration between innovation height and knowledge depth. Börjesson et al (2006) state that new ideas require deep dives into certain areas to reduce uncertainty and to increase knowledge. The outcome of one such iteration creates new ideas that further necessitates additional knowledge acquisition to reduce uncertainty and so forth. Ideas help to find opportunities that help to generate new ideas which in turn makes the front-end of innovation a melting point of iterations that spurs innovation.

3.1.1. PRINCIPLES OF INNOVATION

Drucker (2007) explains some important principles, do's and don'ts, of innovation. The first "Do" is that purposeful, systematic innovation begins with the analysis of opportunities. Drucker explains that innovation is both conceptual and perceptual. Therefore, it is important to go out and look, to ask and to listen. Successful innovators use both the left and right side of the brain, they look at figures and they look at people (Drucker, 2007). Another "Do" principle is that an innovation, to be effective, must be simple and it must be focused. The innovation should do only one thing as to not be confusing, and since everything new runs into trouble, simplicity is necessary so it can be repaired or fixed. The greatest praise an innovation can receive is: "This is obvious, why didn't I think of it?" according to Drucker, further emphasizing that effective innovations are breathtakingly simple. Another "Do" principle of innovation is that effective innovations start small, otherwise it is difficult to make the adjustments needed for the innovation to succeed. The last "Do" principle regards leadership. A successful innovation must aim at achieving leadership within a given environment, whether that be dominance in an industry or occupying a small niche. The "Don't" principles include not trying to be too clever since the innovation should be usable and not to diversify and do too many things at once, which is similar to the "Do" principle of staying focused. Lastly, Drucker recommends not trying to innovate for the future, but to focus on the present. Unless there is an immediate application in the present, it will remain a brilliant idea and not an innovation.

Drucker (2007) also states there are three conditions of innovation, which are obvious but often disregarded. The first condition is that *'Innovation is work'* meaning it requires knowledge, often within several areas. It is hard, focused, purposeful work which demands persistence and commitment. The second condition is *'To succeed, innovators must build on their strengths'* meaning to focus on the opportunities which fit the innovator, the organisation, where existing knowledge and performance can be leveraged. The third condition is that *'Innovation is an effect in economy and society'*, meaning that innovation always must be close to the market, focused on the market and indeed market-driven.

Jaruzelski and Dehoff (2010) argue that a successful innovation organisation is a combination of talent, knowledge, team structures, tools and processes. Furthermore, regardless if the innovation is incremental or breakthrough, the authors have found that a general understanding of emerging technologies, broad consumer and customer insight, engagement with customers and product platform management are important capabilities to create successful innovation. In breakthrough innovations, ideation is the most critical stage since organisations need to pursue open innovation processes that capture as many potential ideas as possible (Jaruzelski & Dehoff, 2010). They must also constantly scan markets for new technologies to pursue new ideas. Companies that have a willingness to partner with customers and not only understand what issues customers are struggling with today, but to understand what issues that may arise as a result of how technology and markets are developing, differentiate themselves and perform better in the ideation stage (Jaruzelski & Dehoff, 2010). There are three customer and market-oriented capabilities that matter the most: gathering customer insights during the ideation stage, assessing market potential during the selection stage and engaging with customers during the development stage. Jaruzelski and Dehoff (2010) further explain that companies focusing on critical capabilities aligned with their overall strategy tend to innovate more efficiently and outperform their rivals.

3.1.2. MANAGING INNOVATION

Nagji and Tuff (2012) state that companies might have the required capabilities to envision, develop and test innovations, however, they tend to fail when not managing their innovation efforts strategically. In order to manage innovation efforts strategically, the authors suggest that allocation of resources should be broken down in three parts. Where 70% should be allocated to investments in innovations relating to the core of the company e.g. optimizing existing products, 20% should be allocated to adjacent innovation intended to expand its existing value offer and, lastly, 10% should be allocated to transformational innovation, which are breakthroughs and ideas for markets that do not exist yet. Transformational innovation can be compared to Horizon 3. When managing and organizing the innovation system, metrics should be set up in order to keep innovation on track. According to Nagji and Tuff (2012), companies usually struggle with organising transformational innovation. Activities for generating transformational innovation requires talent found in designers, cultural anthropologists, scenario planners and analysts who are comfortable with ambiguous data (Nagji & Tuff, 2012). In terms of management of transformational ideas, they require a nonlinear process in which potential alternatives remain undefined for a long period of time. A stage-gate process is not suitable for transformational innovations since it results in promising ideas being rejected before they are fully explored (Nagji & Tuff, 2012).

3.2. SEARCHING FOR LONG-TERM BUSINESS OPPORTUNITIES

Audretsch (1995) states that firms which are able to innovate and adjust the value offer into a viable product or service are more likely to experience higher rates of growth and a greater likelihood of survival in their industry. In addition, Brown (2010) states that in an increasingly challenging economy where market growth can no longer be relied on to provide sustained growth, it is important for firms to search for breakthrough innovation in order to grow even in the future. Brown (2010) brings up Procter and Gamble, P&G, as a successful example of a company that has refocused its resources to large, breakthrough innovations that have resulted in

competitive advantage and long-term growth. The company has created an environment where innovative thinking can thrive and provide the tools to nurture an idea into a breakthrough product or service (Brown, 2010). The firm has several key innovation drivers; motivating purpose and values, inspiring leadership, aligning innovation with business strategy, stretching goals as well as breaking down innovation strategically. These are all necessary for consistently delivering the breakthrough innovation that grows an organisation into the future (Brown, 2010). In the following section, the futuristic search for new business opportunities, referred to as horizon 3 or moonshots, is explained.

3.2.1. HORIZON PERSPECTIVE

The Horizon perspective was first introduced in 1999 by Baghai, van Putten and MacMillan. It proposed that managers simultaneously should engage with short-term, mid-term and long-term future scenarios. Firms need to adopt a so-called broad lens in order to spot future business opportunities and build up core capabilities in non-traditional areas to expand its business scope. Baghai, van Putten and MacMillan (2010) describe the separation of growth possibilities in 3 horizons, in what is termed: “Horizon 1”, “Horizon 2” and “Horizon 3”. The three horizons contain different levels of uncertainty and must therefore be managed in different ways (Baghai, van Putten, & MacMillan, 2010). The Horizon 1 represents the current core operations that produce the cash flow needed to sustain operations, to meet stakeholders' expectations and to reach future growth. In Horizon 1, the company executes a known business model; customers are known, product features, competitors, pricing distribution channels, supply chains, etc. Existing capabilities are used, and the risk is low when launching a new product or service. Horizon 1 requires that management create scalable and repeatable processes, procedures, incentives and KPI's to measure and perform the business model (Blank, 2015). Horizon 2 represents the business that will generate promising growth in two to three years. The company looks to extend its business model by searching and testing new opportunities such as different distribution channels, customer segments, etc. Horizon 2 make use mostly of existing resources and capabilities and the risk is moderate in launching new products or services. Management in Horizon 2 works by pattern recognition and experimentation inside the current business model. Lastly, as

mentioned, Horizon 3 represents the search for future growth opportunities which may take the form of new products, services, capabilities and perhaps markets that show great promises, but which are highly uncertain. It is the search for a new value offer, by the exploration of new markets and new technologies. According to Blank (2015), organisations working with H3 innovation need to be separated from operating divisions. They should have their own plans, procedures, policies, incentives and KPI's that are different from those in Horizon 1 and 2. The differentiation between the three horizons is visualised in figure 4 below.

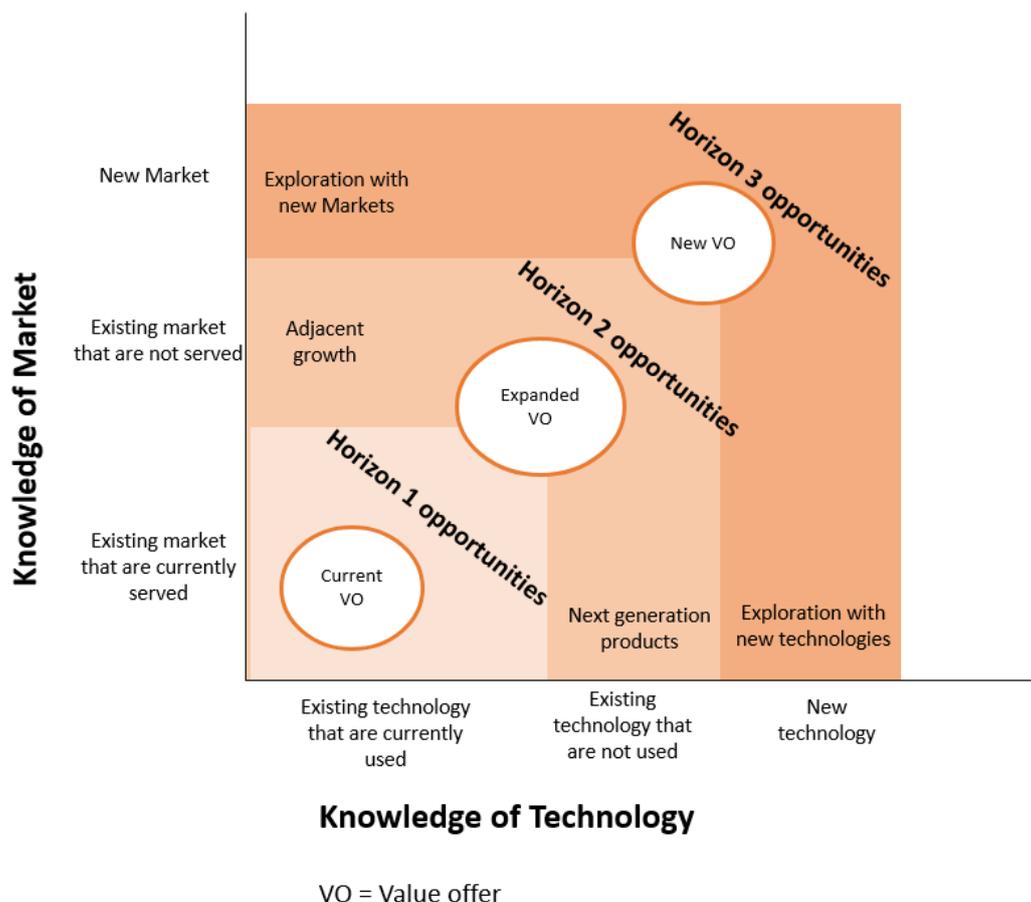


Figure 4. The three Horizons, inspired by Blank (2015)

Traditional analysis suggests that Horizon 3 innovations take years to develop, however, Blank (2019) declares that is not the case in today's fast-moving industrial environment, and that the Horizons are not bound by time. According to Hobcraft (2015), thinking in different Horizons helps organisations to go beyond the present. The Horizon methodology connects the present with the desired future. Working with

Horizon 3 keeps the organisation open to all options that could lead to transformational change in the industry that the firm is operating in.

