CHALMERS

Proposing a framework for evaluating and selecting ideas in the FEI:

A case study of Volvo Cars

Master of Science Thesis

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Department of Technology Management and Economics
Division of Innovation Engineering and Management
CHALMERS UNIVERSITY OF TECHNOLOGY
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ABSTRACT

Companies must innovate in order to survive on the market. The early activities of the innovation process (also known as the front end of innovation), especially idea generation and selection, are often mentioned as important for a successful innovation process. The importance of radical innovation to remain competitive in an ever changing world is also emphasized in innovation management. Although radical and incremental innovations need to be managed differently, most FEI processes seem to be developed for incremental innovations. Moreover, much innovation literature covers how ideas can be generated but not as much literature exists on how ideas can be selected. Therefore, we propose a framework for selecting ideas. This framework was applied to an innovation jam, an online brainstorming event, carried out at Volvo Cars in order to test and refine it. Two additional studies were also conducted, one contextual and one comparative study. The framework proposes that ideas need to be evaluated differently according to the nature of the idea. It therefore contains a categorization of ideas into radical and incremental. From the study of Volvo Cars it was clear that no other processes within the company were adapted for managing radical innovation. The study also showed that most existing processes did not consider the commercial and business aspects of an idea to the same extent as the technical aspects. In the process of developing the framework we also discovered that ideas in the early stages can be hard to handle since they are seeds of ideas rather than fully developed ideas. The area of the idea could thus be argued to be more important than the idea itself. Finally, success factors were identified and guidelines for applying the framework were provided.

Key words: front end of innovation, radical and incremental innovation, innovation jam, idea selection, selection criteria

Contents

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Göteborg, June 2011

Aet Soonvald and Anne Elerud-Tryde

1 Introduction

The competition within the current business environment is tight. Thus, the product life-cycles are short and the environment is in continuous change. In order to cope with these variations in the business milieu companies need to innovate. According to Tidd et al. (2001) the key factor for company survival and growth is innovation. The importance of the activities in the early stages of innovation, in the front end of innovation (FEI), has often been emphasized (Cooper, 1988). The process of innovation starts with an idea. The step that has often been described as the first one in innovation processes is idea generation (e.g. Cooper, 1988). The idea generation is usually not seen as a problem, as Bjelland and Chapman Wood (2008, p.40) claim:

"Idea generation is in some ways the 'easy' part - and darling star child - of innovation, whereas advancing, refining and building support for those ideas is the really tough part."

Furthermore, there is a large variety of literature giving guidelines and suggesting methods for generating ideas (e.g. Cooper, 1988; Rochford, 1991). One example of such a method is the innovation jam, which is an idea generation event that takes place online (Hempel, 2006). However, when it comes to the next step of innovation processes – idea selection – there is seemingly very little or no literature covering how ideas are actually selected and what criteria is used for carrying out the selection process. Therefore, this master thesis is focused on the idea selection and helps to fill in the gap identified in the literature.

The thesis is based on a case study of Volvo Car Corporation (Volvo Cars). Volvo Cars is aware of the changes in the business environment and the tight competition in the automotive industry. Therefore, the importance of being innovative has been more and more recognized in the company. The innovation processes in Volvo Cars have started to grow, but there is no overall approach for generating and selecting ideas in the FEI within the organization yet. This is especially true for more radical ideas. Raising the awareness of innovation among the employees and establishing an overall process of innovation were some of the reasons why Volvo Cars set up an innovation Jam in February 2011. This was the first time Volvo Cars ever carried out this type of event.

1.1 Background to Volvo Car Corporation

Volvo Car Corporation was established in 1927 in Göteborg, Sweden by Gustaf Larson and Assar Gabrielsson (VCC webpage, 2011). Today, the company has 19 500 employees all over the world. Volvo Cars is a global company, mainly with employees working in Sweden and with a sales organization spread globally. The company has a leading position in the field of safety and has a long history of world-leading innovations within this field (VCC webpage, 2011). In addition to safety, there are innovative processes going on in different parts of the company.

The innovation jam organized in Volvo Cars was called Global Innovation Gig (GIG). However, in this thesis this event is referred to as the innovation jam to not confuse the reader. The innovation jam took place during 48 hours and employees all around the world were invited to participate in the event. The event was organized by the Product Planning department (PPL). The organizers are working according to a process, which includes activities before the innovation jam as well as after it – from inspiring people to integrating the ideas.

One of the goals of the innovation jam was to generate both low-risk (that could be implemented right away) and high-risk (longer implementation horizon) ideas. The "best" ideas would then be presented to a group of managers in a meeting session called the innovation forum. These managers would select which ideas would be turned into projects and get financial support. The reason for involving managers in the selection of the ideas was to 1) increase their involvement in the innovation processes, and 2) make them take an interest in the ideas to make sure the ideas got implemented.

Before the innovation jam took place, the product planning department had determined how the pre-jam events and the generation process should be carried out. The pre-jam events included distributing inspirational material on the company intranet and inspirational seminars for employees were held before the innovation jam. The idea generation event, the innovation jam, took place on 8th and 9th of February 2011. However, the organizers of the innovation jam did not know how to select ideas afterwards. Therefore, a process for selecting the ideas was developed by the thesis authors. The ideas selected were presented to an innovation forum, which is a group of managers in Volvo Cars. However, the innovation forum is out of scope of this thesis.

1.2 Purpose

A gap in the literature of how an idea selection process can be carried out and what criteria should be used was identified; in particular when there is a large set of ideas that needs to be screened. Also the company studied - Volvo Car Corporation – needed a process for selecting ideas. Considering both of these aspects, the purpose of this thesis is to develop a framework for selecting ideas out of a large set of ideas.

1.3 Research questions

In order to fulfill the purposes of the thesis the following research questions were developed:

1) What are suitable criteria for selecting ideas?
2) How can an idea selection process be organized?

These research questions will be addressed through the theoretical development of a framework that will be applied to the ideas generated in the innovation jam in Volvo Cars. Two additional studies will also be conducted; one with the purpose of understanding how ideas are currently taken care of within the company, and the other with the purpose of understanding how other companies have selected ideas that were generated in an innovation jam.

1.4 Delimitations

"The correctness of outcomes from innovative ideas can rarely be judged" – (Van de Ven, p. 595, 1986)

The first limitation that must be considered is that the success of an idea selection process cannot be evaluated until after the selected ideas have been implemented, developed and commercialized. This normally takes a couple of years (in the best case scenario). This implies that idea evaluation is a continuous and long process that requires feedback. A tracking system is needed to truly be able to evaluate the evaluation process.

Also it has to be admitted that the quality of the selected ideas depends on the quality of the generated ideas. However, there are already very much written on how you generate good ideas which is why this part is not included in this study. Furthermore, we only look at the early phases of what comes after the generation of ideas. Thus, the later phases in the idea selection process are not considered here. However, considering the whole idea selection process, would probably affect the criteria and methods used in the early stages of ideas selection.

1.5 Disposition

Table 1.1 Disposition of the thesis
Source: authors

Chapter no.	Title	Content
1.	Introduction	➢ Background of the thesis and Volvo Cars is presented ➢ Purpose and research questions are outlined ➢ Delimitations are discussed ➢ Disposition is presented
2.	Methodology	➢ The research strategy, method and design of the thesis are explained ➢ The three studies are explained ➢ The quality of the research is discussed
3.	Previous research on FEI	➢ The previous knowledge about innovation, idea generation and selection is presented.
4.	Conceptual framework	➢ The framework is outlined in 4 steps: ⇒ Initial selection of ideas ⇒ Categorization of ideas ⇒ Second selection of ideas ⇒ Idea template
5.	Case study	➢ The three studies are explained: ⇒ Study 1: the Innovation Jam in Volvo Cars ⇒ Study 2: contextual study ⇒ Study 3: comparative study
6.	Study 1: applying the framework at Volvo Cars	➢ Empirical data of the main study is presented in four steps: ⇒ Initial selection of ideas ⇒ Categorization of ideas ⇒ Second selection of ideas ⇒ Additional filtering of ideas
7.	Study 1: analysis	➢ The data is analyzed and the ideas are contextualized: ⇒ Initial selection of ideas ⇒ Categorization of ideas ⇒ Second selection of ideas ⇒ Additional filtering of ideas ⇒ Contextualization of ideas
8.	Study 2: contextual study of Volvo Cars	➢ Empirical data of the other innovation processes in Volvo Cars is presented: ⇒ Overall process: The NEEDs and MEANs process ⇒ IP1: Idea management process in Body and Trip department ⇒ IP2: Idea management process in Active Safety department ⇒ IP3: The safety development process at Volvo Cars
9.	Study 2: analysis	➢ The data from study 2 is analyzed: ⇒ Overall process: The NEEDs and MEANs process

		⇒ IP1: Idea management process in Body and Trip department ⇒ IP2: Idea management process in Active Safety department ⇒ IP3: The safety development process at Volvo Cars
10.	Study 3: comparative study	➢ Empirical data of the other companies, who have carried out innovation jam is presented: ⇒ Volvo Technology ⇒ Lindholmen Science Park
11.	Study 3: analysis	➢ The data from study 3 is analyzed: ⇒ Volvo Technology ⇒ Lindholmen Science Park
12.	A revised framework	➢ A revised framework, success factors and guidelines for applying the framework are proposed
13.	Conclusion	➢ Contributions to literature, future research and quality of research are discussed

2 Method

In this chapter the method of the thesis is described. The chapter consists of four parts: firstly the research strategy and research methods are elaborated, then the research design and the quality of the research are discussed and finally, the methods for each study are motivated.

2.1 Research strategy

According to Bryman and Bell (2007) the research strategy shows a general orientation of the business research. One of the most common approaches of a research strategy is to distinguish between quantitative and qualitative research (*ibid*). While in quantitative empirical research the data is as numbers, in qualitative research data is as (mostly) words (Punch, 2005). In this thesis, answering the research questions required using a qualitative research strategy. As quantitative research entails a deductive approach in which the accent is placed on the testing of theories, qualitative research predominantly emphasizes an inductive approach, in which the emphasis is placed on the generation of theories (Bryman and Bell, 2007). Due to the exploratory nature of this research the most suitable for the research was a third approach - abduction. According to Yu (1994) the goal of abductive research is to explore the data, find a pattern, and suggest a plausible hypothesis. He also claims that in the abductive studies there may be more than one convincing pattern, but only those which are more plausible are "abducted". In this research the hypothesis suggested was the idea selection framework.

2.2 Research method

According to Bryman and Bell (2007) a research method is a technique for collecting data. In this thesis several methods were used for collecting primary as well as secondary data. Since primary data is facts and information collected specifically for the purpose of the investigation at hand (Churchill, 1983) the usage of this kind of data is important and essential to the thesis. Primary data was collected by semi-structured interviews with the persons involved in the events and by direct observations of the events studied. Interviews are often used as it is a highly efficient way to gather rich, empirical data, especially when the phenomenon of interest is highly episodic and infrequent (Eisenhardt & Graebner, 2007). Also, open-ended responses enable an understanding of the world as seen by the respondents; they enable the researcher to understand and capture the points of view of other people without predetermining those points of view through prior selection of questionnaire categories (Patton, 2002). Yin (2003) states that one of the weaknesses of the interviews is bias due to poorly constructed questions. In this research that kind of bias was reduced by discussing the questions with the supervisor in Chalmers and testing some of the questions (questions posed to the moderators in Study 1) on the supervisors in Volvo Cars. In order to mitigate the bias of the interview data, numerous and highly knowledgeable informants who view the focal phenomena from diverse perspectives, should be interviewed (Eisenhardt & Graebner, 2007). Therefore in this research, several participants of the events studied were interviewed.

Since there are limitations to how much can be learnt from what people say, Patton (2002) suggests that, to fully understand the complexities of many situations, direct participation in and observation of the phenomenon of interest may be the best research method. Thus, some of the events (the innovation jam, the sorting and

selection sessions, and the innovation meeting in Active Safety) studied in this research were directly observed. The disadvantages of the observations include selectivity (unless broad coverage) and reflexivity (an event may proceed differently because it is being observed) (Yin, 2003). As both of the authors observed the events autonomously and took notes, the impact of selectivity was somewhat reduced. The observers could not do much about the impact of reflexivity; the only way was to try not to influence the event.

While secondary data are facts and information gathered by someone else and for some other purpose than the immediate study at hand (Churchill, 1983), it can still benefit the research in many ways. Bryman and Bell (2007) list several advantages of secondary analysis, for example it offers time and cost savings. Mainly due to the previously mentioned reasons, part of the data gathered for this research is of secondary nature. The sources of secondary data used in this research include studies of internal processes and documents of the company. In addition to the primary and secondary data books, articles and Internet were used to study the previous research done in the field of the focus of this thesis.

2.3 Research design

According to Bryman and Bell (2007) research design represents a structure that guides the execution of a research method and the analysis of the subsequent data. In this thesis the experimental, case study and comparative research designs were used.

Firstly, an experimental design was used. Based on a literature review, a conceptual framework was developed and tested in order to refine it. We also actively took part in the experiment, by clarifying the framework while it was applied. Finally, a revised framework was proposed.

Secondly, as Yin (2003) suggests when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context case studies are preferred. Since all the previously outlined aspects are present in this thesis in addition to the experimental design the case study design was used. Eisenhardt & Graebner (2007) claim that cases embed rich empirical data, thus building theory from cases is likely to produce theory that is accurate, interesting, and testable. Since one of the purposes of this thesis is to suggest a framework that can be used for selecting ideas, a case study design suits well. Moreover, a further strength of theory building from cases is its likelihood of generating novel theory (Eisenhardt, 1989). Yin (2003) distinguishes between single- and multiple-case designs. In this thesis the single-case approach is used, as the nature of the thesis is explorative and there is a need for rich data.

Additionally, in order to strengthen the case study, a comparative design was used. We collected complementary data from two other companies with prior experience of carrying out an innovation jam (Volvo Technology and Lindholmen Science Park).

2.4 The studies

The case study was carried out to test the conceptual framework proposed in chapter 4. The framework was applied to an innovation jam performed by Volvo Cars and the selection of the ideas generated during the innovation jam: this was the main study. In order to fully understand the context in which the main study was conducted a contextual study of existing innovation processes at the company was also conducted.

A comparative study was then conducted based on innovation jams performed by other companies to verify our findings from the main study. The framework proposed in chapter 4 has thus not been applied to the contextual or comparative study. The thesis process is illustrated on Figure 2.1.

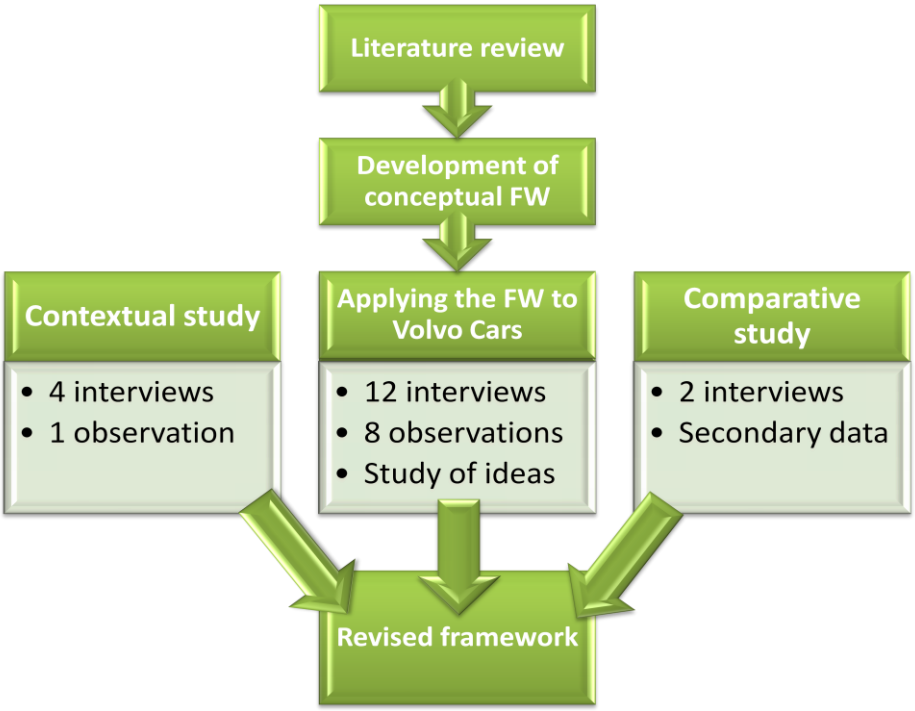

Figure 2.1 The thesis process

Source: authors

The contributions of these two studies to the proposed framework were potential learnings and confirmations of how to select ideas (Figure 2.2).

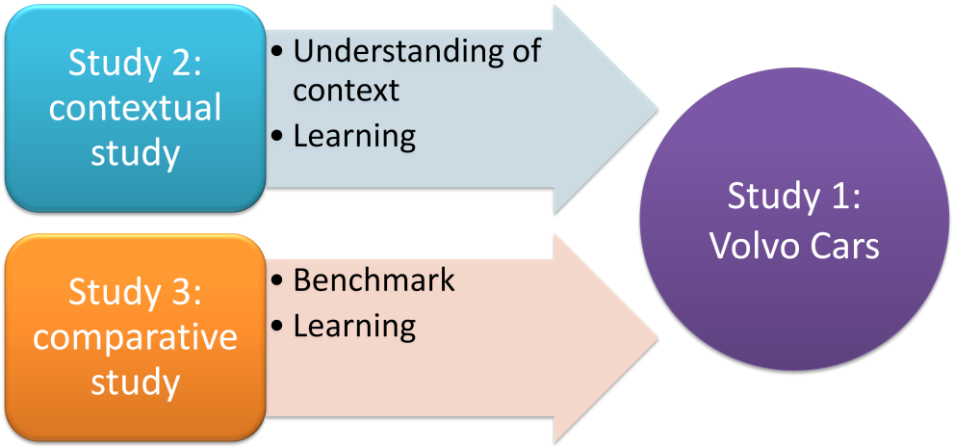

Figure 2.2 Contribution of study 2 and 3 to the proposed framework

Source: authors

2.4.1 Study 1: the innovation jam in Volvo Cars

The purpose of this study was to test the proposed conceptual framework and understand how it was used during and after the innovation jam. Furthermore, the aim of the study was to consider how the framework could be improved, i.e. what steps

and criteria it should include. The testing of the framework was done by applying it to an innovation jam carried out in Volvo Cars. The results of the test were obtained from observing the applying process, interviewing the people who used the framework and studying the ideas generated on the jam by using the framework.

Observing the process of using the framework did not entail only being observers. Since the framework was proposed by us we were also there to clarify the framework and answer questions about it, thus facilitating the selection process. By observing the process, it was possible to see how the people actually used the framework and identify the shortcomings of it.

Semi-structured interviews were also conducted with the people who used the conceptual framework – the moderators and the organizers of the innovation jam. Thus, it was possible to understand what they thought about the framework, here they identified the drawbacks and what other possibilities and criteria they thought could be used for carrying out the selection. A list of when the interviews and observations were conducted is found in Appendix I and II, respectively, and the interview guides for moderators and organizers, are respectively found in Appendix III and IV.

This study also entailed study of the ideas. This was done in order to identify the nature of the idea and who it was selected by.

2.4.2 Study 2: contextual study of Volvo Cars

The purpose of the study was to learn how the current innovation processes could benefit the idea selection framework for the innovation jam and to understand how the innovation jam process related to the existing innovation processes. In order to fulfill the purpose, interviews with the people involved in these processes were conducted; also one of the processes was observed.

Four processes were studied, thus four interviews were carried out. The nature of the interviews were semi-structured, as this set up enabled us to explore how employees currently look at innovation and what is considered as most important when ideas are generated and selected within the company. In addition, one of the processes was also observed. The observation of this process enabled us to understand how an innovation process is actually managed in the company, what is important when selecting ideas and what influences the process.

2.4.3 Study 3: comparative study of other companies

The purpose of this study was to learn from other companies how the ideas generated on an innovation jam could be selected – what steps and criteria they have included. Also the study helped us to benchmark the conceptual framework developed for Volvo Cars. The learning and benchmarking was done by conducting interviews with the people responsible for organizing the innovation jams in the studied companies.

Two companies - Volvo Technology and Lindholmen Science Park – were studied, in both one interview was conducted. The semi – structured interviews enabled us to realize what was important for these companies when they carried out the selection, how the selection was set up and what were the criteria used. At the same time we could understand what kind of challenges the companies faced while selecting the ideas and how these challenges resembled or differed from the ones Volvo Cars faced.