3.2.2. MOONSHOT PERSPECTIVE

The term *moonshot* was coined by Astro Teller in 2010 when a new unit was founded at Google, called GoogleX (Thompson, 2017). It was inspired by the very first moon landing in 1969. The scale of the challenge triggered motivation and passion in a way incremental improvement never can and became the inspiration for GoogleX. The purpose of GoogleX is to create world-changing business opportunities that eventually will become the next Google and the term is used for Google's most innovative projects. According to Thompson (2017), a moonshot at GoogleX needs to adhere to a three-part formula. First, it must address a huge problem; second, it must propose a radical solution; third, it must employ a relatively feasible technology.

Any successful organization working on highly uncertain innovation projects has five essential features, according to Thompson (2017). The first feature is failure value, which means that mistakes are an opportunity to learn. The second is physiological safety, which refers to the emotional climate employees need to feel in order to take a risk and dare to be out on deep water. The third feature is the diversity of the team, multiple diversities of backgrounds, perspectives, and cognitive styles. The fourth is the focus on refining questions, not just generating answers so that the organisation works on relevant projects. The fifth feature that is crucial for uncertain innovation projects to survive, is getting funding, in terms of resources and capabilities from higher up in the organisation. These five features are present in the organisation of GoogleX (Thompson, 2017).

3.3. IDEATION METHODOLOGY

Ness (2012) explains that ideas often arrive when least expect it, and so-called "eureka moments" commonly occur in the shower, on a plane, in dreams, or after wakening. Simply when there is a stress-free mental state in which allows to clear the mind.

Generating a great, novel idea is as hard work as physical training according to Ness (2012). After some minutes of exercise, the muscles or the brain naturally wants to stop. Ness further explains that great mathematicians and physicists who spend years solving a single theoretical problem may not be the most brilliant so much as they are the most persistent. Tackling a creative problem requires uninterrupted time. The stress-free mental state of mind, as mentioned, occurs when free of distractions. Furthermore, Ness (2012) explains that half the struggle of finding an ingenious and creative solution is to ask the right question.

3.3.1. THINKING OUTSIDE THE BOX

“Think outside the box” is a common expression when it comes to idea generation. Ness (2012) explains that when hypotheses and observations are all confined to the “box”, it becomes less likely that surprises will be discovered “outside-of-box”. The box is made up of cognitive frames. Cognitive frames are expectations or assumptions which are regarded tried-and-true (Ness, 2012). Frames are everywhere and affect what people observe and infer. They have several characteristics that impact innovation. Firstly, they are not permanent and can change over time and with context. This can be regarded as positive since creativity benefits from frameshifts. Another characteristic of frames is that breaking them evokes strong emotions. This creates a negative impact on innovation because frames thereby become much more difficult to change. The last characteristic described by Ness, and the most anti-innovative is that frames are constraining. These constraints are useful as they provide efficiency and predictability when handling huge volumes of sensory input and complex social interactions. However, frames also limit the range of the thought and thereby limit novel ideas. Rather than juggling multiple possibilities in the mind, one can jump to a single interpretation. To overcome the frames, it is necessary to recognize them.

3.3.2. BRAINSTORMING

Brainstorming is likely the most commonly used tool in business for idea generation according to Ness (2012). Ness further explains that in brainstorming, a group of

people aim to generate as many ideas as possible on a pre-defined topic within a defined time period.

Ness (2012) explains that brainstorm groups are typically not large, less than 20 people, and that the time does not go over an hour. Furthermore, a key commodity is a skilful leader, called the facilitator. Kelley (2001) states some “secrets of brainstorming” as the following;

- Sharpen the focus – Create an actionable question which does not limit the range of ideas.
- Playful rules – Discard any sense of judgement and hierarchy.
- Number the ideas – Go for quantity and number the ideas to see progress, which is a great motivator. A good brainstorm generates 100 ideas per hour.
- Build and jump – Ideas building on ideas as momentum grows. When the energy is levelling, a good facilitator will switch to another aspect of the question to keep momentum.
- Combine fluency (fast flow of ideas) and flexibility (ideas with different viewpoints).
- The Space Remembers – Link ideas to the actual location by using visual aids such as Post-Its or big white pages taped to the walls or tables. Moving around the room helps to keep the group alive and active.

There are also certain “brainstorm killers” which should be avoided (Kelley, 2001). These are:

- The boss gets to speak first – This makes a sense of domination and it is recommended the boss takes a back seat during idea-generation sessions.
- Not everybody gets a turn – A single, dominant member turns the brainstorming session into a solo performance rather than a group activity.
- Experts only – Everyone has something to share and a team consisting of individuals with different backgrounds leads to an authentic breakthrough.
- Brainstorms only happen off-site – Ideas should come in daily work, not just on rare occasions when the team gets out of the office.
- No silly stuff - Instead, encourage wild ideas. Brainstorming should be fun.

- Write down every detail – Short notes should be used to preserve a thought, while obsessive note-taking can be toxic.

3.3.3. SCENARIO PLANNING

Alänge and Lundqvist (2016) declare that the most successful organizations can predict the future with intelligent insights, enabling them to act proactively and stay competitive. Traditional planning techniques use predictions, projections, and forecasts; however, they may not be able to cope with disruptive changes. Scenario planning is useful when considering the long-term situations in which unexpected changes may arrive. The scenario planning process involves the creation of several varied but plausible scenarios of the future and examining these in-depth. It considers the driving forces and the uncertainties that may impact the future. This allows for anticipation of possible future scenarios, stimulating both reviews of current corporate strategies and enabling the formulation of new strategies. According to Alänge and Lundqvist (2016), scenario planning is beneficial to create new product ideas and business opportunities. The tool helps to understand the logic of transformation and clarifies the driving forces and key players on a market as well as the company's own potential to influence the industry. Scenario planning is useful in exploring possible outcomes of disruptive innovation. Alänge and Lundqvist (2016) present a stepwise approach when running a scenario planning workshop;

1. Define an issue, it could encompass social, technological, economic, environmental and political domains.
2. Identify major stakeholders or players who have an interest in the issue. Gather facts and conduct interviews with experts in the area.
3. Define the Future scenario by identifying assumptions, researching appropriate sources, identifying key questions.
4. Identify and analyse the main forces of the future scenario that are shaping the issue defined in step 1.
5. Create a list of forces that could change the industry.
6. Place the forces in a graph, where the y-axis is the degree of Importance and the x-axis is the degree of predictability. Forces that are mapped out in the upper-left corner e.g. highly important + very unpredictable are the key

uncertainties. Forces that are put in the upper-right corner e.g. very predictable and highly important are the Trends.

7. Select the two most important key uncertainties and map it in a scenario matrix. From the two selected uncertainties, it is possible to create four equally plausible scenarios.
8. Script the scenarios into a storyline.
9. Act on the scenario's analysis.

3.3.4. BACKCASTING

The backcasting approach has shown to be advantageous for innovation since the exercise helps participants to think outside the box and avoid lock-ins. From the outset of a desired future scenario, Backcasting can be used in order to formulate which steps to follow to reach the future scenario (Holmberg, 1998). Holmberg (1998) defines Electrolux as an example of taking a successful competitive advantage when launching the first CFC-free fridges and freezers, after having used backcasting to analyse its products and technologies in a sustainable perspective. Once having performed scenario analysis, backcasting can be used to determine how to reach the desired vision or state. It can be done in three steps:

1. How does the future look like?
 - a. Define and agree upon a future scenario and use it as a framework for the following steps.
2. Describe the current situation in relation to the future scenario.
 - a. This is related to mission, markets, products, environmental impact, resources and capabilities, etc.
3. Develop the future vision and set strategies to reach it.
 - a. Strategies are developed within the created future vision and based on knowledge about the company and the market.
 - b. Participants contribute with ideas about what events and decisions could lead from the present situation to a future in which the scenario is true. Development of a plan of goals and activities to move forward, including follow-up and reflections.

3.3.5. PRIORITIZING AND KILLING IDEAS

Kuhn (1962) compares science with evolution. He says both maximizes advancement through generating large numbers of random mutations or ideas. Most mutations die, as do most ideas. However, when they flourish, they ultimately modify the norm. Ness explains that innovative thinking involves producing masses of original ideas, but to commit resources to generate the evidence to turn an idea into a reality, its necessary to select a single one.

Deciding how to prioritize can be difficult. Ness (2012) states there are two primary rules to follow. The first rule is to not rush to judgement, meaning even if not having enough evidence to support an idea it should not be discarded if it seems interesting and plausible. The second rule is to narrow down to only the number of ideas that can be handled, meaning not to juggle too many proposals at the same time, as it will result in dropping them all according to Ness. These two rules are somewhat contradictory as one indicates holding on to ideas while the other indicates peeling them off. It is a delicate balance that can be difficult to achieve, but not impossible according to Ness.

A safe way to exclude ideas is to search for evidence against them. Ness (2012) explains the most likely hypothesis is usually the one with the least evidence rejecting it, not the one with the most evidence supporting it. The point is that ideas must be tested and accepted as valid, they may also be overturned when better, tested propositions arise. Ness suggests when excluding ideas, one should try to find evidence that refutes an idea. Another way of excluding ideas is to restrict to those which are most plausible, actionable and useful, according to Ness. In this case, plausible means that nothing has clearly disproven the idea and actionable means being able to turn the idea into a useful solution.

A third approach explained by Ness (2012) for excluding ideas is to perform rapid prototyping. It entails a lower risk to check out ideas before making too great investments in them, meaning to continually test hypotheses by performing experiments, also called minimum valuable product, MVP. The fourth approach Ness mentions is to interact with the world in order to be influenced and learn from others. Ness, however, highlights that one should not be easily dissuaded by others.

Lastly, Ness (2012) explains that the decision on whether to exclude an idea may not be an either-or. With more resources, more can be done. The ones evaluating ideas for further funding tend to choose normative, feasible ideas and play it safe. The best idea-generating laboratories according to Ness get funded for the obvious ideas and try to stock enough resources for the innovative.

Pichler (2016) explains that once feedback has been collected and reviewed, one should ask the question “Pivot, Persevere, or Stop?”. If realising an idea does not work, there are two choices according to Pichler, stop and let it go or stick to it and change it, which is called a *pivot*. If the idea does work, insights should be leveraged to improve the idea further, referred to as persevering (Pichler, 2016). Pivoting should be done early when the cost of change is low. Therefore, it is important to quickly identify if something is wrong with the idea. If there is a need to fail, then fail fast (Pichler, 2016).

3.3.6. THE IMPORTANCE OF FAILING

The high uncertainty and risk which follows disruptive innovation should not be discouraged according to Pichler (2016). Making mistakes and failing is valuable if they enable learning, the discovery of new ideas or learning that an idea or assumption is wrong. Thomas Edison, the founder of GE, once said “If I find 10,000 ways something won’t work, I haven’t failed. I am not discouraged, because every wrong attempt discarded is a step forward.” Jamrog et al (2006) state that organisations must be willing to allow a certain amount of risk-taking. Risk-taking implies a danger of failure, however, an innovative organisation knows that failure is an essential part of success.

3.3.7. METRICS AND SETTING TARGETS

Adams et al (2006) state that the capacity of organisations to innovate depends on multiple factors, including internal and external elements. The task of generating and then converting ideas into useable and marketable products require high levels of inter-functional coordination and integration. Adams et al have constructed a framework with different factors that may impact organisations’ ability to innovate, see table 3 below. As can be seen, there is high variety amongst the factors, hence

from a managerial perspective, it is not enough to treat innovation as a linear process. The authors state that factors within the categories ideally can be measured in order to identify strengths and weaknesses in an innovation process.

Table 3. Framework to measure an innovation process

Category	Measurement areas
Inputs	People, Physical and financial resources, Tools
Knowledge management	Idea Generation, Knowledge repository, Information flows
Innovation strategy	Strategic orientation, Strategic leadership
Organization and culture	Culture, Structure
Portfolio Management	Risk/return balance, Optimization tool use
Project Management	Project efficiency, Tools, Communications, Collaborations
Commercialization	Market Research, Market testing, Marketing and Sales

Brown (2010) states that the drive to innovation begins with motivating purpose and values. The author declares the importance of aligning a company's business strategy with its innovation strategy. According to Brown, it all starts with goals; goals influence every choice a company makes. A firm should have clear and demanding goals for innovation.

Nagji and Tuff (2012) bring up the difficulties in finding the right metrics when measuring innovation. The authors state that traditional financial and quantifiable metrics are appropriate when generating core or adjacent innovation. Furthermore, they state that using such metrics in radical, or so-called transformational, innovation can kill potentially great ideas. Traditional metrics such as ROI calculations are commonly used for incremental initiatives, however, it is impossible to obtain adoption rate, price points and other key variables for radical innovation ideas since it is impossible to obtain for something the world does not yet know it needs (Nagji & Tuff, 2012). The authors further state that companies should use a combination of noneconomic and internal metrics to assess radical innovation, this can enhance a team's ability to learn and explore. For example, Google has assessed radical innovation from what the team and the company have learned rather than what the

company will earn from radical innovative ideas. Jamrog et al (2006), declare that measuring customer satisfaction is a better metric for success than innovation as a percentage of profits.

Brattström et al (2018) propose a framework of how innovation can be measured. The authors conceptualize innovation measurement as an attention-focusing device. They have identified two ideal types of measurement practices; Directional and Conversational measurement. Directional Measurement is based on the use of few and unidirectional metrics e.g. the number of ideas generated. Conversational measurement, on the other hand, is based on the use of multiple and ambiguous metrics. It allows managers to identify patterns in observations. Conversational measurement is driven by observations and conversations from the bottom-up. Such qualitative metric could be the potential of an idea, it provides a unidirectional interpretation by involving the team members in a discussion about what is meant by a high potential of the idea and why. Brattström et al (2018) suggest that directional measurement is appropriate in the search for incremental innovation whereas conversational measurement is more appropriate for a team when pursuing radical innovation.

According to Shahan and Vargas-Hernandez (2002), the output from an idea generation session can be valued from four separate measures; Novelty, Variety, Quality, and Quantity. Novelty is a measure of how unusual or unexpected an idea is as compared to other ideas. Not every idea is novel since it may be considered usual or expected to some degree and this is only known after the idea is attained and analysed. The measure Variety refers to the degree of similarity among the ideas generated. Quality is a measure of the feasibility of an idea and if it can meet the proposed targets. Lastly, Quantity is the total number of ideas generated.

3.4 ORGANIZING FOR IDEATION

In the following section, theory on how to organize for ideation is presented. The areas covered are: Organisational culture, Team composition and Leadership.

3.4.1. ORGANISATIONAL CULTURE

Jamrog et al (2006) show that an innovative culture has various characteristics. To develop an innovative culture, the organisation needs to have the ability to focus on customers. Organisations also need to have enough resources, teamwork, communication and autonomy to allow innovation to flourish. According to Jamrog et al, a creative culture tends to be distinguished by open communication and the free exchange of ideas which means communication among team members and communication between different corporate levels. It is not only sharing ideas; communication is also about sharing lessons from failing and succeeding. Jamrog et al declare that enhancing communication could be done by more inclusive meetings, better online tools for sharing knowledge, cross-functional assignments and more brainstorming sessions.

According to Martins and Terblanche (2003), there are five determinants of organisational culture that influence creativity and innovation; *strategy, structure, support mechanisms, behaviour that encourage innovation* and *communication*. The overall strategy in an innovation team should promote the development and implementation of new ideas and the strategy should be understood by all employees. According to the authors, the origin of creativity and innovation lies in a shared vision and mission. The structure of the organisation should allow flexibility, freedom and cooperative teamwork so that creativity can flourish. The authors declare that team members should be free to achieve their goals in autonomously and creatively within guidelines. Support mechanisms are referred to rewards for risk-taking, experimentation and generating ideas. Intrinsic rewards like increased autonomy and improved opportunities for personal and professional growth may support the innovation process (Martins & Terblanche, 2003). Taking risks and experimenting are behaviours that are associated with creativity and innovation. Tolerance of mistakes is connected to behaviour that encourages innovation. It is an essential element in an innovation team. Lastly, the authors mention communication. An innovation team should support open and transparent communication, based on trust. Team members must feel emotionally safe to be able to act creatively, it is crucial that team members trust one another, which in turn is promoted by open communication between individuals, departments and top-management.

Edmondson and Mogelof (2005) state that psychological safety is an important factor in helping innovation teams to overcome interpersonal risks, conduct experiments, share thought and ideas. The authors argue that goal clarity fosters psychological safety, since a clear and agreed-upon goal removes potential sources of ambiguities in a team. Furthermore, creating and sustaining psychological safety is largely an outcome of team members' behaviours, their perception and norms regarding risk-taking. It has been shown that explicitly about goals and what is clear and not yet clear can enable open and rich discussion about concerns in an innovation team. Edmondson and Mogelof affirm that negative team interaction and lack of goal clarity reduce psychological safety.

3.4.2. TEAM COMPOSITION

The composition of teams is an important aspect of team performance as well as team creativity and innovation (Reiter-Palmon, Wigert & de Veerde, 2012). Team composition covers a broadness of variables including demographics, job-relevant characteristics such as education or relevant knowledge, skills and abilities as well as personality characteristics. Early studies on team composition and creativity assume that diversity in the team composition is a prerequisite in order to increase the creative output of the team, as a result of diverse knowledge and experience among members (Reiter-Palmon, Wigert & de Veerde, 2012). The importance of collaboration in the team increases when there is high task complexity and ambiguity (Reiter-Palmon, Wigert & de Veerde, 2012). A well-functioning team that collaborates are crucial to overcome and integrate differences and diverse perspectives. In addition, Jamrog et al (2006) state that more innovation occurs through collaboration and community than through the inventive thinking of a single mind.

Another two important factors for an efficient team working with innovative and uncertain tasks are trust and psychological safety (Reiter-Palmon, Wigert & de Veerde, 2012). Trust within a group is defined as the belief that the team can accomplish its task. Psychological safety is defined as the belief that individuals can take interpersonal risks without harm. A team with a high degree of psychological safety will encourage members to take initiatives, make suggestions and to facilitate the implementation of innovation. In addition, these behaviours have been linked to

ideation, discussion of new ideas and implementation of new ideas (Reiter-Palmon, Wigert & de Veerde, 2012).

Kelley (2008) explains that there are ten different personas that should be included in a team in order to efficiently seize innovation opportunities. The ten different personas are divided into three sub-groups; the learning persona, the organizing persona and the building persona. The roles connected to the learning persona are individuals that help the team to grow, constantly gather new knowledge and improve products and solutions. The group is externally-focused, curious and humble, open to new insights. The organizing personas can get things done and move things forward within organizations. They know how to navigate organizational processes like project reviews, budgeting and resource allocation meetings. The third personas are so-called building roles; these guide the learning personas and the organizational will from the organizing personas create innovation. According to Kelley, teams that comprise these three personas are more efficient and reach a higher creativity level within the groups.