2.5 Quality of the research

As a research design is supposed to represent a logical set of statements, the quality of the design can be judged with certain logical tests. Four tests –construct validity, internal validity, external validity, and reliability – are commonly used to establish the quality of any empirical social research. Because case studies are one form of such research, the four tests are also relevant to the case studies (Yin, 2003). Since the test of internal validity concerns only the casual or explanatory case studies and this is an explorative study, the logic of internal validity is inapplicable here. However, some writers have suggested that qualitative studies should be judged or evaluated according to quite different criteria from those used by quantitative researchers. For example Lincoln and Guba (1985, cited in Bryman and Bell, 2007) propose that two primary criteria for assessing a qualitative study are trustworthiness and authenticity. Since authenticity concerns wider political impact of research, it is not considered as a relevant test for this thesis. Thus, in order to test the quality of this research fairly, in addition to the commonly used tests, the criteria of trustworthiness are elaborated in the following sub-chapters.

2.5.1 Construct validity

The test of construct validity points at establishing correct measures of the concepts being studied. Yin (2003) claims that the test of construct validity is problematic in case study research. However, he suggests several options for ensuring the construct validity *(ibid)*. First, he emphasizes the importance of using triangulation (using multiple sources of evidence) as this provides multiple measures of the same phenomenon (Yin, 2003). In this research the data was triangulated by using several sources of data. For example the innovation jam in Volvo Cars was first observed and then the people involved were interviewed. Secondly, he suggests establishing a chain of evidence, which allows an external observer to follow the derivation of any evidence, ranging from the initial research questions to the ultimate case study conclusions *(ibid)*. In this report, the chain of evidence is maintained by for example citing specific documents, interviews and observations. The time and place of the interviews are also noted in Appendix I to ensure traceability in the gathering of data. Moreover, the link between the report and the initial study questions remain throughout the report. Finally, Yin proposes that the key informants should review the draft case study report. In this research the draft of the report was shown to the supervisors in Volvo as well as to the other people interviewed in order to make sure that the content of the report is applicable. Thus, the construct validity of the research is considered as high.

2.5.2 External validity

The test of external validity refers to establishing the domain to which a study's findings can be generalized. The external validity or generalizability of case studies is a source to many discussions among researchers. Some researchers argue that a single case study cannot yield findings that can be applied to other contexts than the context actually being studied (Bryman and Bell, 2007). However Yin (2003) suggests, that such critics are implicitly contrasting the situation to survey research, in which a sample (if selected correctly) readily generalizes to a larger universe. He claims that this analogy to samples and universes is incorrect when dealing with case studies. Also Patton (2002) states that there are no rules for sample size in qualitative inquiry,

the validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size. While, survey research relies on statistical generalization, case studies rely on analytical generalization (Yin, 2003). Yin also admits that the generalization of case study is not automatic; a theory must be tested by replicating the findings. Therefore, in the case of this research the proposed framework for selecting the ideas has to be tested one or more times in the future, for example during the next idea generation event in Volvo or in another company. However, further testing of the framework is out of the scope of this thesis. Therefore, since the external validity cannot be tested we cannot determine it.

However, the theory of qualitative research quality suggests that transferability, which is one of the criteria of trustworthiness, parallels with external validity and is enabled by thick descriptions, i.e. rich accounts of details of a context (Lincoln and Guba 1994, cited in Bryman and Bell, 2007). Thus, to strengthen the transferability of our findings the results have been thoroughly described and are based on rich amounts of empirical facts and literature.

2.5.3 Reliability

The test of reliability points to demonstrating that the operations of study – such as the data collection procedures – can be repeated, with the same results. Yin (2003) suggests that the general way of approaching the reliability problem is to make as many steps as operational as possible and conduct research as if someone were always looking over your shoulder. In order to ensure the reliability of the research the procedures followed during the case should be documented (Yin, 2003). In this thesis all the places and times of the observations and interviews, as well as the interview guides are provided. However, the opinions of the interviewees may change as the environment around them is in continual change. Thus, the reliability of the research is considered as medium.

However, a criterion of trustworthiness from the qualitative research quality – dependability – can be paralleled with reliability. Dependability entails ensuring that complete records are kept of all phases of the research process in an accessible manner (Lincoln and Guba 1994, cited in Bryman and Bell, 2007). Due to the explorative and interactive nature of our research some tasks, for instance problem formulations and data analysis decisions, have been done during discussions and without any specific methodology. Thus, these steps of our research have not been documented. In order to strengthen the dependability interview transcripts are easily accessible and we have tried to be extensive and detailed in the descriptions of the data.

3 Previous research on front end of innovation

Although much research has been conducted on the notion of innovation and innovativeness, no consistent definition of what an innovation is exists (Garcia and Calantone, 2001). Therefore, this chapter starts with presenting some basic notions of innovation. Then, processes for the front end of innovation are presented. Thereafter, the chapter moves on to presenting differences in managing radical and incremental innovation, and finally idea generation and selection techniques are described. The content of this chapter is visualized in Figure 3.1.

Figure 3.1 ***Overview of chapter 3***

Source: authors

3.1 Basic notions of innovation

There are many definitions of innovation to be found in literature (e.g. Drucker, 1985; Van de Ven, 1986). Most often, innovation is referred to as a noun but sometimes also as a process. Therefore, it is important to distinguish between what an innovation is and what the process of innovation is (Garcia and Calantone, 2001). The process of innovation is further described in the next section (3.2 Front end of innovation). Most scholars agree that an innovation is an idea that has been commercialized, i.e. put in the marketplace (Garcia and Calantone, 2001). An innovation should further provide economic value and be dispersed to others than the ones coming up with the original idea. The process of innovation, on the other hand, means bringing an idea to the market and thus the process of turning the idea into an innovation (Garcia and Calantone, 2001).

An innovation is often connected to new products or services: a product innovation can for instance regard a change in the product's performance. Changes in the way something is done is referred to as a process innovation (a process innovation should not be confused with the process of innovation). Another common denotation is the business model innovation, which is a change in the way a company does business and earns their revenue streams (Assink, 2006). The nature of innovation can also vary from incremental to radical *(ibid)*. An incremental innovation concerns improvements of existing products and services. It can also concern cost reductions (Leifer et al., 2000) and is typically targeting existing markets (Reid and de Brentani, 2004). Radical innovation, also referred to as discontinuous innovation, implies transforming existing technological standards or markets (Garcia and Calantone,2001; Leifer et al, 2000). It can even create new markets or change the way an entire industry competes (Leifer et al, 2000). Leifer et al. *(ibid)* describe a radical innovation as "a product, process, or service with either unprecedented performance features or familiar features that offer potential for significant improvements in performance or cost". As such, radical innovation often challenges existing assumptions and inspires to look at a problem in new ways (Assink, 2006; Reid and de Brentani, 2004). In sum, incremental innovation builds on existing capabilities and resources within

organizations whereas radical innovation implies developing new technical or commercial capabilities (Reid and de Brentani, 2004).

According to Leifer et al. (2000) incremental innovation can keep large companies competitive in the short term, but to ensure long-term growth radical innovation is needed. Firms risk decline if they fail to develop new businesses and products (Leifer et al., 2000). This view is supported by Hamel (2002) who claims:

"Without radical innovation, decline is inevitable."

Leifer further states that leadership in one generation of technology does not ensure leadership in the following one (Leifer et al., 2000). However, the management practices necessary for developing and implementing breakthrough innovations differ from the ones necessary for incremental innovations (Assink, 2006; Rice et al., 1998). The following characteristics of the radical innovation life-cycle are presented by Rice et al. (*ibid*., p. 58):

- long-term (typically 10 years or longer)
- highly uncertain and unpredictable
- sporadic, with many stops and starts, deaths and revivals
- non-linear: e.g. idea generation is not only a front-end activity but occurs throughout the process
- stochastic as key players come and go, priorities change, exogenous events are critical
- context-dependent - history, experience, corporate culture, and informal networks all matter
- an extended front-end to the stage gate process, with extensive exploring and experimenting, probing and learning rather than targeting and developing

Normally, developing radical innovation results in more failures than successes (Leifer et al., 2000). Furthermore, anticipating market acceptance and potential becomes increasingly difficult the more radical the innovation is (Assink, 2006).

3.2 The front end of innovation

Brem and Voigt (2009) highlight the importance of a holistic view of the innovation process and define innovation management accordingly:

"[...] a systematic planning and controlling process, which includes all activities to develop and introduce new products and processes for the company." (Brem and Voigt, p. 352, 2009)

These processes are referred to as innovation processes and are further divided into three parts: Front End of Innovation (FEI), New Product and Process Development (NPPD) and the commercialization phase, Figure 3.2.

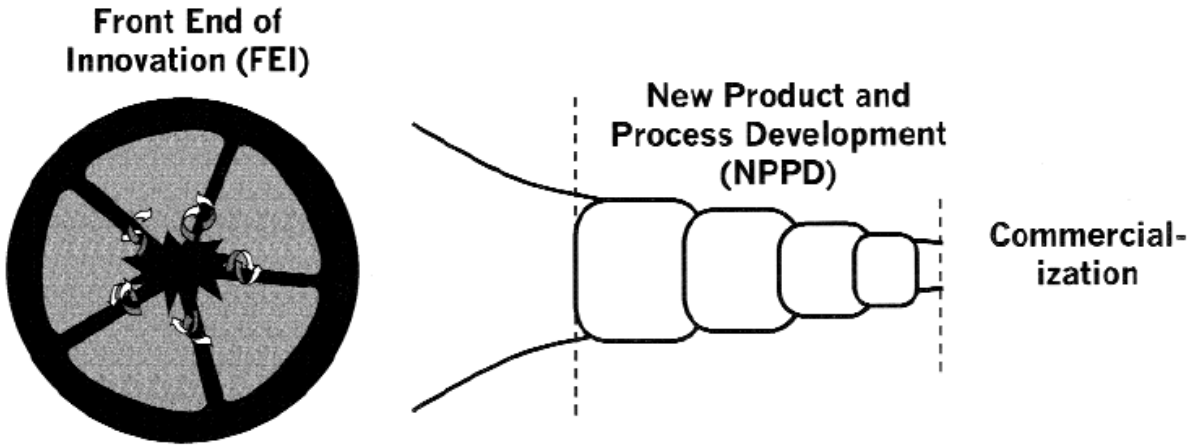

Figure 3.2 The process of innovation

Source: Koen et al., 2001, p. 51

Research has identified the pre-development activities of the innovation process as the most important stages. Cooper (1988) shows that new product success is linked to how well undertaken the pre-development activities are. Companies undertaking these activities show higher success rates than companies not undertaking them. Additionally, successful companies spend more money on these activities *(ibid)*. These early activities, i.e. idea generation and screening, are often referred to as the front end of innovation, hereon referred to as the FEI. The focus of the FEI is mainly opportunity identification and analysis (Khurana and Rosenthal, 1998). The activities in the FEI are also relatively less costly than the following stages (Rochford 1991). It has also been shown that a new idea has the biggest possibility to impact the overall innovation process during these stages (Backman et al, 2007). The FEI is additionally considered the weakest area of the innovation process and the one that to the largest extent influences the later innovation success (Koen et al., 2001). Too few ideas or bad quality of the generated and selected ideas imply costly problems later in the innovation process (Cooper, 1988). Consequently, effective management of the FEI is a necessary requirement of successful innovation management (Koen et al., 2001). However, the FEI differs in nature from product development and thus requires a management approach that is different to traditional product development management approaches. First of all, the FEI is experimental to its nature rather than structured. It is additionally very unpredictable which renders traditional goal oriented approaches useless in the FEI. Instead, management must allow for redundancy of ideas and uncertainty to exist. Funding of ideas is rarely budgeted and varies to great extent. At the same time it is difficult to calculate potential revenue streams and a great deal of speculation should be expected (Brem and Voigt, 2009). Boeddrich (2004) presents three requirements that ideas need to fulfill to be successful in the market:

- Consideration of corporate strategies
- Obvious value to the customer
- A systematically structured and conducted concept-identification phase

Numerous models conceptualizing the FEI process have been developed in order to help managers improve the innovation success rate. Figure 3.3 presents a model that

makes a distinction between an opportunity and an idea, implying that an opportunity identification and analysis precede an idea. This is because the prior stages entail continuous stages of information enrichment, e.g. market studies, whereas an idea is a final proposal Koen et al. (2001).

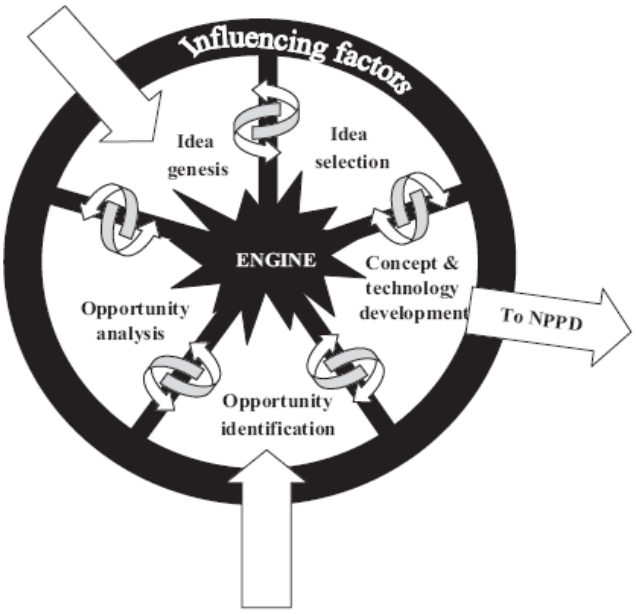

Figure 3.3 The New Concept Development Model

Source: Koen et al., 2001, p.47

The concept and technology development stage entails concluding a project proposal that is handed over to product and process development *(ibid)*. Cooper *(ibid)* presents a seven-step model representing the new product development process, see Figure 3.4, which is more process oriented.

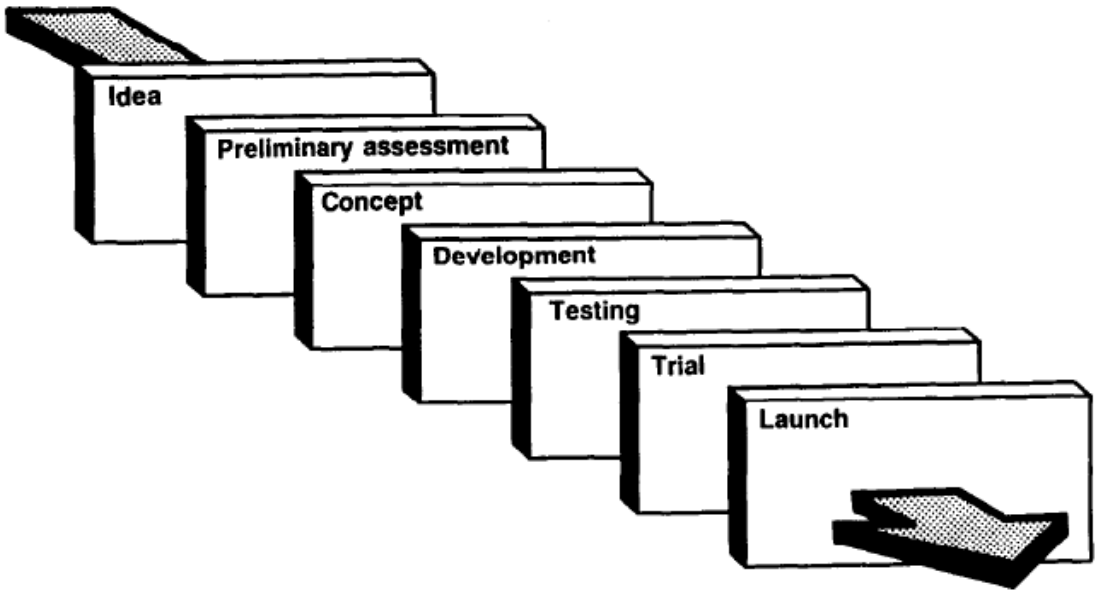

Figure 3.4 The seven-step new product process

Source: Cooper, 1988, p. 242

Cooper *(ibid)* argues that the first three stages of a seven step process (Figure 3.4) are the ones that determine new product success to the largest extent. These stages entail the following:

1. IDEA (stage 1)
    a. Idea generation
    b. Idea screening
2. Preliminary assessment (stage 2)
    a. Preliminary market assessment
    b. Preliminary technical assessment
    c. Preliminary evaluation
3. Concept definition (stage 3)
    a. Concept identification
    b. Concept development
    c. Concept test
    d. Concept evaluation

Stage one entails generating ideas and performing an initial evaluation of these ideas. Next Cooper *(ibid)* recommends assessing the market and technical feasibility of the idea. This step entails spending resources on gathering information. Cooper (1988, p. 244) expresses this accordingly:

"On the basis of the information available, spend no more than $10,000 and 15 man-days, and report back in one month armed with better information, for a more thorough project evaluation. ''

The second stage also includes a second evaluation of the idea, which involves both a qualitative and a financial analysis. The purpose of the third stage, the concept definition stage, is two-fold: 1) to make the final GO/KILL decision and 2) to define the idea's concept and strategy. The outcome of this stage should be a clearly defined concept or product with superior benefits to customers and that delivers value to the customers. This outcome should also be superior to what competitors offer their customers. According to Cooper the value and benefits of the concept must be seen in the eye of the customer. This value is offered to the customer by the product or concept features and attributions. Consequently, the customer needs to be studied in order to understand what value and benefit means to the customer. This understanding will ultimately lead to the understanding of what is the "better" concept. Since this is the stage before the product development, a stage entailing large costs, the final GO or KILL given to the ideas at this stage must consider both qualitative and financial aspects. A project protocol, which is an agreement between the marketing and technical staff, should be developed to the ideas that are given a GO. Cooper suggests that this protocol further should state the target market, the product concept, positioning strategy, product benefits, and product attributes and requirements.

3.3 Radical versus incremental innovation in the FEI

According to Brem and Voigt (2005) the determinant of final success is whether or not the FEI structure is right for the type of idea at hand. This is supported by Rice et al. (1998) who claims that managing radical innovation differs from managing incremental innovation. According to Cooper (1998) one can easily distinguish

between radical and incremental innovations by identifying the extent to which a firm must change its existing strategies and structures to handle the innovation at hand. Consequently, innovations must be assessed according to their nature, i.e. whether it is radical or incremental (Ettlie et al., 1984). Furthermore, Rice et al. (1998) claim that traditional management techniques are inappropriate for radical innovation due to the high level of uncertainty. Once uncertainty has been sufficiently reduced, management techniques used for incremental innovation can be used for radical innovation.

Reid and de Brentani (2004) suggest that incremental and radical innovation differ with regards to how problems are structured and how searches for information are initiated early in the innovation process. For incremental innovation, problem identification and information gathering can be done by the entire organization (including small groups, project teams et cetera). For radical innovation, on the other hand, information is often unstructured and gathered by individuals who are not actively supported by the organization. As a consequence these individuals become drivers of radical innovation which is in contrast to the driver of incremental innovation: the organization itself *(ibid)*. This is supported by Markides (1999) who claims that most companies do not have the organizations to support radical innovations.

3.4 Idea generation

According to Drucker (1985) knowledge of where to look for innovation opportunities and how to identify them is what determines the success of innovation. More specifically, successful innovation is the result of a thorough search for innovation opportunities. Defining the individual user needs and current product value is one suggestion as to how search fields for new ideas can be identified (Burgelman, 2004). According to Boeddrich (2004) ideas for innovation can be found within or outside a company. The following sources within the company can raise ideas: unexpected occurrences, incongruities, process needs and industry and market changes. Sources outside of a company can be: demographic changes, changes in perception and new knowledge (Drucker, 1985). Further sources of ideas are listed in Appendix V. Additionally, Björk and Magnusson (2009) state that sources of innovation, i.e. ideas, can be found anyplace where people can access information and create new knowledge. These sources could for instance include firms' research and development departments, employees, customers, collaborators, partners, and private investors. Universities and governments can also be sources of innovation. The importance of involving customers to gather new ideas is highlighted by Von Hippel (1978). Von Hippel (1986) especially emphasizes the importance of using lead users as sources for new product concepts and design data, since they often attempt to fill the need they experience.