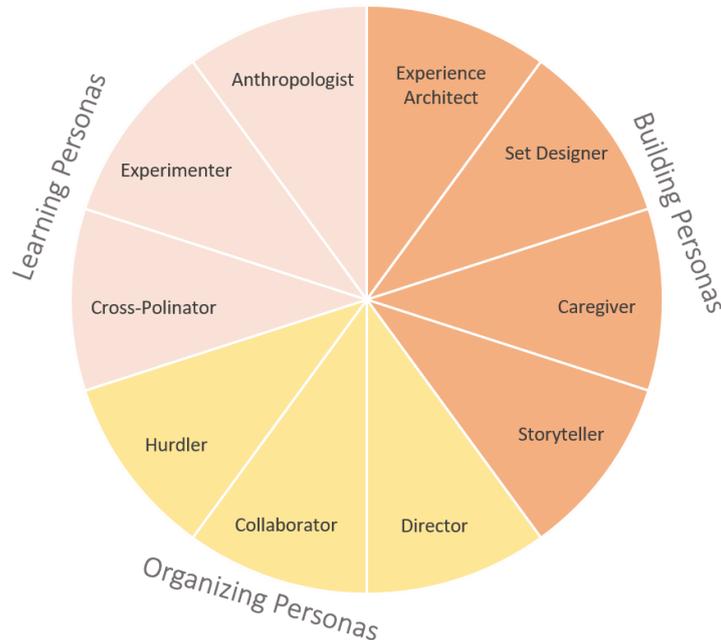


Figure 5. The ten different personas, inspired by Kelley (2008)

3.4.3. LEADERSHIP

Brown (2010) states that leaders must create a culture with an undercurrent of creativity, an environment where people want to work and feel free to try things in the effort to produce meaningful innovations. Since creating a fail-safe environment is important in order to flourish an innovative environment, to manage employees in a way that encourages innovation requires leaders to acknowledge and reward risk-taking behaviours, not just successful outcomes (Jamrog et al., 2006).

Hirte (2018) has identified challenges and success factors for middle managers leading a corporate incubator. The challenges related to managing an innovative unit of a large company is; strong micromanagement, missing transparency and communication as well as a mismatch between the agile processes for radical innovation project and existing corporate structures and processes. In addition, there are usually barriers to collaboration between external parties such as small businesses or new ventures and the incubator in the field of innovation. The last challenge relates to little cooperation between internal business units in the large corporation.

Key success factors that Hirte (2018) identified refer to; an open feedback culture, team goals instead of individual goals, create a feeling of responsibility among individuals in the team as well as target group discussion sessions about required changes. Furthermore, the author states the importance of early detection and elimination of less promising projects. Lastly, success factors are related to ensuring sufficient and skilled workforce, flexible working hours for increased innovation activities and training and stronger exchange with external experts such as start-ups to learn and adopt new processes.

The leadership to flourish innovation is critical. Excellent managers can influence culture over time as well as set strategies and goals, cultivate collaboration and teamwork. According to Jamrog et al (2006), managers need to be two-handed and simultaneously keep control while they promote freedom.

4. FINDINGS

The following chapter presents the findings of the thesis. The first part describes the innovation process at IDS and these findings have been gathered through observation and informal interviews. The following sections present identified challenge areas that are affecting the ideation phase. Those findings have been gathered through semi-structured interviews with employees at the IDS department, as well as external experts.

4.1. THE INNOVATION PROCESS AT IDS

The innovation process at IDS is divided into five phases, as can be seen in figure 6. Each phase will be explained in more detail below. The process is continually undergoing changes, these are described as far as possible.

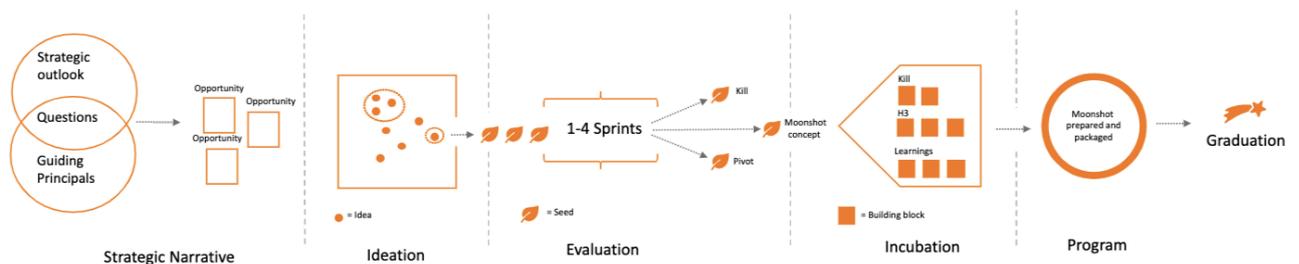


Figure 6. Overview of the innovation process at IDS

4.1.1. PHASE 1: STRATEGIC NARRATIVE

The first phase is called the Strategic Narrative, figure 7. In this phase, huge specific problems and opportunities are identified, so-called opportunity spaces. The purpose of the strategic narrative is to direct the department's focus. This is done through technology exploration, trend exploration, internal scenario planning, and ideation activities, as well as brainstorming sessions with subject matter experts.

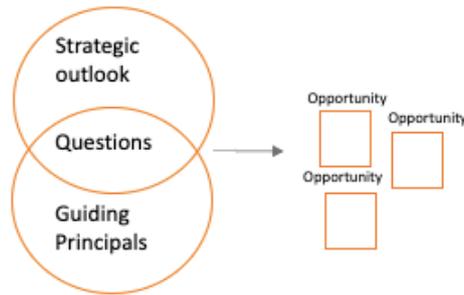


Figure 7. Phase 1 of the innovation process: Strategic Narrative

The first phase of the innovation process has been changed. It is now referred to as Intelligence instead of strategic narrative, as can be seen in figure 8 below. Strategic themes are given from the corporate strategy department, combined with IDS internal and external research that goes beyond strategy, opportunity focused areas are identified. These are packaged as challenge briefs, which before was named opportunity spaces. The name-change of the phase was done to make it easier to approach.

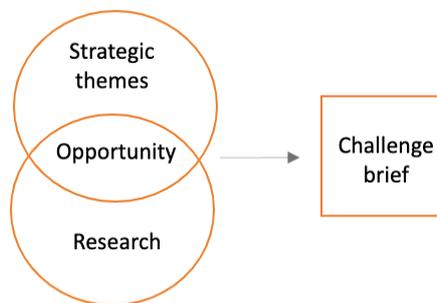


Figure 8. The New figuration of phase 1 called Intelligence

4.1.2. PHASE 2: IDEATION

The second phase of the innovation process is called *Ideation*, figure 9, and it is the phase where new ideas are generated. Once an opportunity space, or challenge brief, has been identified in phase 1, the process of generating ideas within the area is commenced. This stage is also referred to as *the seed bakery*. A *seed* is an idea or a cluster of ideas that possibly can capture the opportunity and solve the problem. The goal is to deliver a continuous flow of high-quality seeds which are in line with

the portfolio mix desired by IDS management. Activities in the ideation phase include gathering intelligence within the identified opportunity space, prioritizing early stage seeds, creating seeds or killing them through fact-finding and developing insights of critical risks.

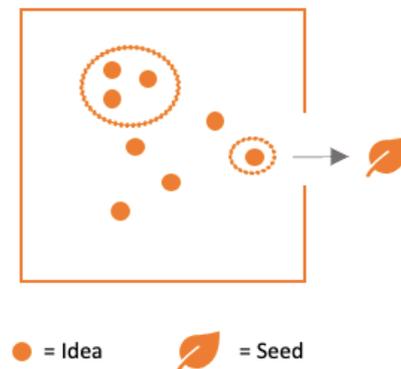


Figure 9. Phase 2 of the innovation process: Ideation

The department aims to have 10 seeds ready to present at a workshop every two weeks. As mentioned earlier, the seeds should reach the following qualifications: the potential of 1 billion in revenue and/or change the life of 100 million people, address a new market for VCC, have a ready solution in 3 to 7 years as well as creating leverage for VCC. The gate between phase two and phase three is a *REVA workshop*, which is held every two weeks. REVA stands for Rapid Evaluation Team. During these sessions, experts are invited to further develop a seed or kill it by adding risks from experience-based knowledge. REVA consists of two IDS team members and four VCC employees from different departments. Depending on the investigated subject matter area, members in REVA meetings rotate so that the participants are the best suited for the subject area.

4.1.3. PHASE 3: EVALUATION

The third phase is the *Evaluation* stage, figure 10. In this phase, seeds are transformed into *concepts*. The goal is to investigate if a seed has the right balance of ambition height and achievability. Activities include identifying critical risks, developing a mitigation strategy to reduce risks, rapidly testing showstopping risks and identifying the concept building blocks in order to reach a moonshot. The phase

generates concepts that can enter the fourth phase, the incubation stage. The seeds are evaluated in a time span of one to four sprints. In this stage, the seed is investigated to find if it can be qualified for a moonshot, or if it should be pivoted or killed. The concepts that will proceed to incubation have gone through a series of in-depth investigations to see if the qualifications can be disproven. A plan for further development is also created including what experiments should be done, required resources as well as collaboration partners.



Figure 10. Phase 3 of the innovation process: Evaluation

4.1.4. PHASE 4: INCUBATION

The fourth phase of the innovation process is *Incubation*, figure 11. The goal in this phase is to disprove risks and stress-test the concept from both a technical and business perspective. A set of experiments are conducted, to disprove risks identified in the concept's building blocks. What wants to be reached is an established proof of concept, a business model plan complemented with an innovation program plan as well as protected IP. There are a couple of innovation managers, one project manager, subject matter experts and developers who are working together with the concept in this stage. A steering committee will then decide whether the seed will proceed into the last phase.

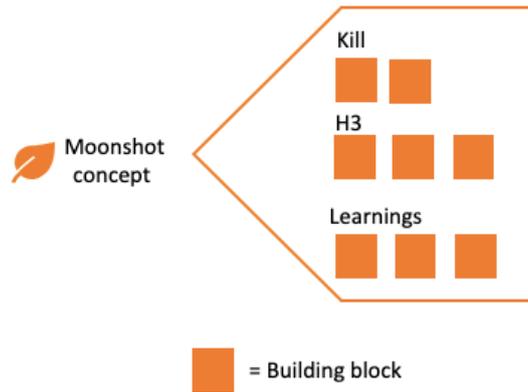


Figure 11. Phase 4 of the innovation process: Incubation

4.1.5. PHASE 5: PROGRAM & GRADUATION

If the concept reaches the fifth and last phase called *Program*, figure 12, the concept is packaged for graduation and prepared to land on the moon i.e. launching. The final concept will mainly have H3 potential but still contain some H1/H2 building blocks. The output of this phase is a product ready to be launched and an executable deployment strategy.

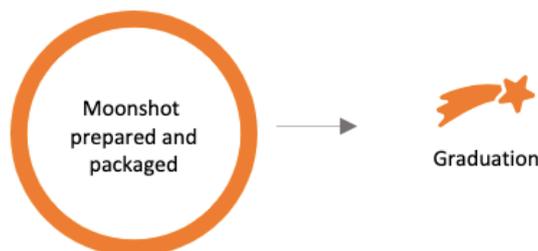


Figure 12. Phase 5 of the innovation process: Program followed by Graduation

4.2. IDENTIFIED CHALLENGE AREAS

From semi-structured interviews with employees at IDS and external experts, challenges inherent with the ideation phase have been identified. These have been divided into four main sections; Knowledge gathering, Managing ideas, The work process, and Organisation.

4.2.1. KNOWLEDGE GATHERING

Most of the interviewees expressed the importance of reaching a deep level of knowledge. It was stated that without reaching a deep level of knowledge within the studied area it is not possible to ideate successfully and create valuable ideas. Gaining knowledge can be done through discussions and analysis internally within the organisation or gaining knowledge through dialogues with external parties. This section regarding knowledge management can therefore be divided into two specified areas; Internal research and External Collaboration. At the end of the section, a summary with exemplifying quotes from the interviews is presented.

4.2.1.1. *INTERNAL RESEARCH*

The team needs to gather information, ideate and evaluate the idea under a limited time scope, which requires that the knowledge acquirement is efficient. One interviewee explained the importance of synthesizing different contexts and transferable skills when working with ideation, to be able to merge different areas of knowledge. The innovation managers at IDS begin digging into an opportunity space by researching the web, but also by connecting with people and interviewing potential stakeholders within VCC. One barrier to gathering knowledge is the department's focus on Horizon 3 which, according to the interviewees, makes it difficult to interact with potential stakeholders and customers since they have little understanding of the emerging markets. One of the innovation managers explained it is much easier to achieve results when working with H2 innovation compared to H3. In H3 innovation it is difficult to communicate with customers which also affects what methods to use when developing ideas.

Several of the interviewees stated that in order to be efficient in the research and to reach a deep level of knowledge, the defined opportunity space needs to be narrowed down before starting the idea generation. However, this is difficult in an initial stage when the knowledge level has not yet gained depth. Articles are spread and knowledge is shared within the team. It was found that there is a lack of trust within the team towards the shared information. Team members tend to be sceptical and double-check the information by themselves.

4.2.1.2. EXTERNAL COLLABORATION

The IDS team is small, hence external parties sometimes must be brought in. Interviewees expressed the need for engaging the right experts for each opportunity space, which can be done through Co-Lab sessions. A Co-Lab session is a collaborative workshop where new insight in an area is gained by inviting external people and experts, thoughts are shared and discussed in order to widen perspectives. The IDS department has only had one Co-Lab session, which was a full scheduled day with invited people from other departments at VCC as well as other companies. Experts held presentations and subsequent workshops were held in order to generate ideas. According to one innovation manager, the purpose of that Co-Lab was unclear, and tasks were divided between team members which resulted in no one being fully in charge. This resulted in the session not being as valuable as it could have been. The reflections after the Co-Lab raised questions regarding how to best engage external companies and top management since these roles are necessary to create an innovative height and generate ideas. One interviewee explained that it is a cost related question. There is a “Catch 22 moment” regarding when to include external experts, according to another interviewee. On one hand, the team wants to develop the idea enough before inviting experts, on the other hand, they need help from experts to develop the idea. A summary of the identified factors, with exemplifying quotes from the interviews can be found in Table 4.

Table 4. Knowledge gathering

Specified area	Challenges	Example quote
Internal research	<ul style="list-style-type: none"> • Challenging to reach a deep level of knowledge. • Difficult to narrow down challenge brief without enough knowledge. • Trust for shared information is important and lacking. • Horizon 3 makes it difficult to communicate with potential stakeholders due to non-yet existing markets. • Knowledge gathering requires more field studies. 	<p>“The team needs to reach a deeper knowledge level and trust information that is shared, a lot of articles are circulating but they are on a too easy level.”</p> <p>“The greatest challenge is to generate the right knowledge in order to come up with the best challenge brief.”</p> <p>“If we specify an area it becomes easier to dig deeper and generate knowledge within this.”</p> <p>“The best ideas often appear when you’re out in the field.”</p>
External collaboration	<ul style="list-style-type: none"> • Difficult to find motives for external parties to be engaged. • High costs related to setting up a Co-Lab. • Catch 22 – develop idea enough before including experts vs. Including experts to develop the idea. • Latest Co-Lab had an unclear purpose without someone in charge. It could have been more valuable. 	<p>“Challenges for Co-Labs is the budget constraint and to align all participants interests.”</p> <p>“Innovation workshops should be more like cross-fit classes than long-distance running.”</p> <p>“In the latest Co-Lab, there was a collective responsibility, and no one was really in charge. In theory, the plan was good, but in order to reach innovation height, we should have focused more on ideating and testing hypotheses. I doubt anything which was produced will be used.”</p>

4.2.2 MANAGING IDEAS

In the following sections *Managing Ideas*, identified challenges in the ideation process are identified, including Individual ideation, Workshops and Killing ideas.

4.2.2.1. INDIVIDUAL IDEATION

In order to come up with high-quality ideas, the interviewees pointed out the importance of having a clear strategy which they stated is lacking today. It was also pointed out that it is necessary to gather knowledge outside the office, doing field studies and networking with external people. Many of the interviewees explained that ideas do not appear during workshop sessions, but rather when they are for example sitting alone by their desk, driving in their car to and from work, or out speaking with people gaining knowledge and new experiences. It was stated that a set opportunity space can hinder creativity. Also, some of the interviewees want to work alone while some prefer bouncing ideas and knowledge to come up with new ideas.

A challenge and sometimes obstacle for ideation was found to be asking the right question. The opinions of the interviewees regarding this topic were quite contradictory. Some of the innovation managers stated they prefer working with a very precise question in order to be able to answer it, while some innovation managers prefer a wide question as to not limit the train of thought. One innovation manager pointed out that one should try to see the narrow challenge brief more as inspiration but still take a wide starting stance. It was found that it's difficult to pose the right question and hypotheses early when having not gained enough knowledge.

One interviewee explained the importance of being an entrepreneur in a large company. Because an entrepreneur has nothing to fall back on, he or she is pressured to come up with great ideas. However, in a large company that pressure is non-existent since the company acts as a safety net. The interviewee further explained that pressure is required to develop ideas. In a large company, pressure could be in the form of a motivator, for example in monetary rewards or by offering a share of the new idea if it results in a successful business opportunity.

4.2.2.2. WORKSHOPS

As mentioned, several interviewees affirmed that ideas do not come up within workshops, rather when speaking to people and gaining knowledge and new experiences outside the office. When it comes to workshops, several interviewees stated they do not find the workshops valuable. It was said that the workshops sometimes are too time-consuming and that the purpose is not always clear. It was

also explained that similar ideas tend to be generated over and over, because it is difficult to get new approaches within the small team. Furthermore, few of the ideas generated seemed to have implementing power, and it was stated that it does not matter how good an idea is if it cannot be implemented and been taken further.

4.2.2.3. KILLING IDEAS

From a managerial perspective, it was considered important for ideation for employees to be allowed to think freely, and that killing bad ideas should not be done too early. However, there are contradictory opinions about how many and when ideas should be killed. One interviewee claimed that too many ideas have been kept alive which should have been killed earlier on. Several interviewees stated that some of the innovation managers feel strong ownership of their ideas and are good at promoting them, so their ideas are continuously developed. The first thing an innovation manager does with a new idea is to identify risks, potential customers and legislations, among other things. If the idea is perceived to have too high risks, it will be killed, and a termination report is written. At the end of a sprint, the idea owner presents why the idea has been killed. A summary of the identified factors, with exemplifying quotes from the interviews can be found in table 5.

Table 5. Managing ideas

Specified area	Challenges	Example quote
Individual ideation	<ul style="list-style-type: none"> • A shared perception of not having a clear strategy • Contradictory perception about whether working with a wide or narrowed opportunity space. • Some prefer working alone while some prefer bouncing ideas. • Most valuable ideas are generated out of the office, not in a workshop session. • Important to feel pressured in order to 	<p>“Lack of strategy, a clear strategy is what hinders creativity.”</p> <p>“You have to be in the right mood and in the zone to be able to generate ideas.”</p> <p>“Ideas come to me when I am alone in my car driving to and from work, not when I am participating in a workshop.”</p> <p>“An entrepreneur is pressured to ideate, but it’s not like that in this team. How can we create that type of pressure?”</p> <p>“Volvo could be a better motivator by for instance offering a share in the new idea or a</p>

	find and develop ideas.	lot of money. It's rare that people go all the way if they don't have that motivator"
Workshops	<ul style="list-style-type: none"> • Different opinions on how a workshop best should be structured. • Workshops are not generating much value. • Workshops are too time-consuming. • Difficult to get new approaches, the same ideas are generated in workshops. • Few ideas have implementing power. • Lack of appropriate workshop tools and methods. 	<p>"The worst workshops are when there are very few people attending. I think we should be at least ten members attending."</p> <p>"I don't get much at all out of the workshops."</p> <p>"The workshops are sometimes too long and diffuse"</p> <p>"I have held many workshops; they tend to generate similar ideas over and over. It is difficult to get new approaches. The workshops are valuable but there are really few ideas generated that have implementation power. It is not always the idea that makes it successful, it is the implementation power of the idea."</p>
Killing ideas	<ul style="list-style-type: none"> • Killing seeds should not be done too early. • The feeling of ownership hinders killing ideas. • Many ideas should have been killed earlier. 	<p>"The first thing you do with a seed is to find out what the risks are, if it is something the customers want, what is the profit margin, legislative factors etc. If you quickly realize it won't work, you kill the idea and write a termination report. At the end of a sprint, during sprint review, you present what you have found and explain why you killed a seed. Sometimes we can identify risks, but they are manageable, and we decide to run another sprint. We can also park a seed for better timing."</p> <p>"Some individuals have strong ownership over their ideas."</p> <p>"We need to have free thought, killing ideas should come in a later phase of the process."</p> <p>"We have accepted too many ideas. Many of them should have been killed earlier."</p>

4.2.3. THE WORK PROCESS

The following section called *The Work Process* presents challenges regarding the overall structure of the work process, as well as goals and metrics.