Brem and Voigt (2009) suggest that ideas can either be collected right away or generated. Cooper (1988) suggests two means for generating ideas: creativity sessions (such as brainstorming), and contests and suggestion schemes. One type of brainstorming is the innovation jam method developed by IBM (Bjelland and Chapman Wood, 2008) which is most easily understood as a virtual brainstorming session (Helander et al., 2007). The first innovation jam was organized in IBM in the year 2001; it took place on the company intranet during three days, and generated 52 000 posts (Bjelland and Chapman Wood, 2008). Since then IBM has repeated the innovation jam many times and it has also been replicated by companies such as

Volvo Technology, Dell, Microsoft and Starbucks (Diasio and Bakici, 2010; Aronsson and Öhman, 2009).

3.5 Idea screening and evaluation

According to Kim and Wilemon (2002) there are two screening phases in the FEI. The initial phase determines what ideas should be further evaluated and the second phase determines what ideas should be developed and implemented. An evaluation process for each phase is needed to ensure that the "right" ideas are chosen. However, a process that is too rigid might lead to early exclusion of good ideas while a process that is too weak implies a waste of R&D resources by letting bad ideas continue in the innovation process (*ibid*). Rochford (1991) and Cooper (1988) also emphasize having a multistage screening process. Furthermore, Backman and Börjesson (2007) emphasize the need for recognizing the driving force (technology-, business- or customer- and market-driven) of the idea early in the innovation process. Prior to the screening the nature of the ideas should therefore be identified. Backman and Börjesson (*ibid*) further states that the ideas that are primarily customer- and market-driven should be contextualized, since these ideas are not naturally favored in technology intensive companies. Contextualizing the ideas implies describing the idea in a way that the people performing the screening can relate to and easily understand (*ibid*).

When it comes to performing the idea selection, Rietzschel at al, (2006) have found out that there is no difference in the quality of the selected ideas when the results of the nominal (individuals performing the selection) and interactive groups are compared. However, they suggest that a combination of nominal and interactive idea selection would possibly yield better results.

3.5.1 Screening methods and selection criteria

According to Rochford (1991) the first step in the screening process is to develop the selection criteria for evaluating the ideas. Rochford further recommends formulating these criteria prior to the generation of ideas. In addition, the criteria should be weighted according to importance. For instance, the criteria can be divided in "must" and "want" criteria. When formulating criteria the objective and limitations of the screening should be considered as well as company-specific objectives and success factors of the product development process. Limitations of the screening process are for instance time, cost and available information. Other factors influencing the screening process are flexibility, capability and ease of use. The number of ideas to screen and the flow of ideas are also important factors that impact the screening process. It may have to be decided whether or not ideas should be screened one by one or in groups, if ideas should be analyzed at different stages of the screening process and how long time it should take before the ideas gets commercialized. A wide range of screening methods exist, quantitative as well as qualitative (*ibid*).

Further, she argues that the more qualitative methods could be utilized early on in the screening process and the more quantitative ones later on in the process when more information is available.

According to Cooper (1988) the initial screening serves to sort out the obvious "misfits", and should be looked upon as a decision to carry out preliminary studies. Rochford (1991) recommends keeping the initial screening simple, for instance by asking the following two questions:

1. Is the idea consistent with company objectives?
2. Is the idea do-able?

Cooper (1988) suggests developing "must" criteria that the idea must pass. These criteria should include aspects such as: strategic alignment, feasibility, project size and other company specific criteria. The ideas that pass these criteria should then be evaluated to a couple of "should" criteria: expected project success and profitability, product advantage, fit with corporate resources and competencies (*ibid*).

The second screening should be more extensive, and should according to Rochford (1991, p. 294-295) include the following criteria:

1. Market
    a. Size (current and potential)
    b. Growth (current and potential)
    c. Appeal
    d. Role for the company
2. Product
    a. Uniqueness
    b. Exclusivity (patentability)
3. Feasibility
    a. Product development
    b. Technology
    c. Production
    d. Personnel
    e. Financial
4. Compatibility of Fit with respect to:
    a. Organizational infrastructure
    b. Personnel and managerial expertise
        i. Marketing
        ii. Sales
        iii. Technical
        iv. Production
        v. Financial
        vi. Customer/market needs
5. Time
    a. Needed to develop the idea
    b. Needed to commercialize
6. Financial
    a. Investment requirements
    b. Costs
    c. Profitability
7. Other
    a. Gut feel
    b. Is it realistic?
8. Probability of success

The framework suggested by Rochford (*ibid*) includes both market and technological feasibility. This is supported by Cooper (1988), who recommends assessing the market and technical feasibility of the idea. Information on the following market aspects should be gathered according to Cooper (*ibid*):

- Market size
- Growth
- Market segments and competition
- Product acceptance
- Marketing of product

The purpose of this stage is to gather enough insight into the ideas to understand whether or not it is viable in the market. However, time and budget are limited at this stage which implies that the information is based on assumptions rather than on scientific data. Cooper (*ibid*) suggests the following sources for gathering information:

- Key customers
- Focus groups with customers
- Experts such as key sales people, distributors and dealers, and industry experts
- Published and statistical material such as industry reports, association reports, et cetera

The technical assessment concerns the technical viability of the idea. The following questions should be answered:

- Can it be developed?
- What technical solutions will be required? At what cost?
- Can the product be manufactured?
- At what capital and manufacturing costs?

Cooper (*ibid*) recommends involving technical staff to assess the technical aspects, for instance by using a focus group. The market and technological assessment then serve as basis for deciding what ideas to move on with. Although, Cooper (*ibid*) recommends involving technological experts Rochford (1991) states that the only data available might be management opinion. It is important to remember that the purpose of screening is not to analyze each idea thoroughly but to decide what ideas deserves to be analyzed. The gathered information should be enough to reject ideas that have limited chances for success. Therefore, the screening process must be considered with regards to its purpose and limitations. Rochford (*ibid*) further states that numerical accuracy should not be overemphasized and that the screening process should be more qualitative than quantitative. She expresses this accordingly (*ibid*, p. 292):

"There is generally insufficient information available at this point in the new product process to calculate ROI, for example."

Finally, the rejected ideas should be saved so that they can be taken up later on when resources are available to implement the idea or when market or technology changes have occurred that make the idea a likely success (*ibid*)

In addition to the frameworks elaborated by Cooper and Rochford several other frameworks presented in the literature can be used to evaluate, conceptualize and

eventually select the ideas. Alänge & Lundqvist (2010) claim that the first step in an idea evaluation is to understand and appreciate the idea and its potential. They further state that when the idea is presented to idea evaluator, it is very easy to become judgmental rather than explorative and curious. Therefore the first rule for the idea evaluator is to be humble and open-minded towards all types of ideas. There is always something to learn about every idea *(ibid)*. Alänge and Lundqvist (2010, p. 46) suggest the following framework to evaluating ideas:

1. Describing the idea (novelty, freedom to operate, etc)
2. Generating value visions (value provided to customer, society and business)
3. Analyzing and refining market potential, further developments and financials

While the center of the framework of Alänge and Lundqvist (2010) is the technology, Blank (2006) presents a framework called Customer Development that concentrates on the customer and learning. The first phase in his model is Customer Discovery, which requires writing down all of the company's initial assumptions, or hypotheses regarding the product and the problem it solves, who the customer is, what the market looks like and how the product can be brought to the market. The next steps in this process are to test, qualify and verify the initial hypothesizes through interviewing potential customers.

Thus the following factors needs to be understood about the ideas prior to the selection of the ideas (Blank, 2006; Cooper, 1988):

- strategic alignment
- feasibility
- project size
- other company specific criteria
- driving force
- customer understanding

There is, moreover, a wide recognition of the importance of R&D/marketing integration for innovation success (Gupta et al., 1985). This implies that both technical and commercial feasibility is necessary to ensure a successful idea. Therefore the team performing this evaluation should consist of members with backgrounds of both R&D and marketing (*ibid*).

3.5.2 Selecting ideas generated in an innovation jam

The innovation jam held in 2001 by IBM generated 52,000 posts (online messages) that had to be sifted through (Bjelland and Chapman Wood, 2008). To handle this vast amount of ideas IBM used classifier software. Since this software was not error free volunteers reviewed the posts after each phase and highlighted those that seemed interesting. Once the posts had been analyzed by both volunteers and software senior executives would review the outcome of the Jam. Approximately 50 senior executives participated in reviewing the posts from the first phase and synthesizing key ideas for the second phase. An overlapping group of 50 senior executives reviewed the ideas from the second phase, deciding on which ideas to move ahead with (Bjelland and Chapman Wood, 2008).

Aronsson and Öhman (2009) propose a model for evaluating ideas generated in an innovation jam (Figure 3.5).

Figure 3.5 Illustration of evaluation of ideas suggested by Aronsson and Öhman (2009)

They recommend a cross-functional evaluation group when evaluating ideas since this would allow for broader perspectives. In order to better understand each idea, they first recommend the originator of the idea to submit a 2-pager describing the idea more thoroughly. Next, they propose clustering or grouping ideas that are similar or related to each other to narrow down the evaluation. Then, they suggest grading the ideas on a scale from one to five for each of the following criteria:

- Level of innovation (novelty)
- Business potential (when applicable)
- Feasibility

In the suggested fourth step, Aronson and Öhman suggest asking experts about their opinions of the ideas and finally deciding what ideas should be invested in. The criteria suggested by Aronsson and Öhman are consistent with the ones suggested by Ebner et al. (2009.), Table 3.1.

Table 3.1 The ideas competition: dimensions and criteria of evaluation
Source: Ebner et al., 2009

Evaluation dimension	Evaluation criteria	Description
Creativity	Originality	The degree in which the idea is novel and unique
	Degree of innovation	The idea is a new combination of factors, which can be utilized for economic benefit
Market potential	Customer benefit	The idea is practicable and creates and adds value for the customer
	User acceptance	An existing demand is met by the ideas
	Realizability	The realization of the idea is economically feasible
	Market size	The expected demand of the target market justifies the idea's realization
	Marketability	The idea can be commercialized
Quality	Comprehensibility	The idea is written in an understandable way
	Elaborateness	The length of the description if adequate
Business demands	Risk	The risk of failure is compensated by the potential benefit for the company
	Imitability	The idea is sticky to the company's products and cannot easily be imitated by competitors
Strategic Fit	Portfolio fit	The expected fit of the idea into the company's product portfolio
	Development potential	The idea is adaptable to new business requirements

3.5.3 Screening of incremental and radical ideas

Rice et al. (1998) showed that screening of incremental and radical ideas should differ in nature. Typically, the screening of incremental ideas focuses on the return to the company over a predetermined and often short timeframe. Typical questions when evaluating incremental ideas are:

- What is the profit impact?
- How fast will it grow?
- How much market share can we take?

The focus when evaluating radical ideas, on the other hand, is on the return of new value to the market. The evaluation of radical ideas is further intended to gain new insights on the market and on market learning, rather than on assessing the market. Typical questions for evaluating radical ideas are:

- What is the magnitude of the impact this technology can have on the market?
- What will this technology enable?

Rice et al. (*ibid*) also showed that the methods used for assessing the ideas varied between incremental and radical ideas. Methods for testing incremental ideas include traditional market research methods such as surveys, focus groups and concept tests whereas methods for testing radical ideas include involving lead users, senior management, technology communities, developing prototypes for customer trials (*ibid*).

3.5.4 Creativity versus feasibility

Rietzshel et al. (2010) claim that the generation of creative ideas not automatically leads to the selection of creative ideas. Several studies have found that people tend to judge familiar items more favorably than unfamiliar items. Thus, an idea that is not very original, but very familiar, may be judged more favorably than an original, but unfamiliar idea. At the same time, providing clear criteria and improving the processing of ideas will lead to better idea selection. They emphasize that unless attention is paid to the selection process, and the implicit or explicit criteria people use, innovation is likely to suffer (*ibid*). This is supported by Faure (2004) who demonstrated that people perform very poorly at selecting creative ideas, if they do not receive specific instructions. Apparently, people do not spontaneously take creativity or originality into account when selecting ideas. Rietzschel et al. (2010) showed that instructing people to select ideas that were both creative and feasible did not improve the outcome of the selection with regards to idea quality. However, the same author also showed that instructing people to choose creative ideas enhances the effectiveness of idea selection with regard to idea originality. When people are instructed to select creative ideas they favor creativity and originality over feasibility and desirability. Moreover, participants considered a creative idea to be nearly the same as an original idea. Yet choosing the most creative ideas does not necessarily imply that the selected ideas will be less feasible (*ibid*).

4 Conceptual framework

In this chapter, a conceptual framework is developed based on the theoretical literature review elaborated in the previous chapter. The framework was applied in Volvo Cars.

The conceptual framework we propose concerns the second activity in the FEI – idea selection. These activities are part of pre-development activities of the innovation process, which according to Cooper (1988) are the most important stages for a successful process. Figure 4.1 presents an overview of the context of the conceptual framework. Idea generation and conceptualization are only included to illustrate the context in which ideas are selected. The conceptual framework is primarily targeted for carrying out the idea selection during and after an innovation jam.

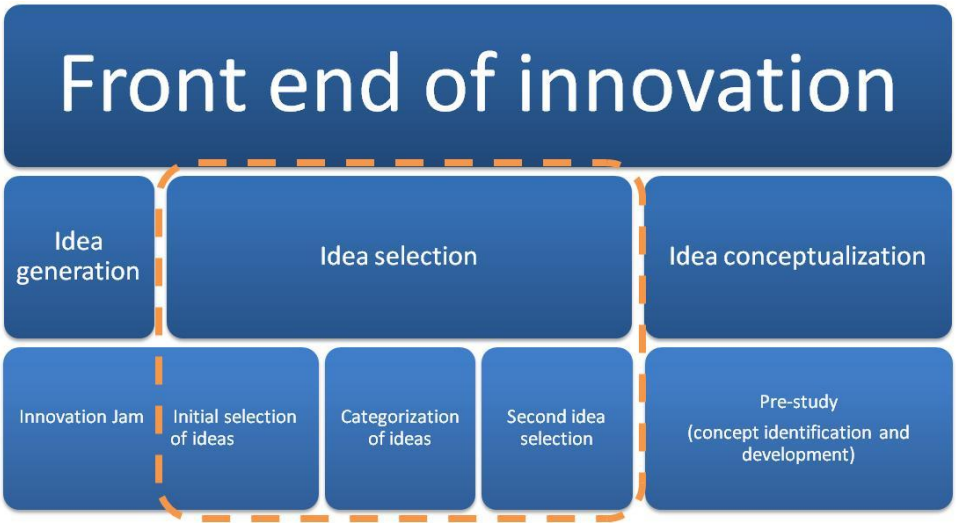

Figure 4.1 Overview of the context of our conceptual framework
Source: authors

The steps in the framework are proposed to be sequential to each other, whereby the outcome of each step is considered to be the input for the next one. Our conceptual framework is presented in Figure 4.2.

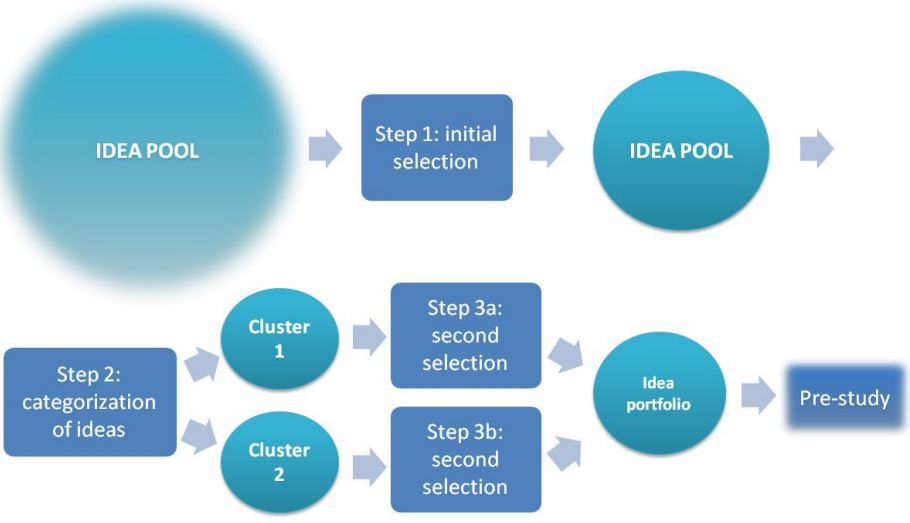

Figure 4.2 Our conceptual framework
Source: authors

Most researchers recommend a multi-stage selection process (e.g. Cooper, 1988; Rochford, 1991), since more information about the ideas becomes available over time. Thus, we suggest a three-stage framework for the idea screening and evaluation. The three stages determine what ideas should be further evaluated and thus are the main focus of this framework. However, in order to get a better understanding of the ideas that pass through the selection process and thus benefit the next stage in the FEI – conceptualization - we propose an idea template, found at the end of the framework.

The framework developed is built in a way that pursues the idea selectors to be humble and open minded as suggested by Alänge and Lundqvist (2010). They further state that the first steps to evaluate ideas are to understand and appreciate the idea and their potential and the idea evaluator must recognize that there is always something to learn from every idea. Thus, we propose a framework that does not favor any kind of ideas.

4.1 Initial selection of ideas

The purpose of the initial screening is to reduce the number of ideas in the idea pool that move on further in the process.

4.1.1 The selection process

We suggest that the initial selection of ideas need to be easy to use, since both time and information are limited at this stage. This is also supported by Rochford (1991), who recommends keeping the initial screening simple.

4.1.2 The selection criteria

According to Rietzshel et al. (2010) when selecting ideas people tend to choose more familiar ideas, which most often are incremental of nature. This implies that only the short term competitiveness of a company is assured (Leifer et al.,2000). However, in order to ensure long-term growth, radical innovation is needed *(ibid)*. Thus, we propose that the framework need to favor both radical and incremental ideas. Also as people favor creativity and originality over feasibility and desirability when they are instructed to select creative ideas (Rietzshel et al., 2010), it is probable that radical ideas will be chosen as well. Moreover, choosing the most creative ideas does not necessarily imply that the ideas will be less feasible *(ibid)*. Thus, to increase the rate of more radical ideas we propose creativity as the first selection criterion.

4.2 Categorization of the ideas

The purpose of this step is to sort the ideas into two different categories in order not to risk missing out any potentially successful ideas.

4.2.1 The categorization process

As this step is still very early in the innovation process, we suggest keeping the process for the categorization simple as well. Thus, only a few criteria questions need to be asked to categorize the ideas into groups.

4.2.2 The categorization criteria

As the literature (Rice, 1998; Ettlie et al. 1984) recommends managing incremental and radical ideas differently, the FEI needs to be adapted to the type of the idea at hand. Thus, we suggest that the ideas are sorted into two categories - incremental and radical ideas – prior further selection. Reid and Bretani (2004) claim that incremental innovation builds on existing capabilities and resources within organizations whereas radical innovation implies developing new technical or commercial capabilities thus it is suggested that the following questions are asked to categorize the ideas:

- Is this idea aligned to existing corporate strategies?
- Could this idea be implemented with easily obtainable resources in a short term perspective?

If the answer to both questions is yes then the idea is considered to be incremental. Otherwise, it is considered to be a radical idea.

4.3 Second selection of ideas

The purpose of this step is to reduce the number of the ideas noticeably, by evaluating them one by one according to the pre-determined criteria.

4.3.1 The selection process

We propose that at this stage in the selection process more time is needed to evaluate the ideas than during the initial selection; as Rochford (1991) suggests enough information should be gathered to reject the ideas that have limited chances for success. We still suggest that the selection method should be easy to use, since time is not an abundant resource, but allow for a more thorough evaluation of the ideas. Both technical and commercial feasibility is necessary to ensure a successful idea (Cooper, 1988; Rochford, 1991), which is why the framework need to take both of these aspects into account. In order to account for information regarding both market and technical aspects, we suggest that the team evaluating the ideas should consist of members with backgrounds of both R&D and marketing.

4.3.2 The selection criteria

Rochford (1991) suggests that as availability of information in this stage is assumed to be relatively low the selection should be more qualitative than quantitative. This is why we propose to use a set of qualitative questions for the second selection criteria. We suggest that the evaluation needed to consist of a set of questions that could be answered with either YES or NO. Due to the differing nature of radical and incremental ideas, the questions asked for respective type of idea need to be different. An idea with 6-8 YESs is proposed to get a green light (green post-it), an idea with 4-5 YESs is suggested to get a yellow light (yellow post-it) for further development and ideas with less YESs than 3 should be put into a *not-for-now* box. The amount of questions is limited to eight in order to not make the evaluation too extensive.