4.2.3.1. OVERALL STRUCTURE

The overall work process is perceived as needless complex among a few of the innovation managers at the IDS department. Therefore, team members have different understandings of how the process should be approached. One of the innovation managers stated that the process is actionable, however, there are circumstantial factors that are confusing. There are often discussions within the team about who is going to work with what and in what way tasks should be done.

The sprints have not been as structured as it looks in theory, employees have worked with a few initiatives in parallel which further complicates the process. One innovation manager lifted the issue that the process gets disrupted by meetings and that it is hard to work focused on developing one seed. The team has a limited workforce and few resources, nevertheless, there is an excessive reliance on what the team will achieve. One innovation manager apprised that one idea-developing-project had been efficient when a small team with three members were assigned. One team member had the overall project management responsibility and the other two acted as business developers. The structure and dividing of roles resulted in that people felt engaged in the idea.

4.2.3.2. GOALS AND METRICS

The goals for H3 are very high, and that can be discouraging according to some interviewees. It was found that some of the interviewees thought the current targets are too ambitious and would prefer more humble goals, perhaps in the form of milestones. One interviewee pointed out that there is a lack of driving force in the team and that it could be connected to the high goals. Another interviewee pointed out that the high goals should be ignored as they are not in primary focus. The futuristic focus leads to performance demands which are difficult to reach. One innovation manager explained that setting up hypotheses for an idea was a way of setting up smaller goals or reachable milestones. Some, however, did not believe in

breaking down the high goals into smaller milestones, and that it was good to aim high. One innovation manager explained that the high goals are meant to set the level of ambition. Another innovation manager did not believe in small goals, but rather preferred to see the big picture and just aim for it.

The department used to have a goal of generating 8 new ideas per week, but the team manager explained that they will not keep that goal as measuring ideas by an amount as it turned out not to be good. The team manager has long experience in innovation management and has not found many measurements to be useful. The team manager claims that by choosing one goal another can be missed. Success is when generating value from innovation. That is difficult to measure and trace, especially when working with external partners. The team manager prefers working with visions instead of goals. It should not be time-limited or quantifiable. The level of ambition should be to present a new potential business idea to VCC by the end of the year, and that is the team leader's primary goal. The team manager continued to explain that there are many risks involved and that the company must understand that when investing in H3, it is not certain to get them back. Apart from new revenue streams, the investments can bring value in other areas both in terms of increased knowledge, patents and brand endorsement.

One of the innovation managers explained that it is important to think "time to value" instead of "time to market". Another innovation manager explained that whether an idea is good or not depends if there is a clear value within it or connected to it. The idea should match the strategy. Furthermore, ideas should never be subjective, they should be objective. If going for the gut feeling, one is either lucky or unlucky. A summary of the identified factors, with exemplifying quotes from the interviews can be found in table 6.

According to the external interviews with consultants and founder of the innovation consultancy firm, organisations often experience a challenge to keep the portfolio allocation; H1, H2 and H3. It is common that organisations tend to prioritize H2 efforts since they are more approachable.

Table 6. The Work Process

Specified area	Challenges	Example quote
Overall structure	<ul style="list-style-type: none"> • The sprint process is not followed. • The process is needlessly complex. • Different understandings of the structure. • The process gets disrupted by meetings, hard to stay focus on developing a seed. • Assigned roles can increase engagement in developing an idea. • A challenge to stick with the portfolio allocation; H1, H2 and H3. 	<p>“Some follow the sprint process, and some do not. Sometimes I am all alone in a sprint. We are supposed to work in teams, but we don’t.”</p> <p>“The process is too complex and there are too many parts included. It’s difficult.”</p> <p>“Everyone has different understandings of the process and that is really tough.”</p> <p>“One time were we really efficient, we developed an idea in a team with three members each were assigned a role and responsibility.”</p>
Goals and Metrics	<ul style="list-style-type: none"> • Too ambitious goals. • Setting up hypotheses is a way to dissect high goals into milestones. • High goals set the level of ambition. • Reaching goals is a great motivator. • Measuring output by the amount of ideas is not a good metric. • Very few types of measurements have been found useful. • Goals should not be time-limited or quantifiable. • Difficult to trace the generated value from innovation. Investment may lead to other value streams than monetary, such as knowledge and brand endorsement. • Measure ‘time to value’ not ‘time to market’. 	<p>“The current targets are too ambitious. I would prefer more reachable goals”</p> <p>“There is a lack of driving force, which could be connected to the high goals.”</p> <p>“I don’t believe in milestone targets. I see the big picture and I just go there directly. The high goal means I aim high.”</p> <p>“Having concrete goals and achieving them can create confidence in the group, which of course is difficult with the long time-horizon.”</p> <p>“Measuring the number of seeds per week was a failure.”</p> <p>“It is better to measure value instead of potential revenue when it comes to innovation.”</p>

4.2.4. ORGANISATION

The fourth section of challenges inherent with ideation includes findings related to the organisation at IDS. The section is divided into four specific areas; Leadership, Team, Culture and Organisational politics.

4.2.4.1. LEADERSHIP

The team leader does not control the ideation or development of ideas. The team members can design their own way of working. The team manager wants to have an open organisational culture, retrospective meetings are sometimes held where areas of improvement are brought up. There is a challenge in being less prestigious when generating ideas, some individuals have strong ownership of their ideas, according to interviewees, the solution is to recruit the right people and to create a dynamic and open team to prevent people from not feeling strong ownership to every idea generated.

Several interviewees stated that freedom is very important. One interviewee suggested that a way of motivating the team members could be having the freedom to run their own small-scale projects in parallel with ordinary work tasks. However, another interviewee thought it was too much freedom and chaos, and expressed that without a strategy and structure, it is easy to be all over the place and that uncertainty can lead to a lack of confidence and motivation.

Having a strong leader demanding transparency in projects early on, can become a hinder towards creativity as well as having too much focus on delivery, according to the interviewees. This is based on experience with a previous manager acting in that manner, which did not work well. The team manager believes freedom under obligation is important and being allowed to try different things out. However, that can become limited due to budget constraints. Another interviewee affirmed that there should be a balance between freedom and management, the team needs structure and especially a strategy to work against.

4.2.4.2. TEAM

Working with H3 innovation is challenging and requires the right team composition according to interviewees. The characteristics of the innovation managers are project management skills, endurance since innovation projects often take time to develop, extensive knowledge in a specific area such as business modelling, UX design or certain technology. However, according to some interviewees, the team lacks collaborative skills. People are generally competitive and would rather work with their own ideas than with someone else's.

The innovation managers stated that the team is diverse, consisting of characters with different backgrounds. It was pointed out by one of the innovation managers that diversity in the team is important for ideation and having the right culture. Even external interviewees stated the importance of building an innovation team with different personas. One innovation manager explained that when proposing a radical idea, it requires new thinking and some risk. The organisational environment is therefore important and that it is encouraged to share thoughts and speak your mind. Another innovation manager had the feeling of often being discouraged and that team members suddenly would change their minds and withdraw support for an idea.

4.2.4.3. CULTURE

One of the most important aspects that were brought up by several interviewees was feeling trust and psychological safety. Firstly, it is important to feel trust and understand why they are working on an idea in order to be motivated. Secondly, ideation requires rethinking and taking risks of challenge and questioning people in the team and their ideas which mean that employees need to feel psychological safety. According to innovation managers, this puts pressure on the leadership.

According to one innovation manager, communication should be improved both within the team and with top-management. Since there is a lack of confidence, team members are individualistic and fight for their own ideas to be developed and there is little understanding of what others are working with.

One innovation manager pointed out that it would be beneficial if it was possible to “lend” competence within the company, but that requires approval from management, and it is not easily done as it can be difficult to say where the competence is most needed. Hence, organizational politics also become a hinder. A summary of the identified factors, with exemplifying quotes from the interviews can be found in table 7.

Table 7. Summarizing table: Organisation

Specified area	Challenges	Example quote
Leadership	<ul style="list-style-type: none"> • Lack of clear strategy. • Freedom to run projects can be a motivator. • Uncertainty amongst employees can lead to a lack of confidence and motivation. • Demanding transparency can be a hinder to creativity. • Too much focus on delivery can be a hinder to creativity. • Top-management support is crucial. 	<p>“People are motivated by doing some other stuff, small free projects that you’re really passionate about”</p> <p>“In the last couple of weeks, it has been unclear what needs to be done.”</p> <p>“A too strong leadership style who demand insight early in the process limits creativity.”</p> <p>“I think micromanagement is a creativity hinder, or if the scope is too narrow. I prefer working with a big scope, a big opportunity space.”</p> <p>“Lack of faith and comprehensiveness from top-management is a challenge.”</p>
Team	<ul style="list-style-type: none"> • Limited workforce. • The right team composition is required for H3 to create a dynamic and open culture. • Lack of collaborative skills. • Some fights for own ideas, little understanding of others work. • An efficient innovation team is diversified and consists of different personas. 	<p>“It was said that we were going to work together, but it is not happening.”</p> <p>“I can work with anyone, but I ended up with X most often, we were hard to split since we spoke about the idea every lunch etc.”</p> <p>“The boss should decide who should work together.”</p>
Culture	<ul style="list-style-type: none"> • Trust and psychological safety are important. Employees should be encouraged to speak their 	<p>“Phycological safety is important, when you propose a new idea, it requires innovative thinking and a bunch of risks.”</p>

	<p>minds.</p> <ul style="list-style-type: none"> • There is a feeling of being discouraged by teammates. • Communication should be improved both in the team and with top-management. • Open organisational culture is aimed for. • Organisational politics hinder lending competencies within the company. 	<p>“Some individuals are competitive, and they can suddenly be against an idea, having a turncoat behaviour.”</p> <p>“I want to be a leader that embraces and invites for an open discussion climate.”</p> <p>“There is a lack of competence, and managers don’t want to let go of competence that is working with the wrong things. Maybe we can temporarily borrow competence within the company. It needs to be broadcasted from above to find it.”</p>
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5. DISCUSSION

The following section is a reflective chapter containing a discussion aiming to connect the thesis findings with the theoretical framework in order to answer the main research question; *What elements affect idea generation within Horizon 3, and what are potential improvement areas for the IDS department at VCC?* In order to answer the main research question, several underlying questions are relevant: *Why is the search for H3 business opportunities of interest? How does the innovation process at IDS currently work? What are the challenges inherent with the current ideation procedure?* How the innovation process at IDS currently works was answered in findings, chapter 4. Why the search for long-term business opportunities is of interest and what the challenges inherent with idea generation at IDS, will both be answered in this chapter. What elements affect idea generation within Horizon 3 will be answered in the conclusive chapter 6, along with how IDS can improve their ideation process, in the form of practical recommendations.