As incremental ideas typically target existing markets (Reid and Bretani, 2004) the focus of this set of questions is proposed to be on assessing the market and technological feasibility of the idea as it is recommended by Cooper (1998) and Rochford (1991). Customer benefit is also addressed, as suggested by (Blank, 2006).

In addition, the question the personal "gut feeling" question suggested by Rochford (1991) is included. The criteria questions proposed for the incremental idea evaluation are presented in Table 4.1.

Table 4.1 The criteria for the incremental idea evaluation

Evaluation dimension	Evaluation criteria	Source
Technical feasibility	Is this idea do-able? Are the resources needed for this idea easily obtainable?	Rochford (1991) Authors (inspired by Rochford (1991) and Cooper (1988)
Creativity	Is this idea new to the company?	Authors (company-specific, inspired by Cooper (1988)
Business demands	Is this idea easily imitated by competitors?	Authors (inspired by Alänge and Lundqvist (2010))
Market potential	Is this idea new to the market?	Authors (inspired by Ebner et al. (2009))
Customer benefit	Does it solve a clearly defined customer problem?	Authors (inspired by Blank (2006))
Customer benefit	Is this idea attractive to customers?	Authors (inspired by Blank (2006))
Gut feel	Does it feel like a good idea?	Rochford (1991)

As the radical ideas can create new markets or change the way an entire industry competes (Leifer, 2000), the focus of this set of questions was on the return on new value, in a variety of ways, to the market. The questions were designed with regards to customer (Blank, 2006) and market learning, and not on market assessment. In addition the question the personal "gut feeling" question suggested by Rochford (1991) is proposed to be included here as well. The criteria questions proposed for the radical idea evaluation are presented in Table 4.2.

Table 4.2 The criteria for the radical idea evaluation

Evaluation dimension	Evaluation criteria	Source
Market potential	Is this idea new to the market?	Authors (inspired by Ebner et al. (2009))
Market potential	Would this idea have a major impact on the market?	Authors (inspired by Rice et al. (1998)
Customer benefit/ Creativity	Does this idea solve a clearly defined customer problem in a (radically) new way?	Authors (inspired by Blank (2006))
Customer	Does this idea enable the company to create more value to	Authors (inspired by Rice et al. (1998)

benefit	customers?	
Market learning	Would this idea enable the company to gain deeper understanding of customers?	Authors (inspired by Rice et al. (1998)
Business learning	Does this idea enable the company to explore new ways of making business?	Authors (inspired by Rice et al. (1998)
Technological learning	Does this idea enable the company to acquire new technological knowledge or skill-sets?	Authors (inspired by Rice et al. (1998)
Gut feel	Does it feel like a good idea?	Rochford (1991)

4.4 The idea template

The purpose of this step is to provide a deeper understanding of the ideas before deciding what ideas could be turned into projects. Therefore the idea generators should be asked to describe the idea more thoroughly before the ideas are presented to management, who then decides what ideas would move on to the contextualization phase. The idea template is described in Table 4.3.

Table 4.3 The evaluation criteria for the third selection

Evaluation criteria	Evaluation dimension	Source
1. The idea Describe your idea (the main features)	To understand the idea	Authors
How would you describe the nature of your idea? Is it mainly technology-driven or customer- and market-driven?	Driving force	Authors (inspired by Backman and Börjesson (2007))
What are the benefits that the idea will deliver to customers (e.g. something new? something better? faster? cheaper?) What are the benefits that the idea will deliver to the company?	Customer understanding Benefits for company (other company specific criteria)	Authors (inspired by Blank (2006)) Authors (company-specific, inspired by Cooper (1988)
2. Customer and problem What problem does this idea solve? To whom is it a problem (e.g. the customer, the company, etc)?	Customer understanding	Authors (inspired by Blank (2006))
Why is it a problem? Is your idea a must-have solution or a nice-to-have solution?	Customer understanding	Authors (inspired by Blank (2006))

3. Market Type Is your company entering to an existing market, re-segmenting an existing market or creating a new market?	Strategic alignment	Authors (inspired by Rice et al. (1998)
4. Competition What competition exists within this market? Who do you see as the main competitor(s)?	Market attractiveness, entry barriers (other company specific criteria)	Authors (inspired by Ebner et al. (2009), Alänge and Lundqvist (2010))
5. Next steps What needs to happen before this idea can be developed?	Project size, feasibility	Authors (inspired by Rochford (1991) and Cooper (1988)
Does the technology to develop this idea exist today within the company? If yes, where? If no, how can the company obtain these? Do the competencies to develop this idea exist within the company? If yes, where? If no, how can the company obtain these? Does the production to develop this idea exist within the company? If yes, where? If no, how can the company obtain these?	Feasibility	Authors (inspired by Rochford (1991) and Cooper (1988)
Can this idea be developed in the existing business model? If not, what could the business model look like?	Strategic alignment	Authors (inspired by Rochford (1991) and Cooper (1988)
What are the next steps?	Feasibility	Authors (inspired by Alänge and Lundqvist (2010))

5 Case study

In this chapter the three studies are described more thoroughly.

5.1 Study 1: the innovation jam at Volvo Cars

The purpose of this study was to test the conceptual framework. This was done by applying the proposed framework to an innovation jam performed by Volvo Cars. This was the first time an innovation jam was ever carried out by the company. Therefore, they had no prior experience of performing an innovation jam or evaluating the generated ideas. Innovation had become more critical to Volvo Cars, and the innovation jam was the first step in a larger campaign aiming at stimulating an innovative culture within the company. The purpose of the innovation jam was to generate and select a group of ideas that would then be presented to a board of managers at the innovation forum. This board of managers would do the final selection of the ideas that will be sponsored and further developed in projects. The ambition was to turn a small number of ideas into projects. In addition to generating an idea portfolio, Volvo Cars hoped that the innovation jam could inspire employees to be more creative and foster an innovative culture within the company. The innovation jam was organized by the product planning department. One person was in charge for carrying out the innovation jam and selecting the ideas. In addition, two more people participated in organizing the event. These three people are here on referred to as the organizers.

The innovation jam took place during 48 hours in the beginning of February 2011. Since it was an online brainstorming event a chat forum was set up where employees could log in and start discussing ideas. The participants could either initiate a new discussion, a so called thread, or they could participate in already existing discussions. In order to make sure that the discussions were constructive and to help the participants of the study to develop their ideas further, 13 moderators participated in the innovation jam. On the one hand the moderators guided the online discussions, by encouraging participation and inspiring participants to be creative, and on the other hand they took part in selecting the ideas.

5.2 Study 2: contextual study of Volvo Cars

In addition to the innovation jam there is only one other explicitly defined innovation process at Volvo Cars, located within the Active Safety and Chassis unit. This process consists of idea generation events and a monthly 2-hour long selection session. A similar innovation process is also currently being developed within the Body and Trim department and it is hoped that this process will be carried out once a year. Although few innovation processes are explicit, Volvo Cars has many processes and organized activities for developing new products. The company has a long tradition of being the leading company within safety, and these processes have been developed to maintain this leading position. Two such processes that have been studied are the Needs/Means process (that is the central NPD process) and the development process of new safety features within the Safety Center. The purpose of this contextual study is to understand how employees currently look at innovation and what is considered as most important when ideas are generated and selected within the company. The proposed framework is thus not applied in this study. The study consists of an observation of the selection session at the Active Safety and Chassis unit, an interview

with the responsible for developing the innovation process within the Body and Trim department, an interview with the project leader for the Needs/Means process and an interview with technical leader working in the Safety Center.

5.3 Study 3: comparative study of other companies

The purpose of this study was to learn from other companies how the ideas generated on an innovation jam could be selected – what steps and criteria they include. Two companies were studied in order to fulfill the purpose. Volvo Technology (VTEC) is a company which is a part of the Volvo Group. VTEC is the centre for innovation, research and development in the Group, thus one of the tasks for the company is to enhance the innovation capabilities in the Group. VTEC has carried out several innovation jams during the last two years. Therefore, their learnings and experience is valuable for the thesis. VTEC was also involved in preparing the innovation jam in Volvo Cars. They helped to manage the set-up of the jam and shared their knowledge about moderating the online chats to the moderators of the innovation jam in Volvo Cars.

Another company that was studied is Lindholmen Science Park, which is an international research and development center. One of the goals of the company is to develop collaboration between industry, academia and community. Lindholmen Science Park has carried out an innovation jam once, thus their challenges and efforts could be compared with the ones that Volvo Cars experienced. The innovation jam organized by Lindholmen Science Park was somewhat different in nature than the jam in Volvo Cars. It was an open innovation jam, thus different companies and universities took part in the event. Still they needed to select the ideas, thus learnings from the idea selection are important for this thesis.

The study consists of interviews carried out with people involved in organizing the innovation jams in respective companies. In VTEC the chief project manager of innovation was interviewed and in Lindholmen Science Park it was the IT project leader.

6 Study 1: applying the framework at Volvo Cars

Study 1 entails applying the proposed framework at Volvo Cars. The framework was proposed in chapter 4 and entails the following steps: an initial selection, sorting of the ideas and, finally, a second selection. The initial selection was carried out during the innovation jam by the moderators, and the sorting of the ideas and the second selection was carried out after the innovation jam by the organizers.

6.1 Initial selection of the ideas

The innovation Jam was carried out at Volvo Cars during 48 hours and employees from all over the world participated. The online discussions were guided by 13 moderators. The moderators were given a two folded role: on the one hand they should guide the online discussions, by encouraging participation and inspiring participants to be creative, and on the other hand they should participate in the selection of ideas. Prior to the innovation jam, they were given training on how to moderate the discussions. The moderators worked in three-hour shifts, and at the end of each shift they were asked to choose the two most creative ideas. The idea, the name of the moderator and the idea generator were written on a post-it and posted on a wall according to the theme of the idea. 278 ideas were generated in the innovation jam, out of which 63 were selected by the moderators. To make sure that no good ideas were overlooked the organizers went through all 278 ideas, out of which they selected 52 additional ideas. The initial selection thus resulted in 115 ideas. All of the selected ideas were ideas that originally initiated a thread in the online forum. If an idea that had been selected resulted in further ideas, these were also added to the list as "spin off ideas". Nine spin off ideas were consequently added to the list.

6.1.1 The selection process

Most of the moderators mentioned that choosing the two most creative ideas during the innovation jam was a good way of doing the selection. For example one person said that it was good since they did the selection when they still remembered the ideas. Another reflection from a moderator was that the selection was easy and should not be more complicated. It was also mentioned that the ideas should be selected during as well as after the idea generation event in order to make sure that no ideas were overlooked. This was supported by one organizer who suggested complementing the initial selection with systematically going through all the ideas generated in the innovation jam. Another organizer suggested that while doing the initial selection the moderators could write a summary of the idea in order to benefit the selection afterwards. They could write down what the idea is about and also if they know if this is new to the company or to the market.

"So we could have almost the selection ready right after the GIG (*innovation jam*) days" – *Organizer 3*

One moderator mentioned that the selection process was dependent on the time of the session and the quality of the ideas generated in that session. Thus, this would also have an impact on the selection as well as on the actual criterion. One of the organizers also mentioned that there was an uneven flow of ideas during the different innovation jam sessions. She stated that she heard the moderators saying that there were no good ideas to choose from, which resulted in the selection of the least bad

ideas. In other sessions, on the other hand, she heard the moderators state that there were more than two ideas that they would like to choose.

When it comes to how the selection process could be improved, the moderators had a few suggestions. For example one person mentioned that the selection could be done individually at the beginning, then the results could be discussed in the group and the balance has to be found. Another moderator suggested that there should be a tool added to the process that describes how the moderator should think while making the selection.

6.1.2 The selection criteria

In general the moderators approved of creativity as a selection criterion. One moderator commented for instance that creativity as a selection criterion was good because usually the ideas are selected based on the best business case, not creativity and he actually needed to think about creativity. This was supported by the organizers who stated in their interviews that creativity as a selection criterion was a good way of doing the initial selection. One of the organizers expressed that she was surprised that the moderators did not ask how they should interpret "creativity". She thought that providing a common definition of creativity prior to the selection would not have improved the outcome of the selection. Some of the moderators suggested adding realism as well as a criterion. The moderators further suggested selecting ideas based on business aspects and potential as well as considering the customer and market aspects of the idea. Business aspects include, according to the moderators, fit to the company brand and effects on the business. Customer and market aspects include fit to customers and effects on the customers. The moderators further mentioned technological feasibility, creativity and innovation height as possible selection criteria. Further suggestions by the moderators were gut-feeling, extending possibilities, thought triggering or area specific criteria.

In the interviews, the moderators were asked about what was most important to them when selecting the ideas. This was asked to understand if the moderators had used creativity as a selection criterion. The most common answer was that it had had to be new to their awareness (see Table 6.1).

Table 6.1 What was most important to moderators when selecting the ideas
Source: authors

Criterion	Mentioned by number of moderators (n=9)
New to me	4
Realistic/feasible	3
Allows for extending spin-offs	3
New to the company	2
Original	2
New combinations of old things	1
Gut feel	1

For example one moderator said in his interview that the idea had to be something that he had not thought of before. At the same time the moderator said that the idea could

be small but still have a huge impact. The importance of realism or feasibility was also mentioned frequently by the moderators in their interviews. One of the moderators said that for him it was important that there was a realistic chance that Volvo Cars could do something with the idea. Another moderator commented that the idea had to have some connection to what Volvo Cars is doing today. The fact that an idea could have more than one possible implementation or allow for spin-off ideas was just as important as realism to the moderators. Being original and being new to the company was equally important according to the moderators. One moderator mentioned in the interview that it was important that existing ideas are put into new contexts. Also it was mentioned once that the idea had to feel good, thus the gut feeling was recognized as important.

Since the moderators were asked to select the most creative ideas it could be argued that their answer to the question about what was most important to them is how they would describe a creative idea. In order to verify if they did prioritize creativity as a selection criterion we asked them to describe a creative idea. It turned out that *new to me* was only mentioned once whereas *new combinations of old things* was mentioned most times by the moderators (Table 6.2).

Table 6.2 Definition of a creative idea
Source: authors

Characteristic	**Mentioned by number of moderators (n=9)**
New combinations of old things	4
Opens up for new possibilities	1
New to me	1
Difficult today, but possible in the future	1
Development of an existing idea	1
Stimulates people to think in different directions	1

Some specific examples from the moderators include using existing things in a new way, putting two old ideas together in a new way, using technology in a new way and combining different areas. One moderator described a creative idea as an idea that opens up new possibilities for people, for business and for technology. The aspect of "newness to the moderator" was also mentioned by one person. Other characteristics that were suggested when describing a creative idea included: "difficult today but possible in the future", "development of an existing idea" and "an idea that stimulates people to think in a different way". Finally, the moderators were asked some questions regarding the implementation of the ideas. If the moderators have predetermined expectations on how the ideas generated in the innovation jam will be implemented it is possible that they will take these expectations into account when selecting the ideas. Feasibility and commitment to the idea were considered to be the two most important aspects for an idea to be implemented. For example two moderators said that the technology for implementing the idea needs to exist. It was also suggested that the idea should be instantly recognized as achievable and that the right competence, resources and implementation plan should exist in order for an idea to be feasible.

According to the moderators, commitment includes for example people who believe in the idea. The person pushing for the idea should further be stubborn and full of willingness and energy. Pushing for an idea should also be an occurring event. Some moderators also thought that business orientation and organizational support are important in order to implement an idea. For example it was claimed that the idea should be profitable in a very early stage. It was further suggested that more difficult ideas must have top-management support and that the ideas should be directed to the right people. Also in order to get the ideas from the innovation jam implemented it was suggested that the idea generators should be supported by the mentors or coaches. One moderator mentioned that timing also is important when it comes to implementing the ideas.

Most of the moderators think that implementing the ideas is the responsibility of specific departments. For instance one moderator commented that not everybody should think about everything. Another comment was that the responsibility should be divided according to areas. Also many moderators thought that in the case of idea generation events the ideas should be implemented by the lead of the department that initiated that kind of event. Thus, in the case of the innovation jam it was seen as a responsibility of the Product Planning department. At the same time some moderators suggested that the responsibility of implementing the ideas lies on everybody. For example one moderator explained that having limited resources and a lot of pressure is not easy to get around, and therefore everybody should implement the ideas. In addition one person mentioned that a good idea needs support, but be able to stand by itself as this was, in his eyes, the definition of a good idea. It was also suggested that management is responsible for implementing the ideas.

6.2 Categorization of the ideas

The sorting of the ideas consisted of two 2-3 hour sessions aiming to categorize the ideas into two groups, namely radical and incremental ideas. This categorization was carried out by the organizers and one of the moderators. Prior to the sorting they had never heard the concepts of incremental and radical ideas. We therefore participated in this sorting session not only as observant but also to help clarify these concepts and other questions that arouse during the sorting process. The following definitions of radical and incremental ideas were used in the sorting process (as proposed by the conceptual framework):

- Is this idea aligned to existing corporate strategies?
- Could this idea be implemented with easily obtainable resources in a short term perspective?

6.2.1 The categorization process

At the beginning of the first session the categorizing questions were explained by us, and discussed by the group of organizers and the moderator. Then, the sorting started. Each idea was first read out loud by one of the evaluators. The idea was also projected on to a wall so that everyone could read it. Each idea was described according to what name the idea giver had given it during the GIG. In order to understand the idea, the discussion "thread" was identified and read. In the cases where new ideas had been generated as a result from the discussion, these ideas were added to the list of ideas as "spin-offs". Furthermore, ideas that were similar to one another were grouped together. One problem that arose was that the ideas were described and developed to

different extents. Another problem was that some ideas were mere statements or complaints. As a consequence, the evaluators in some cases had to figure out what was meant by the idea to be able to categorize it. A second consequence was that some ideas were not considered to be ideas at all by the organizers and were rejected immediately.

During the categorization of ideas, the organizers tried to reduce uncertainty by discussing the ideas deeper. As a result, some of the ideas were further developed and interpreted by the evaluators. Uncertainty was thus actually increased as the evaluators could not be sure if the idea provider had had the same way of thinking. There thus seemed to be a need for more detailed descriptions of the ideas. The organizers agreed on most of the ideas, possibly indicating that they had a similar mindset. However, some ideas required more elaboration and caused disagreements among the organizers. This was especially true in the cases where the idea was not fully elaborated.

6.2.2 The categorization criteria

In the interviews with the organizers, they all said that they were pleased with the way of sorting the ideas into incremental and radical before the evaluation of the ideas. They stated that evaluating radical and incremental ideas need different mind sets. For example, when evaluating radical ideas a person needs to be open-minded. One of the organizers also said that incremental and radical ideas should be developed completely differently.

"It was good with the incremental to ask if it is in-line with the strategy we have right now or is it in the market we move today and if its not it is radical" – *Organizer 3*

The evaluators sometimes had difficulties categorizing the ideas into radical and incremental. The extent to which an idea was considered radical seemed to depend on the extent to which the idea could be implemented. This was especially true for ideas that were not clearly described or fully understood by the evaluators. In other cases, parts of an idea could be radical while other parts were incremental. For instance, the technology is not radical but the use of the technology is. These kinds of ideas were hard to categorize. The word radical was at times replaced with the word new, indicating that the evaluators did not fully understand the concept of a radical idea.

One of the moderators admitted that the sorting process should probably go faster. She mentioned that the sorting process sometimes was inhibited by discussions on whether an idea was radical or not. She also implied that the definition of radical and incremental ideas may need to be expanded:

"If it *(the idea)* is difficult to run through the decision point *(the managers)* is it then a radical one or not?" – *Organizer 2*

On the other hand, the need for discussions was emphasized by the organizers since some of the ideas were easier to determine and others were more difficult. The same organizer further mentioned that the division to incremental and radical made a lot of sense later in the evaluation process.

"I think it made a lot of sense, when we came to the innovation forum, when we could say that we have the easy ones and the harder ones" – *Organizer 2*

"I think we should keep it *(the division to incremental and radical)* in the mind for further on" – *Organizer 3*

To sum up, the sorting resulted in 39 radical and 70 incremental ideas. The nature of some ideas was hard to determine and the organizers therefore decided to evaluate them as both radical and incremental ideas. 6 ideas were therefore evaluated twice. Table 6.3 presents how many ideas were selected by each moderator or organizer at the end of the initial selection and how many radical and incremental ideas they selected respectively.

Table 6.3 Idea selection of moderators and organizers
Source: authors

Selected by	Incremental/Radical	Incremental	Radical
M1		3	1
M2		4	1
M3		4	
M4		5	1
M5			4
M6		5	
M7		5	1
M8	2		2
M9	2	3	2
M10		4	4
M11		2	4
M12		1	1
M13	6	2	1
O2		18	16
O3		19	8
Spin offs		5	4
SUM	10	80	50

The table shows 140 ideas, which is more than the actual number of ideas (115) that were selected in the first place. This is because the table shows the ideas selected by each moderator and ideas were sometimes selected by more than one person, thus being calculated more than once.

6.3 Second selection of the ideas

The second selection consisted of two steps: first, the organizers evaluated all of the 115 ideas according to the criteria proposed in the conceptual framework and second, a group of moderators were asked to evaluate 32 ideas, out of which 22 were incremental and 10 were radical, that the organizers were unsure of.

The evaluation made by the organizers entailed four 2-3 hour sessions. None of the organizers had any prior experience of evaluating ideas. Furthermore, the questions used as criteria were especially developed for this occasion and had thus not been tested before by the organizers. Concepts like innovation, idea management and business model were also fairly new concepts to them. Thus, our role in this process

was not only to observe but also to clarify the questions that arose. The organizers used the evaluation criteria proposed in our framework.

The evaluation made by the moderators entailed one 2-hour long session. Three moderators participated in this session. They evaluated the incremental ideas according to the following criteria:

1. Is this idea new to the company?
2. Is this idea new to the market?
3. Does it feel like a good idea?

The radical ideas were evaluated according to the following criteria:

1. Is this idea new to the market?
2. Does this idea enable the company to acquire new technological knowledge or skill-set?
3. Does it feel like a good idea?

These criteria were selected by the organizers from the proposed framework because they believed the moderators could contribute the most by answering these questions. This was thus not part of the framework. Before the evaluation was carried out the purpose of the session (to evaluate ideas that the initial evaluators were unsure about) and the evaluation criteria were explained to the moderators. This was done by organizer number three who was also the one moderating this session. No information was given to the moderators on how to think when doing the selection. One of the organizers read each idea out loud and then guided the moderators in evaluating the ideas.

6.3.1 The selection process

The process of answering the questions enabled discussions among the organizers and was quite efficient. Some of the questions caused more discussions among the organizers than others. The question regarding gut feeling was especially discussed, in particular during the initial sessions. Another question that was discussed was: is this idea new to the company? Since the organizers came from the same department they had limited knowledge of what has been done in the whole company, and thus did not always have the necessary knowledge to answer this question. Consequently, some of the ideas needed additional verification. This verification was provided by the moderators who recognized most of the incremental ideas, and they claimed that some of the ideas had been suggested before but were not well received in the organization. Overall, the moderators contributed with knowledge that was not known to the evaluators during the initial evaluation. For example they knew what had been tried in the company and what was done by other companies and organizations.

Sometimes, the organizers seemed to struggle with keeping an open mind towards the ideas. They particularly seemed to struggle with seeing possibilities (keeping an entrepreneurial mindset) of the idea. Instead they sometimes ended up in discussions on how difficult it would be to implement the idea. At the same time they were aware of this and tried to remember each other her to focus on the potential of the idea. Also the moderators seemed to focus on how the idea could possibly be implemented; especially on problems to implementing the idea. They also came up with their own suggestions of solutions to each idea. However, they were reminded to not focus on

this by one of the organizers. When the moderators were asked if it felt like a good idea, they seemed to base their answer to whether or not they believed the idea could be implemented or not. They ended up in discussions concerning what needs to be done in order to implement the idea. One of the moderators said the following:

"I think it is a good idea, it seems so easy to implement" – *Moderator number 7*

It was noticed that both the organizers and the moderators tended to influence each other. For instance, at one time one moderator exclaimed:

"This is YES, YES, YES on good idea" - *Moderator number 7*

Meanwhile the other moderators stayed silent. Without asking these moderators how they felt about the idea one of the organizers wrote yes to the third evaluation question and moved on to the next idea. However, the moderators did not object.

When the radical ideas were evaluated by the organizers the ambiance in the room was more energetic than during the previous sessions. There was less concentration on implementation and more focus on the possibilities; more "visionary" thinking occurred, meaning that the organizers started coming up with new spin-off ideas themselves. It was also noticed that some of the ideas were re-interpreted, further developed and changed during the selection process. The organizers went back to the original idea several times while going through the ideas. There seemed to be difficulties with distinguishing between the ideas. The discussions from previous sessions seemed to be forgotten and sometimes mixed up. One of the organizers stated that it was hard to be neutral towards ideas that are related to their, i.e. the organizers' area of expertise because they are colored by earlier discussions and their knowledge about their department and what have been tried and done before. The evaluation of the radical ideas was more efficient and caused less discussion among the organizers than the selection of the incremental ideas.

Also the moderators became more and more creative themselves as time moved on and discussed possible spin off ideas. This seemed to be most true for ideas that they could relate to themselves. Relate to in this case refers to having experienced the problem the idea tries to solve. The energy in the room also got higher when they evaluated the radical ideas. As one moderator mentioned:

"The radical ones are more fun" - *Moderator number 7*

The evaluation performed by the organizers sometimes seemed rushed, and the time dedicated to each idea was limited. The organizers stated in the interviews that the evaluation of the ideas took too much time and was tiring. The main reason for this was the selection criteria.

"They *(the selection criteria)* were too many I think. At the end, when you sit there and should question all the ideas that has taken a lot of time"- *Organizer 3*

One organizer wondered if the process would have been more efficient if the selection had been done individually.

"Is there a point of sitting in a room and discussing all the ideas together, or should somebody prepare, then pre-read and then discuss where you don't agree" – *Organizer 2*

At the same time the organizers thought that having selection criteria is important.

"I think it is essential to have some kind of criteria when the evaluation is done. In the end when you are very tired at least you can focus on how you have to think" – *Organizer 1*

All organizers said in their interviews that the ideas should be selected by a group that consists of people with different backgrounds and broad knowledge as well as of experts. Two of the organizers agreed that a person can be more open to the ideas that are outside the area (s)he normally works in. Also one mentioned that the customers could be included to the selection process as well. In addition to the various backgrounds, the people selecting the ideas should be open-minded, curious and have some common sense according to the organizers. One organizer suggested that the person should understand if the idea has potential market or customer attractiveness. Another organizer proposed that in order to benefit the process the people with the "right" mindset should be used from the very beginning. She suggested using the moderators throughout the selection process as their minds are tuned from the start of the Innovation Jam and they do not need too much training afterwards.

One organizer said that before the selection the mind-sets of the selectors should be tuned. She emphasized the importance of pre-evaluation training and dummies.

"Having a dummy evaluation with something that is completely different, just to start think that this is how I think when I use the evaluation tool. This could be good, because we still go to the evaluation with our different mind-sets, we apply the tool from our own perspective and not from the common agreement perspective" – *Organizer 1*

One organizer suggested the selection process to be more physical.

"Maybe the complete evaluation session should be more of physical where you sort of go to different stations to evaluate much more narrow area. And if you do it physically it also becomes not such a routine, so you get more feel into the evaluation session. And then you can have all these ideas and you take one idea at the time and just gut feeling criteria or just feasibility criteria. That might give different indication whether it is good or not. So if you take one idea and really move in the room" – *Organizer 1*

6.3.2 The selection criteria

Difficulties with interpreting the questions used as evaluation criteria occurred in the evaluation sessions. This happened for both the organizers and the moderators. For example the question - what does making business mean? - was asked by the organizers. For the moderators, it became apparent that question number two for the radical ideas was insufficient. The question excluded other types of knowledge or skill-sets than technological. This was also noticed by one of the organizers who in the cases where other types of knowledge, for instance business model, could be acquired made a note. Furthermore, this question was interpreted as following by organizer number three: do we need to have/acquire new technological knowledge? Focus seemed to be more on what needed to be obtained instead of what could be learned from developing the idea. At the end of the evaluation session one of the moderators suggested adding a time-perspective on the ideas to get an understanding of how much time it will take to implement the idea and create realistic expectations. He suggested asking: does this take 5/10/20 years to do?

The following question: are the resources needed for this idea easily obtainable? was another question that seemed problematical to the organizers. Moreover, the notion of resources was interpreted differently by each organizer. To one organizer it meant financial support, to another competence and knowledge, and to the third it meant business-thinking in the company. The organizer who perceived resources as financial support also included management support and culture to her definition. She repeatedly answered that the money for doing this idea existed within the company but it was not easy to get management approval. This question was thus rephrased and divided into the following two questions:

- Is this idea technically do-able?
- Are the competence and the principal of tools etc already in-house?

When it came to the selection criteria the opinions of the organizers somewhat differed. One of the organizers was generally very satisfied with the questions, but still suggested doing some corrections in the selection criteria.

"I remember there was a problem with some of the incremental ideas coming up with quite a lot of yes' but it was already an old idea. So I think if we say no to "is it new to the company" but everything else is yes, then it comes high up to the list. There is something here between innovative height and commercial feasibility, that if the commercial feasibility is yes yes yes and you have no on "is this idea new to the company", then it is probably an idea to take up again. But if it (commercial feasibility) is not all yes and this is(new to the company) no, then perhaps there was a good reason why we said no the last time."- *Organizer 2*

She stated that the aspects of commercial feasibility are more important than the other aspects. She also suggests that the part of technical feasibility should be removed from the incremental criteria, as for example the question "are the resources easily obtainable" is defined by the definition of incremental idea, which, she says, implies that the question would be "yes" for every incremental idea. Instead, she proposes to have questions about decision making and culture.

When it comes to the radical ideas, the same organizer claimed that it was difficult to do it only with three people. The process needs absolutely to go quicker and that is why they need the right people in there.

"We would have liked to have somebody from the market intelligence or somebody who knew about what was on the market or not. So that was difficult to tell at the time, so we had to check some stuff afterwards, will this idea have a major impact on the market…" – *Organizer 2*

She also suggested rephrasing the question: "Would this idea enable the company to gain deeper understanding about customers?" with "Would this idea enable the company to learn about customers?" or "Does this idea enable the company to explore new customers?"

At the same time she emphasized that most of the questions were very good.

""Does this idea solve a clearly defined customer problem?" I think that is a good one, there we discussed whether it is a problem or just a thing that is nice to have. And when we decided whether it was a problem or not, it was much easier" – *Organizer 2*

On the other hand, another of the organizers suggested only using four criteria questions and asking the same questions for the incremental and the radical ideas. According to her this would make the process easier and less time consuming. She suggested removing the "hard" questions:

"It is really hard, for example with the question, "is this technically doable?" That's a tough one, because you have to have so much specific knowledge in that specific area, so you have to have technical specialists from each and every department and that would be thousands of people" – *Organizer 3*

According to her the four most important questions are:

"If it's *(the idea)* new to the company? If it's *(the idea)* new to the market? Could it be easily copied or imitated by competitors? If it's good or a bad idea?" – *Organizer 3*

She further stated that the last question was the most important and that it should be weighted twice as much as the other ones.

"I think you should have a lot of people and you should go through a range of ideas, explain the ideas and just ask, does this feel like a good idea? Yes/no. And then you have a sort of voting system in the room, where people from different parts of the company vote" – *Organizer 3*

At the same time another organizer had an opposite opinion:

"I think gut feeling, it's a little bit alien to where we are right now" – *Organizer 1*

Instead, the later organizer suggested including criteria that concerns the business model, for instance if the idea impacts the business model in a good way, and the customers, e.g. if the idea is customer beneficial.

The third opinion about the "gut feeling" question was that different experience is needed when answering this question for incremental and radical ideas. When answering the question about the first group of ideas, the evaluator can use his/her previous experience and thereby tell if it is a good or bad idea. This cannot be done for the radical ideas, according to the organizer, since there is no prior experience to base your decision on. Instead, being open to new ideas is needed when evaluating the radical ideas.

"Here in the incremental idea you look at that a good idea is something you can tell directly whether it is sound with customers and you probably can make money on that. In this part it is more, the good idea is that has an interesting touch or is it something you have never done before, it is another type of good idea. I am just concerned that we call it exactly the same, that we treat it the same." – *Organizer 2*

For the radical ideas, she suggested to replace the question about gut feeling with one or one similar to one of the following: "Is it potentially a good idea?" or "Does it feel like an interesting idea?".

The organizers also commented on the set-up of the selection in their interviews. They suggested that the second selection and evaluation of the ideas could be done by the moderators, since they already have the experience and necessary mind-set to evaluate the ideas. Another proposal was that a customer group could be used to evaluate the ideas from a user perspective.

Comparing the moderators' answers to the organizers' (see Table 6.4) showed that the moderators and the organizers basically had the same opinion on how they felt about the idea, regardless of the idea was radical or incremental. The same was true for question number five for the radical ideas. For the incremental ideas, the consensus for questions number one and five was about fifty-fifty. The same accounted for question number one for the radical ideas.

Table 6.4 Comparison of organizers' and moderators' evaluation of the ideas
Source: authors

Incremental ideas	Same answer	Different answer	Radical ideas	Same answer	Different answer
Question 1	12	10	Question 1	6	4
Question 5	13	9	Question 5	8	2
Question 8	19	3	Question 8	8	2

6.4 Additional filtering of the ideas

After the moderators had done their evaluation, the ideas with the highest scores were identified. This resulted in 18 ideas that were presented to a group of people within the product planning department who had been part of organizing the innovation jam. Two ideas were rejected by this group of people because it turned out that these ideas were not new to the company. One idea had already been investigated (the year before). More importantly, it had been investigated by the leader for the innovation forum. Interestingly, this idea had received the highest ranking possible, eight YES, in the evaluation of the idea (it was also the only idea to receive eight YES). Three ideas were considered too much related to each other were therefore merged into one idea. This was also the case for two other ideas that were also merged together. This resulted in a list of 14 final ideas. Six ideas out of 14 were radical and eight ideas were incremental. This part was not proposed in the framework but performed by Volvo Cars since they found it necessary to do so.

Table 6.5 presents an overview of the final ideas, who it was selected by and how they were evaluated. The number one in the table represents a yes while a zero represents a no to a question.

Table 6.5 Overview of the final 14 ideas
Source: authors

Nr	Type	Selected by	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	SUM
1	I	M3	1	1	1	0	1	1	1	1	7
	I	M7	1	1	1	0	1	1	1	1	7
2	I	M3 M6	1	1	1	0	1	1	1	1	7
3	I	O3	1	1	1	0	1	1	1	1	7
4	I	O3	1	1	1	0	1	1	1	1	7
5	I	M7	1	1	1	0	1	1	1	1	7

6	I	M5	O2	1	1	1	0	1	1	1	1	7
7	I	M6		1	1	1	0	1	1	1	1	7
8	I	O2		1	1	1	0	1	1	1	1	7
	I	O3		1	1	1	0	1	1	1	1	7
9	R	M5		1	1	1	0	1	1	1	1	7
10	R	M13	M10	1	1	0	0	1	1	1	1	6
11	R	M5		1	1	0	1	1	1	1	1	7
	R	M11		1	1	0	0	1	1	1	1	6
	R	M13	M10	1	1	0	0	1	1	1	1	6
	R											
12	R	M13	M9	1	1	1	0	1	1	1	1	7
	R	M13		1	1	1	0	1	1	1	1	7
13	R	M9		1	1	0	1	1	1	1	1	7
	R	O3		1	1	0	0	1	1	1	1	6
14	R	M2	M5	O2	1	1	1	0	1	1	1	1	7

Among the final ideas eight moderators and both organizers are represented. However, two are more present than the others with four selected ideas each: organizer number three and moderator number thirteen (Table 6.6).

Table 6.6 The selectors of the final ideas
Source: authors

Selected by	I	R	Sum
M1	0	0	0
M2	0	1	1
M3	2	0	2
M4	0	0	0
M5	1	3	4
M6	2	0	2
M7	2	0	2
M8	0	0	0
M9	0	2	2
M10	0	1	1
M11	0	1	1
M12	0	0	0
M13	0	4	4
O2	2	1	3

O3	3	1	4
SUM	12	14	26

When the final ideas had been identified the idea generators were contacted and asked to fill in a one-pager with additional information about the idea. The one-pager was a version of the idea template proposed in the framework (and is therefore not repeated here but is found in appendix VI).

7 Study 1: analysis

Nothing in the findings indicated that the steps in the selection process should change. The analysis is therefore divided according to the steps in the selection process: initial selection of ideas, sorting of ideas and second selection of ideas. The focus of the analysis is on what worked well and on what could be improved or changed.

7.1 Initial selection of ideas

Here, most moderators and organizers approved of creativity as a selection criterion. They further agreed that choosing the ideas during the innovation jam was a good way of doing the selection, and on that the selection process should remain simple.

7.1.1 The selection process

Both moderators and organizers suggested complementing the selection performed by the moderators. This could be done by going through all the ideas generated in the innovation jam in order to make sure that no good ideas were discarded too early (which in fact was done). It was moreover pointed out by both moderators and organizers that the quality of the selection depend on the amount of good ideas in each session. Therefore, the initial selection should be flexible, for instance the moderators could be instructed to choose one to three ideas per session.

One moderator proposed extending the individual selection made by each moderator with a group discussion of the ideas. However, previous research has shown that selecting the most creative ideas is best performed individually. Group discussion should therefore not be included in this stage of the selection process. One of the organizers suggested that the moderators should write down what the idea is about and also if they know if the idea is new to the company or to the market. This would probably benefit the second selection process, since it would reduce errors when answering the questions and the number of discussions to understand the ideas. Although this would facilitate the selection process it would not increase the understanding of the ideas (which there was observed a need for in the later stages). Instead of answering the evaluation questions the moderators could for instance answer the following questions about each idea:

- What is the description of the idea?
- What (customer/business) problem does the idea solve?

However, answering questions about the ideas would make the selection more time consuming. The benefit of describing the ideas during the initial selection should therefore be weighed against the increased complexity of the process.

7.1.2 The selection criteria

In addition to creativity as a selection criterion, realism (or feasibility), business and customer aspects, and gut-feeling were also suggested. Since the facility of the process was stressed by both moderators and organizers there should not be too many criteria (as this would make the selection more complex). Moreover, since the suggested criteria are all covered in the second selection of ideas, creativity should be kept as the single criterion at this stage.

The moderators prioritized ideas that were new to them, feasible and had many possibilities when selecting the ideas. Feasibility, however, was not mentioned by any of the moderators when they were asked to describe a creative idea. Instead, a creative idea was described as something that could be difficult today but possible in the future. This is contradictory to the fact that feasibility was considered important when choosing the ideas which implies the moderators did not base their selection on creativity (as was instructed). Therefore, training should be given to the people performing the selection. However, Rietzschel et al. (2010) state that no definition of creativity should be given when selecting ideas. At the same time Alänge & Lundqvist (2010) emphasize an open mindset and willingness to see the potential in each idea. This would imply that no definition of creativity should be given in the training, but rather the moderators should receive training to see the possibilities of each idea. It should, however, be noted that this was the first time that the moderators ever performed a selection and the focus on implementation could merely be a consequence of that. Regardless the reason, the moderators need training on selecting ideas prior to the actual selection.

7.2 Categorization of ideas

The organizers were satisfied with categorizing ideas into radical and incremental, however, they pointed out that the process should be faster.

7.2.1 The categorization process

It is possible that the process will be faster next time due to the following reasons:

- This was the first time the organizers used this framework, and thus they were not used to it
- This is a new framework and the definitions may not be exhaustive or the framework itself may not be adequate
- This was the first time they heard the notions of incremental and radical ideas, and therefore many discussions centered around understanding the definitions
- The ideas were not described to the same extent, which resulted in lengthy discussions trying to understand the ideas

If the sorting is not performed by the same people, some kind of training needs to compensate for the lack of experience. This training should entail explanations of the process and the definitions. The definitions should also be discussed by the people sorting the ideas to make sure that they are understood and interpreted similarly. What radical and incremental innovation means and their impact on the innovation process also need to be explained for the same reasons. One organizer mentioned that the sorting did not make sense to her until when she evaluated the ideas, which is why the

sorting step should be related to the following steps of the selection process. She also said the sorting made sense when they presented the final ideas to the board of managers at the innovation forum, since they could tell the managers that some ideas were easier and some were harder. The training should also entail some sort of "dummy"-sorting, i.e. they should test sorting (fake) ideas prior to actual sorting. The ideas tested should represent radical, incremental and ideas that are harder to determine to get a sense of the discussions that may occur.