5.1. WHY IS THE SEARCH FOR H3 BUSINESS OPPORTUNITIES OF INTEREST?

There are many advantages for companies to have a department like IDS at VCC. Both Adner (2012) and Drucker (2007) claim innovating is a necessity for companies to survive. There is great value in being first with a new idea, as it enables setting standards while fields are uncrowded, blocking competitors through patents and preempting scarce resources (Adner, 2012). Looking at the IDS department, it is difficult to measure the value of the innovation efforts due to the long horizon and collaborative network. When pioneering new markets, there is naturally uncertainty and risk. From interviews at IDS, it was brought up that it is important to understand that when investing in H3, it is not certain to gain monetary profit. It may generate new revenue streams, but if it does not, the H3 effort will generate value to the corporation in areas such as increased knowledge, patents and brand endorsement.

A principle of innovation by Drucker (2007) is very contradictory to the entire purpose of the IDS department and Horizon 3 in general. Drucker recommends not trying to

innovate for the future and claims that unless there is an immediate application in the present, the idea will remain an idea and is not an innovation. From interviews at IDS, it was stated that very few of the generated ideas from workshops have implementing power, and that it is crucial for determining its success. It does not matter how brilliant an idea is if its ability to be implemented is lacking. This indicates that perhaps Drucker is right. Unless there is an immediate application of the idea, it is difficult if not impossible to realize the idea. Extending to Schumpeter's definition that innovation is a novel idea that is carried out in practice, this puts H3 innovation to its stands. If the idea cannot be realized, it is not innovation. Can the mere promise of future realization be enough? It is a difficult task to predict the future, so naturally uncertainties follow when aiming far ahead. How far should one aim? How to assure the ideas can be realized? If they cannot, how can the effort be motivated? The answer may lie in how to define the purpose of the H3 effort. If the purpose is to research, experiment, gather knowledge and patents, then perhaps it should be defined as research and development. If the purpose is to develop breakthrough innovation and new revenue streams for the corporation, it is crucial the ideas can be realized. A clear definition and purpose of the H3 effort would help all parties involved. It would motivate top-management and the IDS team members, as well as ensure equal and reasonable expectations of what will and should be achieved.

5.2. WHAT ARE THE CHALLENGES INHERENT WITH IDEA GENERATION AT IDS?

The findings were divided into four areas; *Knowledge management*, *Managing ideas*, *The work process* & *The organisation*. Within these, several challenges were identified that affect the idea generation process at IDS. In the following section, these challenges are discussed and connected to theory.

5.2.1. KNOWLEDGE MANAGEMENT

The IDS department work with so-called challenge briefs, a narrowed area that will make it easier to ideate within it. However, in order to generate valuable ideas, it is important to gather deep knowledge within the area and not just to scrape on the surface. From interviews, it was stated that more valuable ideas are generated in a workshop when a lot of knowledge on the subject has been gathered beforehand. The IDS team works in iterative sprints with the purpose to challenge and develop ideas by gathering knowledge and test assumptions. In an early phase, iteration is required to reduce uncertainty and increase knowledge. According to Börjesson et al (2006), an innovation process should be an iteration between generating ideas and gathering knowledge since, in each iteration, increased knowledge enables further ideas to be generated, one idea might generate another idea and so forth.

Drucker (2007) explains that innovation affects and is affected by the economy and society, meaning it must be close to the market and market-driven. Jaruzelski and Dehoff (2010) emphasize that companies differentiate themselves and perform better in ideation when they not only see to current customer issues but understand what future issues may arise as a result of new technology and markets. From interviews at IDS it was mentioned that the H3 perspective makes it difficult to communicate with potential stakeholders and customers, as the new markets which are of interest for IDS do not yet exist.

From interviews at IDS it was mentioned that it is very important to go out of the office, do field studies and network with people in order to gain knowledge and experience. This often leads to new ideas being generated and better ideas than those produced in the office. It was explained that the ideation workshops in the office tend to generate similar ideas over and over, as it is difficult to get new approaches. This supports the importance of leaving the office and communicate with other parties in order to gain knowledge in a field and increase creativity in ideation sessions. The findings also show that employees do not trust information that is shared within the team, that they tend to be sceptical and double-check the information by themselves. This indicates that the knowledge gathering process is quite inefficient.

5.2.2. MANAGING IDEAS

Contrary to their positive view of knowledge gathering outside of the office many interviewees did not perceive the idea generation workshops as valuable; it was stated that the sessions often are too time-consuming and have no clear structure. However, the workshops tend to be very valuable when external collaborators are brought in.

In order to improve the structure of these sessions and to enhance creativity within workshops, it can be argued that one team member should be in charge of planning and executing the session. A challenge related to the workshops was framing the area to generate ideas within, some wanted a broad opportunity space whereas others wanted a narrowed. By following a method such as scenario planning or back-casting, the workshop becomes structured and the purpose clearer and the output more valuable. This might help to enhance idea generation sessions both within the team but also when having workshops with external parties. In addition, after a workshop, it could be beneficial to summarize the session by discussing the value of the output with regards to Shahan and Vargas-Hernandez (2002) four areas; Novelty, Variety, Quality and Quantity. This might help the team to proceed with the innovation process and development of ideas.

From the interviews at IDS, it was found that some of the innovation managers feel strong ownership of their ideas and are good at promoting them. The result is that their ideas are continuously developed, hence killing of ideas is made subjectively. It is natural and logical that whoever came up with an idea wants it to succeed. However, if that person only promotes the idea and tries to hide negative aspects, it will create an untrusting environment. Therefore, it is important to keep an objective standpoint when deciding whether an idea should be killed or not. Pichler (2016) explains that if an idea does not work, it can either be killed or be changed, called to pivot. Pivoting should be done as early as possible due to lower costs, which means it is important to quickly identify weaknesses with an idea. If innovation managers instead feel the urge to hide the weaknesses of their ideas, something is not right. It is worth pointing out that killing an idea does not equal failure. Jamrog et al (2006) state that organisations must be willing to allow a certain amount of risk-taking,

which includes a danger of failing. However, an innovative organisation knows that failure is an essential part of success.

5.2.3. THE WORK PROCESS

Moving from managing ideas to managing the work process, Nagji and Tuff (2012) claim that a stage-gate process is not suitable for transformational innovation, but rather a non-linear process in which potential alternatives may remain undefined for a period of time. This supports the choice of how IDS has structured its innovation process as it is non-linear with iterations in each phase. The IDS innovation process is further supported by Drucker's principles of innovation (2007), in which he states that purposeful, systematic innovation should start by analysing opportunities, which is precisely what the IDS team does in the first phase called Strategic Narrative or Intelligence. Due to the novelty of Horizon 3 it is not obvious how the innovation process should optimally take shape. From interviews, it was found that the process can be interpreted in different ways and that it is perceived as needless complex. This is a weakness of the overall structure. In addition, some interviewees said that the process is not followed, however, that may be due to uncertain times related to organisational restructuring. It could also be a consequent of employees' diverse interpretations of the process.

Brown (2010) states that innovation strategy should be adjusted towards business strategy. This suggests that the IDS department should align their innovation efforts with the overall business strategy of VCC. When formulating challenge briefs, IDS can cooperate with VCC's strategy and transformation department to a higher extent. This would make the idea generation easier since the topic to ideate within is clearer and the output can be better understood by external parts i.e. top-management.

Blank (2015) states that a team working with H3 innovation, like IDS at VCC, needs to be separated from operating divisions and should have a different plan, procedure, KPIs, etc. than teams working with H1 and H2. However, recently the H3 department has increased its collaboration with the H2 team, this is contradictory to Blank's theory. In this case, it was shown that the different departments had several similar ideas in their innovation portfolio. Therefore, it can be argued that enhancing the collaboration between the two teams could be beneficial. Knowledge gathering

and ideation in H3 can be supportive of H2 ideas and vice versa. Furthermore, H3 can inspire H2 to aim higher. However, the downside and risk of a too close collaboration between H2 and H3 could be that more focus is directed towards H2 since it is easier to approach, and H3 becomes neglected.

Brown (2010) explains that a firm should have clear and demanding goals for innovation. According to some interviewees, however, the department's goals are too ambitious. It is difficult to imagine e.g. how an idea can change the life of 100 million people, which might be a reason for the difficulty of generating new ideas and create an innovation height.

Adams et al (2006) explain the importance of measuring the innovation process in order to successfully generate and commercialize new business opportunities. It is crucial for the IDS department to find the right metrics to measure the innovation process, both because they need to show results to top-management but also for their own learnings and development of the process. In addition, Adams et al (2006) state that an organisation's innovation capability is dependent on both internal and external factors and therefore are there different approaches that can be taken when deciding which KPI to choose. Today, findings have shown that the IDS department does not have any firmed metrics. The goal of having a certain number of generated ideas per week turned out not to be a successful metric according to the team manager, as the quality of the ideas is not taken into consideration. It can be argued that when formulating KPIs, the measurement areas in the framework of Adam et al can be useful. For instance, within knowledge management, KPIs can be formulated to measure idea generation, knowledge repository and information flows. Within project management, communication, tools, project efficiency and collaboration are useful measurement areas.

Nagji and Tuff (2012) bring up some difficulties with measuring return on investment when investing in radical innovation. The authors state that metrics should be a mixture between internal and non-economic metrics, for example, learnings instead of earnings. It can be argued that measuring learnings within the H3 team and spill-over effects to the rest of the organisation are beneficial. Furthermore, KPIs can be set around the amount of contact with researchers and external parties, the number

of col-labs as well as the number of explored questions or workshops on challenge briefs.