It was observed that the people sorting the ideas risk getting tired and start arguing with each other if the sessions are longer than two hours. Deeper understanding of the ideas prior to the sorting should also be considered as this will mitigate the discussions. It has been suggested that the moderators could answer questions about the ideas during the initial selection. Another way is to answer these questions during the sorting session. However, the latter would result in longer sorting sessions. Yet another way to facilitate the categorization is to have the moderators perform the sorting since they already have a good understanding of the ideas. This could for instance be done when they perform the initial selection. A third way is to accept that the ideas at this stage are not fully developed but are rather seeds of an idea and should therefore be treated as such. This would imply accepting that there is no exact way of determining if the idea is radical or not, and look at the sorting criteria as an aiding tool rather than an exact tool.

The final sorting of the ideas showed that most moderators and one organizer favored incremental ideas over radical (Table 6.6). Only five out of 15 moderators and organizers selected more radical than incremental ideas or equally many radical as incremental ideas. It could be argued that not everyone should choose radical ideas but a more balanced group of people would probably generate a more balanced amount of radical and incremental ideas (70 ideas were incremental and 39 radical). Table 6.6 could be a valuable tool for evaluating the initial selection and the people performing this selection. For instance, it could be argued that the moderators that identified the most radical ideas in the initial selection should evaluate the radical ideas since they recognized the potential in these ideas. Likewise, the moderators that identified the most incremental ideas (according to the same table) could be good candidates for evaluating the incremental ideas.

7.2.2 The categorization criteria

Although the organizers approved of categorizing the ideas into radical and incremental, they stated that the definitions of incremental and radical ideas should be expanded. In addition to corporate strategies and processes, they identified culture and norms within the company as barriers to implementation for ideas. The following changes to the criteria were therefore suggested:

- Is this idea aligned to existing corporate strategies?
- Is this idea aligned with existing corporate processes?
- Is this idea aligned with current norms and company culture?

These questions also got support from the moderators, although they were not directly asked about these questions. Instead they were asked what they believed were the most important aspects for an idea to be implemented. Since an incremental idea is easy to implement by definition, understanding what gets an idea implemented in a company is therefore relevant when defining the sorting questions. The moderators

considered that technological and organizational feasibility are the most important aspects for an idea to be implemented. Technological feasibility is not taken into account here, however, organizational feasibility is. Since technological feasibility is considered in the second evaluation there is no need to further rephrase the questions. The moderators also stressed personal commitment, i.e. someone pushing for the idea, and that implementing the ideas is the responsibility of the departments. These are issues that definitely should be considered in the evaluation process; although, the question is *when* in the evaluation process it should be considered. This is a question of priority, i.e. what comes first, the commitment to an idea or the idea itself? In the case of Volvo Cars, the ideas were given priority but in the case of VTEC (see chapter 10.1) commitment was given priority over the ideas.

7.3 Second selection of ideas

In general, the organizers liked the criteria but expressed a desire for a more efficient way of doing the selection.

7.3.1 The selection process

The organizers stated that the evaluation of the ideas took too much time and was tiring, which would motivate shorter sessions. One organizer suggested performing the selection individually and then discussing the results in group. This is supported by the observation that the organizers tended to influence each other, which also happened in the second selection performed by the moderators. Research also suggests that a combination of individual and interactive groups is more effective and may result in higher quality of the selected ideas (Rietzschel et al, 2006). Moreover, all organizers suggested that the people selecting the ideas should have different backgrounds and include both generalists as well as experts. This would probably facilitate the process since it would reduce uncertainty and diminish the risk for rejecting good ideas or selecting bad ideas. This is also supported by the comparison made of the organizers and moderators answers which showed that their answers regarding technical or market knowledge differed for half of the ideas. Since not all of the ideas were evaluated by both moderators and organizers, this could imply that the ideas only evaluated by the organizers were not evaluated correctly.

The organizers said that, in the case of Volvo Cars, the moderators should perform the second evaluation since they had both market and technical backgrounds but also experience of selecting ideas. It was further said that people with the "right" mindset should be used in the process; the right mindset was described as open-minded, curious and have some common sense. It was also suggested that the person should understand if the idea has potential market or customer attractiveness. They further stated that evaluating radical and incremental ideas need different mindsets. This could imply that the people evaluating the ideas should have different mindsets and consequently different groups of people should evaluate the radical ideas. For instance, the people evaluating the incremental ideas could have prior knowledge/background in developing purely incremental projects whereas the people evaluating the radical ideas could have background in more exploratory projects.

Ultimately, the people performing the selection not only needs training but the background of the person needs to be considered to make sure that people with different backgrounds, for instance technical versus market backgrounds, are involved in the evaluation process. One organizer also suggested the selection process to be

more physical which could be a good way to keep up the energy level among the participants in the session. Furthermore, the sessions should not be more than two hours long.

7.3.2 The selection criteria

One question that was not considered sufficient by the organizers was the following for the incremental ideas:

- Are the resources needed for this idea easily obtainable?

The problem here was the use of the word resources, which the organizers all interpreted differently. The question was therefore rephrased accordingly:

- Is this idea technically do-able?
- Are the competence and the principal of tools etc already in-house?

The following question for the radical ideas was considered insufficient by the moderators as there can be other types of knowledge or skill-sets than technological, for instance business model:

- Does this idea enable the company to acquire new technological knowledge or skill-sets?

This would motivate a rephrasing of this question or adding a complementary question taking into consideration business model skill-sets. One of the moderators suggested considering the time perspective for implementing an idea when evaluating the ideas. This could increase the understanding for radical ideas and that they take longer time to implement. Therefore, the time perspective should be added to the evaluation criteria, for instance:

- Could this idea be implemented within less than 5 years? (for incremental)

The following incremental evaluation question was also rephrased so that a yes to this question would be positive (since it is the number of yes's that are counted):

- Is this idea easily imitated by competitors?

Instead the question was rephrased accordingly:

- Is this idea hard to copy or imitate by competitors?

However, when studying the ideas that were finally chosen it turned out that all of the incremental ideas received a NO on this question (Table 6.5). One of the organizers confirmed this by saying that incremental ideas are just small changes and therefore are easy to imitate by definition.

One organizer also suggested rephrasing the question: "Would this idea enable the company to gain deeper understanding about our customers?" with "Would this idea enable the company to learn about customers?" or "Does this idea enable the company to explore new customers?" It was also suggested to include criteria concerning the business model and the customers. Interestingly, when studying the final ideas this question received a NO for most of the (radical) ideas (Table 6.5). This would further motivate rephrasing the question.

The organizers also had some trouble understanding the question: "Does this idea enable the company to explore new ways of making business?" but did not change it. Instead, they discussed it and made sure that they all had the same understanding of it. The question: "does this idea solve a clearly defined customer problem?" was particularly liked by one of the organizers, and one organizer even felt that the question facilitated the selection process. However, when studying the ideas that were selected (Table 6.5) it turned out that most of the radical ideas received a no to this question. Since nothing in the interviews explained this, one of the organizers was contacted and asked to explain this. She said that the company culture is very problem oriented and that to them a problem is something that can be clearly defined. Therefore, she said, customer problem is not appropriate in this vague context and instead she proposed customer benefit.

It was further suggested to having different "gut feeling" questions for the radical and incremental ideas. According to one organizer it was impossible to tell if a radical idea was good or not since you could not base your answer on previous experience, which you could for the incremental ideas. She suggested asking "Is it potentially a good idea?" or "Does it feel like an interesting idea?" for the radical ideas.

This amount of rephrasing is probably due to two factors: the criteria questions were not discussed among the organizers before the selection and this was the first test of the framework. In addition to changing the questions as suggested above, training should be given to the people performing the selection. Each question needs to be understood and interpreted the same way. It is also important that the training includes some sort of "tuning" of the minds. During the evaluation sessions it was observed that both the organizers and the moderators seemed to focus more on the implementation of the idea than the potential of the idea. This was supported by one of the moderators who emphasized the importance of pre-evaluation training and dummies. The training needs to take these aspects into consideration. This could, for instance, be achieved by a discussion about the criteria questions and a dummy selection of (fake) ideas. It was further noticed during the evaluation sessions that the later sessions were more efficient than the initial ones, and the organizers seemed more accustomed to the evaluation process. This implies that the more practice on evaluating ideas the more efficient is the evaluation process, which would further motivate including evaluations on dummy ideas.

One organizer suggested reducing the number of criteria to four instead of eight. According to her

- Is this idea new to the company?
- Is it new to the market?
- Could it be easily copied or imitated by competitors?
- Is it a good idea?

The same organizer suggested weighting the last question twice as much as the others since she found it the most important. However, another organizer thought that commercial feasibility was the most important evaluation aspect, and therefore suggesting weighting commercial feasibility over newness to the company.

A couple of the questions created problems for the organizers since they simply could not answer them. The following two questions were especially hard to answer:

- Is this idea new to the company?

- Is this technically doable?

If the people evaluating the ideas are more diversified and represent different business or technology areas in the company, these questions would probably not be hard to answer.

7.4 Additional filtering of ideas

The 18 ideas with the highest scores were filtered yet another time before the final list of ideas was put together. This filtering consisted of relating the ideas to context of the innovation forum. One of the reasons for doing the innovation jam was to promote innovation among employees, especially among managers. That is why the ideas with the highest scores were presented to a board of managers. This resulted in two ideas being rejected because they mistakenly had been considered as ideas that were new to the company when they in fact were not (and the organizers did not want to present old ideas to the innovation forum). It also turned out during this filtering that one of the present managers had been the one doing the pre-study of one of the old ideas. This further shows how important it is to involve more people with complementary backgrounds and knowledge in the selection process. It should be noted that these ideas were not rejected from the overall innovation process. They were simply not presented to the managers present in the innovation forum. This additional filtering also resulted in a couple ideas being clustered together and presented as one idea since they were considered too similar. What can be said from this is that the evaluation criteria need to reflect the purpose of the selection and idea generation in the first place. The innovation jam aimed at generating ideas that could be implemented in a short term as well as a long term perspective. Another goal was to generate ideas ranging from business model ideas to process and product ideas.

7.5 Contextualization of ideas

Based on the descriptions of the ideas provided by the idea generators we tried to identify the driving force, i.e. the context, of each of the final ideas. First, we both looked over the ideas separately and then we had a common discussion about the driving-forces we had identified. For most of the ideas we agreed on the driving-force, but in the cases where we did not agree we came up with the following definitions to help us in the process:

- *Business-driven idea*: a change in the value chain, e.g. offering new or old value in different ways, change in relationship between customer and company, or new way of earning revenues
- *Customer or market-driven idea*: a change in satisfying customer needs
- *Technology-driven idea*: a new or improved performance or cost

This resulted in six technology-driven ideas, four customer-driven ideas, three business-driven ideas and one environmental-driven idea. However, the information regarding each idea was limited which made the process both difficult and time-consuming. It was further hard to distinguish between customer- and technology-driven ideas since most of the technology improvements displayed clear customer benefits. Therefore, we also discussed if it was likely that the idea would have been generated if the technology for implementing it did not exist. However, we discovered that the ideas where we ourselves could relate to the customer benefit we were more

inclined to identify the driving force as customer-driven. It is possible for an idea to have multiple driving-forces, however, we did not consider this when we did the contextualization. Considering multiple driving-forces would probably benefit this process as it would make it easier.

This could indicate that it is too early to contextualize the ideas at this stage in the selection process. It also illustrates the problem with evaluating ideas at an early stage. The ideas cannot really be described as ideas but rather as seeds of an idea. There are still so many iterations left in the innovation process that it is hard to label the idea. The question is if the idea should be labeled at all. Maybe the purpose of the selection process should be to gain deeper understanding of the idea and explore the potential of the idea. Nevertheless, the idea still needs to be evaluated from different perspectives, such as business model, customer and market benefits, and technology. The evaluation process should take this into consideration, for instance by involving people with business-, market- and technology backgrounds. This could for instance be done by having different sets of groups answering different sets of questions. One group could consist of technology experts, the area of expertise could vary depending on what type of ideas is evaluated. For instance, an idea relating to the body of the car needs an expert within that are while an idea relating to the visual features of the car needs an expert within that area. Regarding the groups that should focus on business and market issues, it is harder to identify how these groups would be different from each other and what the focus of each group should be. Market and business understanding are intertwined, although the focus of the prior is more on what customer wants and the focus of the latter more on how the company can provide customers with what they want and do so in a profitable way. Instead of distinguishing these groups by subject, one group could focus on existing customer groups and the other one on exploring new customer groups. The people constituting these groups could then be chosen based on their experience from different types of projects and knowledge of customers. This would also be a way to push the company to think further of ideas in terms of radical and incremental.

8 Study 2: contextual study of Volvo Cars

In this chapter three existing innovation processes at Volvo Cars are studied. The focus of this study was on how ideas are selected within three departments. These processes are:

- the innovation days in the Body and Trim department
- the monthly idea generation and selection process in the Active Safety department
- the innovation process in the Safety Center department

All of these processes generate ideas that are later put into an overall process at Volvo Cars called the needs/means process, which was also studied. Each process is described separately and entails descriptions of the different steps carried out and the selection criteria used. The results in this study come from interviews with people directly involved in each innovation process (IP). In addition, the IP in the Active Safety department was observed in a two-hour-long selection session.

8.1 Overall process: the NEEDs and MEANs process

The needs and means process is an annual process within Volvo Cars to reach the company strategies and goals. Its purpose is to identify what is needed to fulfill the strategies and then identify the means to fulfill these needs. Ideas can also be submitted to the process for evaluation. Ideas representing new technology steps for Volvo Cars that are finally implemented into a car have gone through the needs and means process. Other ideas, particularly those regarding quality actions, due to rationalization needs go directly into projects.

8.1.1 The selection process

First, in this process the so called needs are identified. The needs are most easily understood as what Volvo Cars needs to do in order to reach its strategies. Then, the means for fulfilling these needs are identified. The selection of which needs to pursue is performed in a group of people from different departments. The needs are matched to the available means and ranked in a scale from one to five, where five is the highest. Old needs, which have been pending since last year, are also re-considered. The outcome of this ranking is a list of needs for which there are means and a budget. The needs that do not need a budget and can be carried out directly in the programs are also identified. All these needs are gathered in so called Technology Cycle Plans that provide an overview of what needs and means that have been processed throughout the years. These plans are presented to the management for approval and they should contain new technology, new applications or/and new applications of already known technology. It should also include an implementation plan within 15 years.

8.1.2 The selection criteria

The prioritization of the needs is based on two aspects: the focus of the coming year (strategy) and the position towards the competitors. The ranking is based on a discussion in the council. A proposed ranking method exists that has already been used in some cases. In this suggested method the needs are rated and weighted against three strategy specific factors and to the attribute impact of the need (the attribute impact is needs specific). The needs that are not aligned with the strategies get a low ranking. However, according to the project leader very few needs are not aligned with the strategy. Then the means are prioritized and rated according to the same factors. However, ranking the means according to these factors only show that they are good in certain aspects, for instance with regards to rationalization or legal requirements (e.g. safety and environment requirements). Therefore, the means are rated according to other factors as well (such as cost). For instance, often the mean does not solve the entire need which results in a partial needs fulfillment. If the score for the means is 3 and 5 for the needs there is a mismatch, and the needs consequently become pending. Every need is put into a template, where it is marked as pending, fulfilled or new. This alternative selection process was suggested by the projected leader for the needs and means process and according to her it would enable the councils to go back to last year's rating and compare how they did the rating then with how they do it today. She further highlighted that there should not be too many rating factors, since the method has to be efficient.

8.2 IP 1: The idea management process in Body and Trim department

In the Body and Trim department in Volvo Cars an idea management process was introduced this year (2011). The process is referred to as the innovation days, and was similar to the innovation jam in the sense that it was a big idea generation event; however, it did not take place online but in real life. It took place during three days and all the people working in the department were invited to come and generate ideas. The main goals of the innovation days were to develop a concept car (representing seven key words), and to generate ideas that could be used in the production of cars.

8.2.1 The selection process

The selection of ideas was a multiple step process. First, the ideas were evaluated according to a set of predefined criteria. If there was something the selectors did not understand, while reading the description of the idea, the idea generator was contacted and some additional questions were asked. After this initial evaluation, a second evaluation took place. The ideas with the highest score moved on to constitute the concept car. Ideas were also connected to the different departments according to their properties and responsibilities. Finally, managers from different departments were invited to meetings where the ideas belonging to their area were introduced. The ambition of involving the managers in the selection process was to make them believe in the ideas and thereby champion the ideas. For the ideas that were finally selected to continue work with, the idea givers were asked if they would like to be involved in the projects. The involvement of the idea givers was also important because they know what they actually meant with their ideas and how it should work. There was also a set budget for working with the ideas, for example in the body and trim department 500 man-hours were dedicated.

8.2.2 The selection criteria

All the ideas, independent of sorting category, were evaluated according to three evaluation questions:

- Is this idea a good idea? (gut feeling) YES/NO
- Is this idea feasible? (e.g. it can be handled in the production)
- Does this idea involve several key words that were presented at the beginning of each session?

The criteria questions had different weights, because some criteria are more important than other ones. Firstly, the weight of the YES to the first question was 10 points, in case of NO the idea received 0 points for this question. Secondly, as one of the aims of the idea generation event was to create a concept car in a short time frame, the ideas with low feasibility (which means that the idea can be easily implemented) were favored, thus the weight of low feasibility was 5, the weight for medium feasibility was 3 and the weight for high feasibility was 1. Thirdly, as the ideas were asked to include one or many of the key words, the key words were also weighted – each with 0,5 points. All the points of the three questions for an idea were summed up and the ideas were listed in descending order. The ideas appearing at the top of the list were

used while building the concept car. Eventually the ideas are not only evaluated one by one, but also their match to the overall context is seen. The ideas identified as difficult to do right now-the radical ideas are directed to the innovation jam process.

8.3 IP 2: The idea management process in Active Safety department

Active Safety and Chassis is a sub-unit to the R&D department at Volvo Cars. In a sub-unit to Active Safety and Chassis, Safety Electronics and Functions, there is a section called innovation. The purpose of the innovation section is to conduct research, advanced engineering and carry out cross-functional innovative activities. The process of innovation as it looks today in the Safety Electronics and Functions department started one and a half years ago; one part of this process is to create and develop new ideas. The innovation department has different type of activities for inspiring people and for generating ideas. Examples of such events are inspiration days, technical seminars and monthly idea generation sessions.

8.3.1 The selection process

The process for selecting and developing the ideas are clearly defined. The purpose of the defined process is to take charge of all ideas in the Active Safety area. Another goal is to assure that the idea generator is acknowledged and provided help to develop the idea. All ideas are put into a database. An important aspect of this is to make sure that ideas are put into the database and people are thus encouraged to do this. This database also provides a structure for reviewing and refining the ideas. The database further helps to minimize double work, for example it can be checked up if a topic has been discussed before.

The defined process starts with conceiving an idea and that can happen any time. The next step is to put it into the database. The database is available to employees on the department's homepage and open only to the people in the Safety Electronics and Functions. Opening it to a larger range of people can be a risk, as well as keeping it open to smaller range of people may restrict the list too much. Each idea is described in a certain template, which for example includes the title of the idea, type of the idea, the name(s) of the generator(s), the date of when the idea was put in the list and the status and the invention disclosure status (if the idea will be patented), whether the idea will be transferred to some kind of activity and who is responsible for that. The template is firstly filled in by the idea generator(s), but can also be complemented later.

Next the idea is brought up in a review meeting. Before the review meeting all of the ideas in the database are gone through, in order to see to what extent each idea has been developed and that are similar are grouped together. Then it is decided what ideas will be reviewed for the next review meeting. Approximately 7-8 ideas are discussed during one meeting. The people taking part in the meeting are the innovation section manager, the process leader, the technical leader, the area specialist(s) of respective idea and the idea generator(s). Involving the idea generator to the meeting gives him/her an opportunity to explain and defend the idea. Also (s)he can refine aspects of the idea or the idea can be combined with some other idea. The ideas are gone through one by one. Firstly, the idea is displayed on to a screen and all participants can read the description of the idea as it was submitted to the database.

Then the idea is explained by the idea provider and next, if the idea meets the criteria is discussed. It is also discussed if the idea can be patented or not during this meeting. Ideas that are not in the area of Active Safety are directed to other departments and a few were submitted to the Innovation Jam. There is currently no process for dealing with ideas that seem like good ideas but that cannot be implemented today, although there have been discussions about developing such a process. The reason to why there currently is no process is that the timeframe is considered as part of the evaluation of the ideas, and if the idea is beyond this timeframe it is closed.

One constraint to this process is that there should be no overlap to the ordinary development process. Thus, when possible the idea should be transferred to the ordinary development process as that is the most efficient way to develop things. Consequently, some ideas are possible to transfer to the normal development process right away. The ideas that cannot be included to the normal process are developed within the boundaries of the innovation process. Most likely it is the technical feasibility that has to be examined, as they cannot be sure if it is technically feasible or not, they have to run some tests. In the lean organization of Volvo Cars, it is hard to get people to work on extra things that are not part of their ordinary tasks. The good ideas that need to be developed are discussed on the Department Technical Meeting (DTM) that is held once a week. In this meeting technical decisions are taken and available resources available are reviewed, e.g. the working hours for the development are decided. Sometimes the ideas need to be championed, in order to make the people believe in the ideas, as there is always a competition between the resources for developing the ideas.

After some development of the idea, it is taken to the area responsible person in the Product Planning department and his or her opinion is asked. If (s)he likes the idea, (s)he makes an official offer and gets it into the Cycle Plan (to the needs and means process).

8.3.2 The selection criteria

The two questions that are asked about each idea are:

1. Is it technically feasible within a certain timeframe?

2. Is the idea viable (does the customer want this)?

The technical leader assists with technological knowledge when needed, and in the cases where he cannot assist the knowledge can easily be acquired by asking some other person in the organization. The second question is answered more on a hunch of what they think customers would like to have. Customer clinics have been carried out and studied, but in general these are very time consuming and expensive. The customer knowledge is therefore limited and hard to assess.

Ideas are sometimes demonstrated to managers, since the innovation section claims that management support helps the go in the right direction. If the feedback from the decision makers is very bad the development of that idea may be cancelled. On the other hand, if the feedback is very positive the development of the idea is accelerated and moved on to production. During the years they have experienced that the feedback that is received in the demonstrations is very similar to the feedback that is received later from the market.

8.4 IP 3: The safety development process at Volvo Cars

One of the processes directly connected to the needs and means process is the safety development process. Several units within the company are involved in this process, one of which is the Safety Center. The idea management process in the Safety Center is a result of the company history and its leading position in safety: in order to maintain leadership Volvo Cars has had to constantly invent and apply new technologies. The process is human centered, which means that it is focused on reducing human injuries. The meaning of safety has changed over time which has resulted in changes in the idea management process. For example, in the past safety revolved around crash safety, e.g. minimizing injuries in the crashes. Now, during the last decades, safety also includes avoiding the accidents and mitigating the effects of accidents.

8.4.1 The selection process

The process starts with idea identification in the Safety Center. It is done by analyzing accident data or safety data from crashes occurring in the real world. The data forms the basis for the priorities and the current most important areas are also listed. The importance of the areas changes, for example if the side impact in one generation of cars is improved it gets less important for the next generation of vehicles. The ideas are described by accident situations and in some cases body regions. All the different occupants in the vehicle are divided into categories, e.g. children, aging people, and the traffic situation and accident situation are also considered. The result is a list that needs to be prioritized which is done according to newness and product area. An ambition is to have at least one new safety feature in each launched vehicle and the ideas should be purely product related. The decision of which feature that should be included is based on a discussion on which feature would benefit the car safety the most.

The ranking of the ideas is done by a meeting forum in the Safety Center. There is a tool called the stated priority, which is an in-house priority list updated on a regular basis as the models get better. This list is a very important input to the needs development as in that way the safety needs are ranked in the priority of the actual data. The actual data is the list of "hard facts" e.g. head injuries of side impact, neck injuries of frontal impact. However, it is complicated, because the ranking can be done from different perspectives. The needs that are not chosen to be continued with, due to the fact that there are no compatible means available, remain in the research base which is updated on an annual basis. Thus, the research is done in all the areas, where they are not ready to go into the engineering. The research often comprises understanding of how a certain injury does occur. For example, a lot of injuries occur in the arms region as during the accident the arms can be everywhere. However, telling to engineering that these injuries need to be reduced does not help. Thus, before the means can be evaluated the exact mechanisms of the injury need to be understood. Therefore, a need that has a high priority cannot always be addressed before you have further knowledge and research to understand it better.

The ranking system is dependent on the data that is available and also who processes the data and in what way it is processed. The analyzing method is never better than the people doing the job and the data available. Part of generating and selecting the ideas is to understand how the data can be interpreted and applied to real life.

8.4.2 The selection criteria

On a high level the needs are rated according to the following criteria: frequency of injuries and also the severity of injuries. The severity can be both fatal injuries and long-term consequences. Today, long-term consequences are the most important due to the technological improvements that have reduced the number of fatal injuries in traffic. Thus the ranking is done based on the following criteria:

- fatality,
- severely injured,
- long term problems, and
- actual frequency of accidents.

In addition, the feasibility has to be considered. If the means to carry out a need (the idea) exists the need gets higher priority, compared to a need where the means do not exist. This is because the Safety Center is linked to the Safety Council and the needs and means process. Therefore, the selection ends up in a situation where the ranking list is balanced to what is actually feasible, i.e. to the available means. One way of enhancing the selection is to have knowledge of the means already in the generation of the needs (ideas). For example, going into the engineering departments talking about the needs in an early stage and making them generate ideas for means could benefit the process.

20 years ago, the ranking of the ideas was more obvious and big safety improvements could be made in many areas. Now, on the other hand, smaller improvements are made but in new areas, such as avoiding accidents (i.e. active safety). This type of data is hard to collect because if one accident is avoided data cannot be collected.

9 Study 2: analysis

The analysis of the contextual study is divided according to the studied processes. The focus of the analysis is on what could be learned from these processes and how these lessons learned could contribute to improving the proposed framework.

9.1 Analysis of the NEEDs and MEANs process

People from different departments are involved in the selection of the needs, which allows for a wider knowledge of the company. This further strengthens the findings from study 1, that people with different backgrounds should perform the selection. The needs and means process also considers old needs which is a good way of taking care of all ideas. Regarding the selection criteria this process mainly considers ideas that are aligned to company strategies and different aspects of (technological) feasibility. As a result, radical and customer- or business model-driven ideas risk being excluded from this process. This shows that there could be a need for a complementary process that takes care of such ideas.

9.2 Analysis of IP 1

One part of this process was to select ideas that were to be put into a concept car. The selection criteria were a direct result of the requirements of the concept car: feasibility and the seven key words. This implies that the selection criteria should reflect the purpose of the selection process, or the wanted outcome. Interestingly, gut-feeling as a criterion was emphasized as the most important criterion, which strengthens our findings from study 1. The second part of this process was to gather ideas that could be put into production. This implies a transfer of the ideas to other departments and the commitment of managers was therefore emphasized, as was the commitment of the idea generators. The drawback of only considering ideas that can be implemented within the scope of a couple of months or can be put into a car excludes all other ideas. This further strengthens our finding that there is a need for a selection process that includes radical and customer- or business model-driven at Volvo Cars.

9.3 Analysis of IP 2

The innovation process in Active Safety is the only one of the studied IPs in study 2 that on paper takes commercial feasibility into consideration. However, it was clear from the observations of their selection process that this factor was not given as much time as the technical feasibility. Only people with technical background were present in the review meeting, and the discussions about commercial feasibility were based on hunches and opinions rather than facts. Further, only ideas that could be implemented within a shorter time frame was considered, which could imply that more radical ideas are excluded from this process. However, since this is a section specific process there may not be a need for radical ideas. It does, on the other hand, further strengthen our findings that there is a need for a process for managing radical ideas. Active Safety also emphasizes management support as an important factor in the selection process. What can be learned from Active Safety is their way of managing the ideas. They used the same software as was used for the innovation jam, and thus kept track of the ideas all the time. They had also developed a template in the software for reviewing each idea. This made the idea easier to overlook and it also made the process of going through the ideas more efficient.

9.4 Analysis of IP 3

The innovation process in the Safety Center is closely tied to the needs and means process but also uses selection criteria that are department specific. Feasibility is also highlighted since only needs for which there are means are further developed. The ideas should further be purely product related, which does not allow for any other types of ideas to pass through this process, e.g. business model ideas. This process could be argued to be customer oriented since it is human centered. The specific division of injuries as criteria is interesting since it shows a clear focus and defined outcome of the process. This supports the findings from the Body and Trim department who also had a clearly defined expected outcome of their process.

Based on the study of the four processes it can be concluded that there are no processes within Volvo Cars that favor radical ideas. It is also clear that technical feasibility is considered more important than commercial feasibility. The consideration of company strategies also implies that there is little room for developing business model ideas. This shows that there is a need for a process that takes all of these aspects into consideration; it motivates the proposed focus on sorting the ideas into incremental and radical, and the proposed customer and business oriented questions. It also motivates including marketing people in the selection process. The contextual study also shows that the context of the selection process needs to be considered when developing the evaluation criteria.

10 Study 3: a comparative study

In this chapter two other companies – Volvo Technology and Lindholmen Science Park - that have carried out innovation jams are described. The focus is on how they performed the idea selection and what selection criteria they used.

10.1 Volvo Technology

Volvo Technology (VTEC) is the centre for innovation, research and development in the Volvo Group, and its purpose is to develop and exploit existing and future technologies of high strategic importance to the Volvo Group. The company's customers include all Volvo Group Companies, Volvo Cars and some selected suppliers (Volvo Group webpage, accessed May 11, 2011). VTEC also works with improving their and Volvo Group's innovation capabilities. For example they deal with questions like how to improve the time from idea to market.

VTEC has organized innovations jams within Volvo Group for the last two years. These events were initiated to generate ideas in areas where Volvo Group currently were lacking ideas. After having organized innovation jams three times, VTEC realized that it is a powerful tool for changing the company culture, which was not the originally intended reason for organizing the jams. However, this has now become one of the main reasons for continuing the events. VTEC also sees the innovation jam as a good tool for connecting different parts of the Volvo Group. A reason that is becoming even more important the more global the Volvo Group becomes. VTEC is approaching their 10^{th} innovation jam (March 2011), and they plan to do three or four more before the summer 2011. VTEC also organizes innovation jams for external partners, for instance the system used for the innovation jam performed in Volvo Cars was bought in from VTEC.

10.1.1 The selection process

The selection process has evolved with the number of innovation jams that has been carried out. Initially, the ideas were selected based on the information available in the threads or on the two-pager (a template of the idea that the idea generators fill in to further describe their idea). In the first innovation jams VTEC concentrated on the ideas themselves: they first chose the ideas that would be financed and then started to look for the people who could carry out the project. The selected ideas were then directed to the relevant department within Volvo Group. Innovation coaches connected to that department were responsible for forming the project team. Usually, the idea generators were asked if they would like to be part of this team.

During the last innovation jam, VTEC changed the way of managing the ideas. They realized that there is a need for really committed people that could push the idea trough all the barriers and the people that are trying to "shoot down" the idea. Thus, the primary focus of the selection process became the people and their commitment, while the idea itself was secondary. VTEC realized that they cannot risk pointing out a good idea and hoping that they could find somebody who will be engaged. It may happen that the people are engaged in the beginning, but will be pulled away later by some more interesting project. When the business climate and the resources available change it is important to have people that are really committed to the idea and want to do it.

The current selection process after an innovation jam starts when the moderators make the first selection of the ideas to the idea pool after the innovation jam. According to VTEC one drawback of letting the moderators perform the initial selection is that the selection is too dependent on the background of the respective moderator. They have learnt that a moderator that is technology interested or have a technological background are more likely to choose an idea based on technological feasibility and not based on customer acceptance. In order to make sure that good ideas are not rejected too early, experts that have not been moderating the discussions during the jam are invited to an additional selection session.

Another challenge to the selection of ideas is that the moderators may interpret the idea differently than the idea generator originally intended. Therefore, it may happen that afterwards when presenting their ideas the mismatch is realized and the moderators may tell to the idea giver that he or she should use the scope that moderators thought or otherwise they would not have selected the idea to the idea pool at all. A challenge is to find the balance between the thoughts of the idea giver and the experts. If the idea giver is really engaged and sure that the idea would work the way he or she has been thinking of, then when the experts try to push the idea to another direction there is a risk of losing this engaged person. Thus other people have to be found for the project and if there is nobody else to work with the project the idea can be lost.

Before the second step of the selection the engaged people are identified. It is done by asking from the people that have been involved in the threads of the ideas chosen to the idea pool if they would like to present their project. Thereby while refining the ideas further and presenting it to a team of selectors, the selectors can measure the engagement of the people to the project. The person is committed if, for example the idea is presented in a good way, different aspects of the idea are checked, people have the time to work with the idea and they know what they are going to do and how much money they need. The decision about investing to the project or not cannot be done directly, but still by using this method they reduce the time between the innovation jam and the identification and communication to the organization of projects from one month to a week (the idea pool is communicated just a week after the innovation jam).

The second selection is done by the team who listens to the presentations. This team consists of the process owner of the experiments (representing the process), the customer (depends on where the event is carried out, representing the customer, makes sure that the projects are included to his portfolio after they are done with the innovation jam) and the innovation director (he is responsible for the technology areas and for innovation).

The outcome of the selection process, the innovation portfolio, has to be balanced, because VTEC wants it to consist of both high risk and low risk ideas. The high and low risk projects are determined by looking at the line commitment, the idea givers commitment, the team's commitment and when the idea giver is going to do this, how high does the idea giver and his/her manager prioritize working with the idea. The risks are risks for the projects themselves, e.g. risks of not reaching the specified targets. Another part of the risk is not finding an internal receiver for the project. VTEC is doing the first steps and the project should be taken on by the customer to carry the idea (innovation) to the market. The customer could do it in any way they would like to do it, but the most beneficial would be to involve the people who have been dealing with the idea from the very beginning and give them money to get on

with the next steps. The difficulties might sometimes occur if the idea project does not match the organization. VTEC has financed just below ten percent of the ideas that have been generated.

VTEC has understood that for the radical ideas it is more difficult to find an internal receiver. A lot of radical ideas have been left out, because the organization is not designed for anything that falls outside the normal boxes of products and services. VTEC continues to push for the radical innovations to go through, but also tries to change the organization and the processes, to do things in order to manage this vacuum. Otherwise people will be less motivated to participate in the next innovation jam since they do not see anything happening to their ideas.

10.1.2 The selection criteria

While starting carrying out the innovation jams feasibility as a criterion was considered, then more recently they have started to care less and less about feasibility when choosing the ideas. VTEC has moved from using a number of criteria, like a large matrix with different criteria and also getting deep understanding of every idea by using a lot of input from large number of experts towards using fewer criteria and choosing more ideas based on gut-feeling. They use other criteria as well, but gut-feel is now the leading criterion. The people choosing the ideas are asked to keep the other criteria in the back of their heads, but in the end they are asked to use their gut-feel in order to make the final selection.

10.2 Lindholmen Science Park

Lindholmen Science Park (LSP) is an international research and development center situated at Lindholmen, Gothenburg. One of the goals of LSP is to develop collaboration between industry, academia and community. Companies such as Volvo Cars, Volvo Technology, Saab AB, Ericsson, IBM, Semcon and the Swedish public service broadcaster, SVT are all included in the park. The science park also collaborates with higher education such as Chalmers University of Technology and Gothenburg University. The overall aim is to create international competitiveness and growth for the entire area by increased innovation.

In November 2010, LSP carried out an innovation jam, which they prefer to call an open arena innovation session. So far this is the only session that has been organized by the science park. The session was carried out within one of their programs: the Security Arena program. In this program there are different sub-programs, which consist of different projects. The leaders of these projects were invited to judge and moderate the online discussions, here on referred to as moderators. The project leaders were the ones who invited the participants to the event. Thus, people from different companies and other partners were invited to the session, e.g. Ericsson, Saab AB, Volvo Technology and researchers at Chalmers and Gothenburg University. The session lasted 48 hours and around 100 people were invited to the first event, out of which 70 of were active during the session. The moderators commented on the ideas directly and tried to direct the ideas in a certain direction. In total, 36 ideas were created out of which two ideas were turned into projects. During the session all the participants could vote on the ideas by giving "thumbs up" or "thumbs down". Since the participants of the innovation jam worked at different companies the ideas were on a high level of abstraction to avoid IPR issues.

10.2.1 The selection process

Since this was the first time an innovation jam was carried out at Lindholmen Science Park, there was no defined process for selecting the ideas. Instead the selection process was more trial and error and evolved as it was carried out.

The idea selection process took place the day after the innovation jam and was performed by the moderators. The next step consisted of the moderators sorting the ideas. The sorting resulted in 15 ideas. Thirdly, the relevance of these 15 idea areas to the Security Arena program was rated on a scale from one to three, one having the highest priority and three having the lowest priority. The length of the threads - how many comments an idea got - and the number of views of each of the thread were considered as well. Fourthly, the 15 idea areas were divided and distributed to the group of moderators for them to further describe the idea areas. The reason for this was to gain a better understanding of each idea area. The further described idea areas were then presented to the steering group of the Security Arena. The normal task for the steering group is to decide if a project should be accepted or not. Both the steering group and the moderators were asked to choose three ideas and rate these on a scale from one to three; however this time the scale was different. After summing up the points of the ideas there were four ideas that received the highest score. Out of these four ideas two were chosen to be turned into projects. The selected ideas were announced three weeks after the innovation jam.

The organizers of the first open arena innovation session in Lindholmen Science Park, were satisfied with the selection process. However, they consider involving additional people besides the steering group and the moderators to the selection process in the next session. The organizers think that the process of the idea selection should be fast so that the idea generators can see the results shortly after the event.

10.2.2 The selection criteria

In the first selection session the moderators were asked to look at the relevance of the ideas to the Security Arena program. The ideas with relevance to the program were included to the next step of the selection process. The next step, the categorization of ideas, consisted of grouping similar ideas together and giving new titles to the groups of idea areas. In the third step, the relevance to the Security Arena was considered again. In the next selection, the moderators and the steering group handed out points: three points represented the most innovative or best idea and one point to the least innovative or worst idea. This final selection were based on importance of the idea to the Security Arena program, so ultimately the ideas chosen were the ones with highest relevance to the program. To sum up, the criteria used were:

- Relevance to the Security Arena program
- Innovative height/”good” idea
- Importance to the Security Arena program

11 Study 3: analysis

The analysis of the comparative study is divided according to the studied processes. The focus of the analysis is on what could be learned from these processes and how these lessons learned could contribute to improving the proposed framework.

11.1 Analysis of Volvo Technology

VTEC has carried out several innovation jams but in a different context than Volvo Cars. VTEC performs innovation jams mainly for other companies in the Volvo Group. This means that VTEC does not handle the ideas itself, but carry out the idea generation and then select ideas that are handed over to the company ordering the innovation jam. Thus, part of their job is to find receivers of the ideas, which is hard if there is no one pushing for or selling the idea to management. In this context, the person becomes more important since they have no control over the ideas after they have handed them over to the other company. Thus, before the second selection is carried out VTEC identifies people who they believe can champion the idea. Then the commitment is weighed against the criteria in the second selection in order to understand the likelihood of the idea being implemented. It could be argued, that in other contexts the idea should come first since the commitment cannot exist without the idea. Another reason for prioritizing the commitment over the idea could be that VTEC has carried out multiple innovation jams and it is a realization that comes with time. Another result of carrying out multiple innovation jams is that the purpose of doing so has changed from generating ideas to changing the company culture. Yet another insight they have learned from carrying out the innovation jam multiple times is that VTEC focuses less and less on feasibility of the idea and having a wide range of criteria. Instead the company highlights gut feeling and an easy process. This further strengthens our findings from study 1 and 2.

VTEC also carry out a complementary selection process, which supports the findings from study 1. However, they do it for slightly different reasons than was suggested by the organizers and moderators. In VTEC the complementary selection is carried out by experts (that have not moderated the discussions) to compensate for moderators who base their choice on technological feasibility rather than on customer acceptance. What can be learned from this is that the group selecting the ideas should consist of people with varying backgrounds (which further supports the findings from study 1).

11.2 Analysis of Lindholmen Science Park

The criteria used by LSP could be said to be a combination of alignment to corporate (program) strategies and gut feel. The use of gut feel further supports the findings from study 1 and 2. In comparison with Volvo Cars, the company grouped the ideas. Grouping the ideas could imply recognizing the ideas as seeds rather than "ready" ideas. This would imply that the overall idea area is more important at this stage than the idea itself. The generated ideas were put into one of the company programs, and there existed a process for taking care of the ideas. They did not identify commitment to the idea as important, which could be due to that the structures for managing the ideas already exist. It could also be due to that Lindholmen Science Park has only carried out one innovation jam so far. It is therefore hard to say based on this comparative study if the commitment to the idea is more important than the idea itself.

12 A revised framework

Based on the findings from study one to three the proposed framework was revised.