Brattström et al (2018) explain there are two ideal ways of measuring innovation; a directional or conversational approach. Directional measurement is for example number of ideas generated, since it was stated from interviews that the number of ideas was not a good metric the department should use conversational measurement instead. The team can use it to discuss what potential an idea holds, a measurement method that is most appropriate for radical innovation.

5.2.4. ORGANISATION

Organisational matters affect the process and the participants. From interviews, it can be concluded that several managerial factors affects innovation and creativity within a team. These factors align with theory found in the area, Hirte (2018) bring up micromanagement as well as lack of communication and transparency as factors affecting creativity negatively. In addition, interviewees stated that if management is too demanding about transparency it can be a hinder to creativity. It can be argued that a balance is required regarding the team leader's involvement. The leader cannot be too involved in individual work i.e. not micromanage. Interviewees also pointed out the importance of having clear directives in terms of strategy and vision, hence the leader still needs to be involved. Uncertainty related to the future of the H3 team has been identified as a factor affecting motivation within the IDS team. In order to reduce this uncertainty, the IDS team needs a clear strategy and more directive leadership overall while sustaining freedom in the ideation phase.

Trust and psychological safety are two areas brought up by interviewees as important factors affecting the creative environment in the team, and that these are sometimes lacking. In addition, Reiter-Palmon, Wigert and de Veerde (2012) state that these two areas become even more crucial when there is high task complexity and ambiguity of the outcome of a project. Findings show that the team collaborative skills can be improved, as some individuals have strong ownership of their own ideas and little understanding of others work, this can be a reason for the sometimes lack of trust within the team. Promoting open communication among team members could solve the problem. According to Martin and Terblanche (2003), open and

transparent communication must be supported to enhance creativity. Edmondson and Mogelof (2005) declare that lack of goal clarity reduces psychological safety. Therefore, another improvement area could be to work even closer to the strategy and transformation team at VCC, this would give the team a clearer structure and an ease to create goals to work towards.

From interviews, it was found that a project had turned out highly efficient when a small team of three was formed and the members assigned themselves specific roles such as CEO, COO, etc. This enhanced the motivational aspects for all three members even if one was the idea owner. Jamrog et al (2006) state that innovation occurs through collaboration and community, not through the thinking of a single mind. The described project is an example of high trust and psychological safety; the structure was clear, and participants were motivated since each had a responsibility working towards a clear goal. It can be argued that future projects should be executed in small teams with assigned roles and shared responsibilities.

The study has shown that team dynamics and organisational culture play a significant part regarding the level of creativity in a team. This indicates that putting together a creative team is not an easy task. From interviews, it was found that not only practical capabilities should be taken under consideration when putting a team together, but also the team members personalities and backgrounds. A team should consist of different personas in order to efficiently seize innovation opportunities. It can be argued that Kelley's (2008) 10 different personas framework can be used when assessing the team composition. Teams comprising the different personas will reach a higher creativity level and this will be helpful for the IDS team in ideation sessions.

6. CONCLUSION

The study has aimed to identify elements affecting idea generation within Horizon 3, and to find potential improvement areas for the IDS department. The advantages of searching for new business opportunities for an incumbent firm can be potential new revenue streams but most certainly in terms of increased knowledge, spill-over effects and brand endorsement. It has been found that innovating for the future is difficult and involves high risk and uncertainty. However, the cost of refraining might be much higher.

By comparing challenges found in interviews with the theory, several crucial elements have been identified for idea generation to work properly. The first element is knowledge management. It has been found that more valuable ideas are generated in a workshop session if the participants have gained a deep knowledge level beforehand. This could be enabled by a knowledge management system, not only to gain knowledge but to sustain it within the team. Another important element of ideation is to interact with potential stakeholders. The innovation effort should be market-driven to ensure implementing power of ideas; hence it is crucial to go out of office in order to gain insights and spur creativity.

The second element is related to workshops held to generate ideas. It is important that innovation strategy and business strategy align, as it facilitates the creation of a challenge brief to ideate within. The study has shown that freedom is vital for ideation in order to enhance creativity. Additionally, it has been shown that a workshop must have a clear purpose, it must be time-limited and follow a systematic ideation method to ensure valuable output i.e. not get stuck in a never-ending brainstorming session. Furthermore, the study has highlighted the importance of including external experts in the workshops in order to reach a deeper level of knowledge and therefore generate more valuable ideas, although it is not a simple task due to budget constraints and incertitude regarding what the output will be.

The third identified element regards measuring innovation and formulating KPIs. It was found that few metrics are applicable due to the complexity of Horizon 3 innovation. However, measurement is important to show results and show development to motivate the team. The number of ideas generated is not a good

metric, however, learnings, spill-over effects and future potential of an idea are better measurements. These are difficult to quantify. Therefore, it is favourable to use a conversational approach instead of a directional when metrics are ambiguous which is the case of Horizon 3. A conversational approach regards observations and conversations from the bottom-up e.g. discussions with the team about the potential of an idea.

The fourth element is related to the overall work process. It can be concluded that the process is contemplative and well suited for the IDS department, however, the process is perceived as needless complex and the different interpretations can be regarded as a weakness since it complicates collaboration and trust within the team. This can be mitigated by ensuring a shared understanding and interpretation of the process. It is important to set an explicit definition and purpose of the H3 effort. For instance, by aligning the department's innovation strategy with the overall business strategy. It would motivate top-management and the IDS team members, as well as ensure equal expectations of what will and should be achieved.

The fifth element regards team effort. It was found that individuals in the team feel strong ownership of their ideas, they tend to promote them and hide weaknesses of the idea. It is important to detect weaknesses as soon as possible in an innovation process. This behaviour could lead to a competitive and untrusting environment which is poor for the team spirit. It is important to expose and allow weaknesses of ideas and to create a fail-safe environment. Furthermore, open communication should be promoted to increase trust and psychological safety, two factors which the study has found to be truly significant in a creative setting. It was also found, based on a former successful project, that future projects should be executed in small teams with assigned roles and shared responsibility. Additionally, it can be concluded that a team comprised of different personas will reach a higher creativity level, hence team composition is essential in the ideation phase and it should be kept in mind when constructing a project team or ideation workshop.

The sixth element regards leadership. The study has shown the importance of a clear strategy in innovation processes. However, within the projects, it is essential to sustain freedom and not fall into micromanagement. It was found that in the overall

process a more directive leadership is requested by employees, especially during the current uncertain organisational circumstances.

In conclusion, there are few practical cases of Horizon 3 innovation and therefore it is uncertain how such an effort should take shape in order to successfully generate ideas in the search for long term business opportunities. The study has shown that the idea generation process at the IDS department can be improved. Deriving from the elements described above, practical recommendations have been formulated and can be found in table 8. The recommendations intend to help IDS manage or solve the challenges which have been identified in this study.

Table 8. Practical recommendations

Element	Recommendations
Knowledge management	<ul style="list-style-type: none"> • Implement a knowledge management system to increase and enable deeper knowledge levels across the team. • Promote leaving the office to interact with external parties.
Ideation workshops	<ul style="list-style-type: none"> • Construct workshops according to a systematic ideation method, with a clear purpose and time-limitation to ensure valuable output and follow up the results. • Increase collaboration with external experts.
Measuring innovation	<ul style="list-style-type: none"> • Disregard quantifiable metrics. Ambiguous metrics such as learnings, spill-over effects, and potential of ideas are more suitable for H3 innovation.
Work process	<ul style="list-style-type: none"> • Set an explicit definition and purpose of the IDS department. • Ensure there is a mutual understanding of the work process across the entire team to prevent different interpretations.
Team effort	<ul style="list-style-type: none"> • Promote open communication and establish a fail-safe environment to shift ownership from the individual to the team. This can be done by more regular retrospective meetings. • Projects should be executed in small teams with self-assigned roles and shared responsibility.
Leadership	<ul style="list-style-type: none"> • A directive leadership regarding the strategy and vision of IDS is required while sustaining creative freedom within projects.

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APPENDIX 1 – GUIDE USED AT INTERVIEWS

WITH EMPLOYEES AT IDS

1. For how long have you been working at IDS?
2. What is your role?
3. Are you in any project now?
 - a. What stage of the project?
4. Please explain the innovation process.
5. What are the prerequisites for idea generation?
6. How do you generate ideas?
7. Have you ever worked with an idea that you did not found yourself?
8. What goals do you work against?
9. What metrics do you use to measure the innovation process?
10. Do you prepare before attending a workshop?
 - a. If so, how?
11. What workshop methods have you tried?
12. How do you measure the quality of the output of a workshop?
13. What is a valuable workshop?
14. What are the greatest challenges with your work?
15. What do you think hinders creativity?

APPENDIX 2 – GUIDE USED AT INTERVIEW

WITH TEAM LEADER AT IDS

1. For how long have you been working with H3 innovation?
2. Why does the innovation process look like it does today?
3. Is the sprint process followed?
4. How involved are you in the projects?
5. What type of leadership style do you use?
6. How did you put the team together?
 - a. What were your thoughts about team composition?
7. How do you measure results?
8. What are the greatest challenges in the team?

APPENDIX 3 – GUIDE USED AT INTERVIEWS

WITH INNOVATION CONSULTANCY FIRM

1. Tell us about you and what you are working with?
2. What are the greatest challenges for organisations trying to generate H3 innovation?
3. What are the greatest challenges when generating new ideas?
4. What metrics should be used when measuring an innovation process?
5. What metrics should be used when measuring idea generation?
6. What is important to keep in mind when assembling an innovation team?
7. What leadership style should be used in an innovation team?

APPENDIX 4 – GUIDE USED AT INTERVIEW

WITH CHIEF DIGITAL OFFICER

1. Tell us about you and what you are working with?
2. How does your company work with innovation?
3. Do you use the horizon perspective?
4. How do you generate ideas?
 - a. Do you use any specific ideation method?
5. What metrics should be used when measuring an innovation process?
6. What metrics should be used when measuring idea generation?
7. What leadership style do you use?
8. How is an efficient innovation team composited?