12.1 The selection process and selection criteria

In order to illustrate the framework better, it is divided into two parts, to the process and criteria description. The proposed process consists of three steps: an initial selection, sorting of the ideas, and a second selection. Figure 12.1 presents an overview of the idea selection process, as well as the input as well as output of each step.

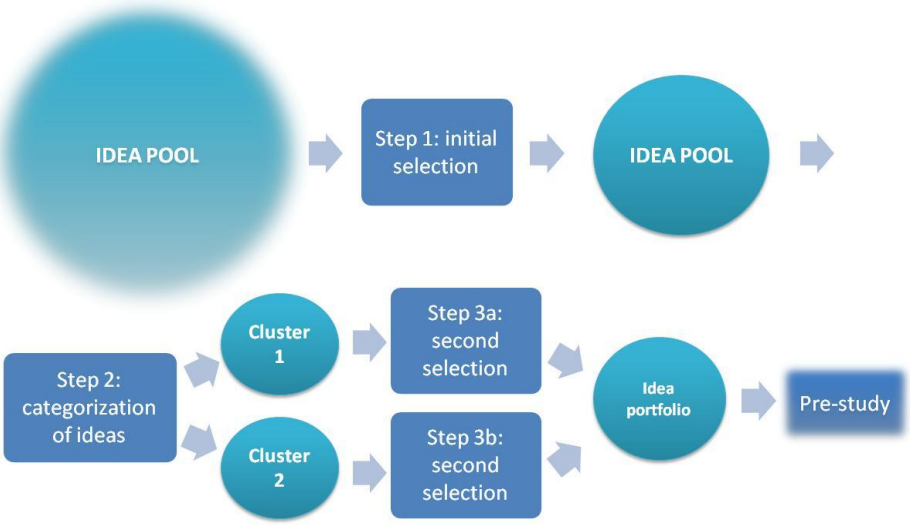

Figure 12.1 The idea selection process

Source: authors

The criteria of each step in the idea selection process are shown on Figure 12.2.

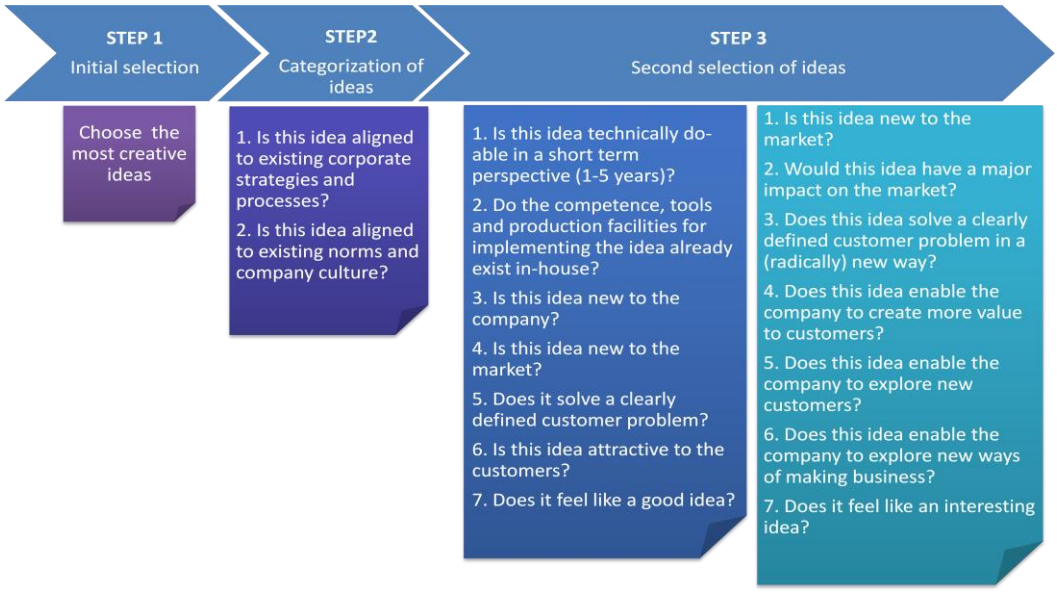

Figure 12.2 The idea selection criteria

Source: authors

The purposes of the initial selection are to move on with the most interesting ideas and also to reduce the number of ideas that enter to the next stage of the selection. It is proposed to perform the initial selection during the innovation jam (or corresponding idea generation event). Both time and information are limited at this stage which implies that the suggested process should be easy to use, preferably, including only one criterion. The outcome is a larger set of ideas, although smaller than the original set of ideas. It is important to select ideas that later can be identified as incremental and radical. Therefore, the selection criterion needs to cover aspects of both incremental and radical ideas. We propose choosing the most creative ideas at this stage as it should lead to original ideas that could still be feasible. Creativity as a selection criterion was further supported by both moderators and organizers. A complementary selection should be carried out after the idea generation event in order to make sure that no ideas are overlooked. The complementary selection entails going through all the ideas generated on innovation jam after the event has taken place and using the same criteria as the moderators.

The purpose of the sorting is to highlight the importance of evaluating ideas differently depending on their nature, by sorting the ideas into radical and incremental. An incremental idea can be defined as an idea concerning cost reductions or improvements of existing products and services. Ideas that have the potential to change existing technological standards or markets are defined as radical. However, realizing the potential of a radical idea at this early stage can be hard; therefore we suggest distinguishing the ideas by the extent to it is aligned to existing strategies and culture. This is also supported by Cooper (1998) who claims that one can distinguish between radical and incremental innovations by identifying the extent to which a firm must change its existing strategies and structures to handle it. These are internal dimensions and therefore well known to employees within a company, which should facilitate the sorting process. To determine whether an idea is incremental or radical the following questions could be asked:

- Is this idea aligned to existing corporate strategies?
- Is this idea aligned with existing norms and company culture?

If the answer to both questions is YES then the idea should be considered as incremental. Otherwise, should be considered as radical. External dimensions, such as market impact, can be included in the next step where more time should be devoted to understanding and evaluating the idea.

The purpose of the second selection is to determine what ideas should be further evaluated in a pre-study or a project, which is why the nature of this evaluation is qualitative. Table 12.1 presents the criteria proposed for the incremental ideas. The focus of this set of questions is on assessing the market and technological feasibility of the idea.

Table 12.1 Evaluation criteria for incremental ideas
Source: authors

Evaluation dimension	Evaluation criteria
Technical feasibility	Is this idea technically do-able in a short term perspective (1-5 years)?
Technical feasibility	Do the competence, tools and production facilities for implementing the idea already exist in-house?
Creativity	Is the idea new to the company?
Market potential	Is this idea new to the market?
Customer benefit	Does it solve a clearly defined customer problem?
Customer benefit	Is this idea attractive to customers?
Gut feel	Does it feel like a good idea?

Table 12.2 presents the proposed questions for the radical ideas. The focus of this set of questions is on the return on new value, in a variety of ways, to the market. The questions are designed with regards to market learning, and not on market assessment.

Table 12.2 Evaluation criteria for radical ideas
Source: authors

Evaluation dimension	Evaluation criteria
Market potential	Is this idea new to the market?
Market potential	Would this idea have a major impact on the market?
Customer benefit/creativity	Does this idea solve a clearly defined customer problem in a (radically) new way?
Customer benefit	Does this idea enable the company to create more value to customers?
Market learning	Does this idea enable the company to explore new customers?
Business learning	Does this idea enable the company to explore new ways of making business?
Gut feel	Does it feel like an interesting idea?

12.2 Success factors

It was observed in the case study that other factors than the criteria influence the quality the of the selection process. For instance, the amount of ideas can make the selection process time consuming as well as tiresome to the people selecting the ideas. How the ideas were selected also seemed to affect the quality of the outcome of the selection process. We have identified five success factors that need to be considered before applying the framework:

- Contingency
- Training
- Speed of selection
- Understanding of the ideas
- Evaluators

Contingency. The contextual and comparative studies showed that the selection process seemed to depend on the context in which it was carried out. Therefore, before deciding to use the proposed framework it should be related to the surrounding context. The following factors should be considered:

- What is the expected outcome of using the framework (e.g. high or low risk projects)?
- How does this process relate to existing processes? In what ways can this process complement the existing processes?
- What structures are there to manage the ideas?

For instance, to Volvo Cars it was important to present ideas that were new to the managers participating in the innovation forum as this was the first time the innovation jam was carried out. Thus new to the company became an important criterion. To VTEC finding the right people who could push for the idea was more important since they lacked the structures for managing the idea themselves.

Training. Training should be given to the people evaluating the ideas. A key factor when evaluating ideas is to be humble and open-minded towards all types of ideas; the person evaluating the ideas must recognize that there is always something to learn from every idea (Alänge & Lundqvist, 2010). It was clear from the observations of the selection sessions that the people doing the selection struggled with keeping an open mind. Part of the training could for instance be to look at ideas and then discuss what can be learned from it. Preferably, different types of ideas should be looked at, such as business model ideas, technical ideas, customer-related ideas, and product and process ideas. The quality of the ideas should also vary to really challenge the participants' minds. The framework should also be explained as well as the outcome of each step during the training. This is especially important when it comes to the evaluation questions. It was observed in the case study that the organizers interpreted some of the questions differently; therefore, the questions should be explained and then discussed by the participants to sort out any ambiguousness. The interviews with the moderators also showed that they favored feasibility over creativity, which also strengthens the need for training. One evaluation question that should be particularly discussed is the

one concerning solving a clearly defined customer problem. Most of the finally chosen ideas received a no to this question but still made it to the top list. The importance of solving an obvious customer problem is stressed by Blank (2006) and is eligibly critical to market success of new ideas/product. A "dummy" evaluation of different ideas could also be carried out. This part is important since it was observed that the organizers became more efficient the more ideas they evaluated. Both the initial and second selection should be tested. Since this framework emphasizes distinguishing between radical and incremental ideas, the training should further include explanations of these terms. The study of the sorted ideas also showed that there were almost twice as many incremental ideas than radical ideas, which shows that the importance of radical ideas should be emphasized.

Speed of selection. It is recommended to perform the initial selection during the innovation jam since it is efficient and time saving. The moderators should perform the selection since they have the best understanding of the ideas. The number of ideas that the moderators should select could vary and should be left to the moderator to determine. The number of ideas should be flexible to compensate a lack of ideas in some sessions and an abundance of ideas in other sessions. It was observed that the evaluation sessions should not be longer than two hours, since thereafter the organizers became too tired. This was also mentioned by the organizers in their interviews.

Understanding of the ideas. It was observed in the study that the organizers had trouble understanding some of the ideas. Therefore, the ideas could be described in a similar way prior to the sorting. In the context of the innovation jam, this could either be done by the participants of the jam or by the moderators at the same time they select the most creative ideas. The idea could be described according to the following headlines:

- Description of the idea
- What (customer/business/product) problem does your idea solve?

The advantage of understanding the idea is that the sorting and the selection would be more efficient; however, the disadvantage is that it takes time and could reduce the overall efficiency of the selection processes. The benefits of increasing the understanding of the ideas should therefore be weighed against the extra time spent. To facilitate this decision, it should be kept in mind that ideas at this stage are actually seeds of ideas and the "whole" idea can never be fully understood before it has been implemented and put on the market.

Evaluators. The persons sorting the ideas need knowledge about radical and incremental ideas as well as of corporate culture, norms and strategies. In the study many ideas caused discussions that would not have been possible if the sorting had been carried out by only one person. It is therefore recommended that more than one person sorts the ideas. It is further recommended that the people sorting ideas do it individually in the first place. They could for instance do it in an Excel sheet. Afterwards the opinions of the different persons should be compared and if there are any differences these should be discussed. It was also observed that the organizers did not have all the knowledge to answer all the questions. Therefore, the selection should be performed by people with different backgrounds, preferably representing both R&D and marketing backgrounds.

12.3 Guidelines for applying the framework

Based on the success factors outlined in the previous chapter we recommend dividing the evaluation criteria into two sets of criteria. For the incremental evaluation criteria we recommend the division presented in Table 12.3 and Table 12.4.

Table 12.3 Incremental evaluation criteria – technical session
Source: authors

Evaluation dimension	Evaluation criteria
Technical feasibility	Is this idea technically do-able in a short term perspective (1-5 years)?
Technical feasibility	Do the competence, tools and production facilities for implementing the idea already exist in-house?
Creativity	Is the idea new to the company?
Gut feel	Does it feel like a good idea?

Table 12.4 Incremental evaluation criteria – market session
Source: authors

Evaluation dimension	Evaluation criteria
Market potential	Is this idea new to the market?
Customer benefit	Does it solve a clearly defined customer problem?
Customer benefit	Is this idea attractive to customers?
Gut feel	Does it feel like a good idea?

The first set of criteria investigates technical knowhow and feasibility. It is therefore recommended that these questions are answered by technical experts or background in R&D. These experts need to represent different departments or technical knowledge areas, since the technical area of the ideas may vary. The second set of questions explores the customer benefit of the idea and its market potential. Therefore, these questions should be answered by experts with market, customer or business knowledge.

For the radical evaluation criteria we recommend the division presented in Table 12.5 and Table 12.6.

Table 12.5 Radical evaluation criteria – existing customer groups
Source: authors

Evaluation dimension	Evaluation criteria
Market potential	Is this idea new to the market?
Market potential	Would this idea have a major impact on the market?
Customer benefit/creativity	Does this idea solve a clearly defined customer problem in a (radically) new way?
Gut feel	Does it feel like a good idea?

Table 12.6 Radical innovation criteria – new customer groups
Source: authors

Evaluation dimension	Evaluation criteria
Customer benefit	Does this idea enable the company to create more value to customers?
Market learning	Does this idea enable the company to explore new customers?
Business learning	Does this idea enable the company to explore new ways of making business?
Gut feel	Does it feel like an interesting idea?

The first set of criteria explores the idea's potential on existing customer groups and markets, and the second set of criteria explores new customer groups and markets. The people evaluating the ideas according to table 12.5 need to have knowledge of existing customer groups and their needs. The people evaluating the ideas according to Table 12.6, on the other hand, need to have experience from exploring new customer groups.

When evaluating radical ideas the focus is to gain insights on the market and market learning (Rice et al. 1998). The sorting showed that more incremental than radical ideas had been selected, and the contextualization showed that most final ideas were technology driven. These factors combined lead us to recommend not including R&D personnel in the second evaluation of the radical ideas. We also want to highlight the importance of customer driven ideas which is another reason for not including R&D personnel. Since the purpose of the second selection is to select ideas to evaluate further in a pre-study, the technical feasibility can be assessed in a later stage.

All in all, four groups of people should evaluate the ideas. It should be noted that all groups answer the question about gut feeling. This is because this question was stressed many times by different interviewees. Therefore we recommend counting this question twice when summing up the total score of each idea. In terms of efficiency

all of the groups should preferably include the moderators of the innovation jam, as they have already gained understanding of the process and have received training on how to select ideas. The moderators' backgrounds obviously need to be considered when including them in the groups. In addition, the number of incremental and radical ideas they selected should be studied to understand if the moderator should evaluate incremental or radical ideas. It is further recommended to look at the experience from different projects the members of the groups have. People with experience from standardized projects is probably more suitable for evaluating incremental ideas, while people with experience from projects that are more explorative in nature are more suitable for evaluating radical ideas. Each group should consist of at least three people, this way each idea is evaluated by at least six people.

We recommend the evaluation of the ideas to take place in separate meetings. The participants of each meeting should include the evaluation team, one person (preferably an organizer) moderating the discussions and one person taking notes. For all the groups one or several sessions (depending on the amount of the ideas that needs to be evaluated) are carried out. The role of the moderator is to make sure that everyone is heard and everyone answers to the criteria questions. Since this was not the case; the other person is responsible for displaying the ideas on the screen and noting down the answers to an Excel sheet.

The procedures of the different sessions are the same. At the beginning of each session the definitions of the incremental and radical ideas are explained and discussed in order to ensure that they are understood by everyone. The selection criteria are also explained and discussed for the same reasons. The ideas are then displayed on a screen one by one. After displaying an idea the evaluators have about one minute to think and answer the four criteria questions individually. Then they display their answers on the wall, by sticking a yes or no post-it to each of the question. The answers are discussed briefly and noted down to the Excel sheet. If a question gets more yes answers than no answers the idea receives 1 point for that question, if a question gets more no answers than yes answers the idea receives 0 points for that question. Finally, all the answers of one idea from two sessions are summed up in the Excel sheet. The process is repeated with all of the ideas. Since the question about gut feeling is counted twice it will get two points. The outcome of the selection process is two ranking lists of the ideas: one over the incremental and one over the radical. The ideas that receive the highest points are considered to be the best ideas.

The evaluation could also be carried out completely individually, for instance by sending a list of ideas and the questions to the people evaluating the ideas. However, this implies more work for the organizer who must put all the answers together. There is further no room for discussions and you cannot make sure that the evaluators interpret the questions or the ideas in the same way.

13 Conclusion

This thesis aimed at understanding how ideas can be selected and what criteria should be used in the selection process; we have proposed a framework for doing so. The framework is adapted to the context of an innovation jam, which implies sifting through a large number of ideas; however, the framework can be used after any big idea generation event. It is further constructed so that no certain types of ideas should be favored. The framework we propose takes both radical and incremental ideas into consideration. This is because we want to push companies to think of ideas in these terms. In Volvo Cars, for instance, there were no process that took radical ideas into consideration which in a longer term can lead to that the company fails to meet the demands of new customer groups or stand up to new competition. The outcome of using this framework is the creation of an idea portfolio consisting of both radical and incremental ideas.

The framework further considers commercial and technical feasibility as well as business aspects. This is especially important in technology intensive companies where innovation by tradition is driven by technological changes. It should be noted that the ideas constituting the idea portfolio rather are seeds of ideas than ideas that are ready to be implemented. An idea can never be fully understood until it has been placed on the market, and this needs to be recognized when performing the evaluation of the ideas. The purpose of this framework is thus to narrow down a large idea pool and generate ideas that can be further studied in a pre-study or a project. The idea template that was presented as the last step of the conceptual framework could for instance be used to guide the information search in the pre-study or project. However, since the application of this template was not studied it may need to be revised.

In the process of developing this process we also identified success factors, and put forward recommendations for applying the framework. For instance, we discovered that the context (in which the framework is applied) and the expected outcome of applying the framework are the most important factors for determining the criteria used. However, this conclusion is not derived from applying the proposed framework to different contexts but from studying selection processes carried out in different contexts. Therefore to verify the applicability of the framework, it needs to be applied to other contexts and studied further. In order to improve the framework, it could be applied to innovation jams or bigger idea generation events in other companies. It is further possible that the result would have been different if more innovation processes in Volvo Cars had been studied. All the innovation processes studied were technology oriented. Thus, including other processes for example from the marketing department could have been beneficial. Also investigating more companies in the comparative study may have changed the results.

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15 Appendices

15.1 Appendix I: list of interviews

In this appendix all the interviews conducted for the thesis are listed. For each interview the date, start time, interviewee, company name and the interview guide used is presented.

No.	Date	Length	Interviewee	Department	Company	Study	Interview guide**
1	2011-02-23	20 min	Moderator 2	Design	Volvo Cars	1	MIG
2	2011-02-24	50 min	Moderator 10	Marketing, Sales and Customer Service	Volvo Cars	1	MIG
3	2011-02-28	40 min	Moderator 11	Accessories	Volvo Cars	1	MIG
4	2011-02-28	25 min	Moderator 1	Safety Center	Volvo Cars	1	MIG
5	2011-02-28	27 min	Moderator 9*	Sales Unit Nordic	Volvo Cars	1	MIG
6	2011-03-01	23 min	Moderator 3	Product Development, Active Safety & Chassis	Volvo Cars	1	MIG
7	2011-03-01	33 min	Moderator 13	Product Planning	Volvo Cars	1	MIG
8	2011-03-01	30 min	Moderator 7	Safety Center	Volvo Cars	1	MIG
9	2011-03-02	38 min	Moderator 12	Product Development, Electrical and Electronic Systems Engineering	Volvo Cars	1	MIG
10	2011-03-15	33 min	Organizer 1	Product Planning	Volvo Cars	1	OIG
11	2011-03-16	1 h 21 min	Contextual 1	Body and Trim	Volvo Cars	2	EXP
12	2011-03-16	30 min	Organizer 3	Product Planning	Volvo Cars	1	OIG

13	2011-03-22	40 min	Comparative 1	Innovation	Volvo Technology	3	EXP
14	2011-03-23	1 h 8 min	Contextual 2	Product development, basic design	Volvo Cars	2	EXP
15	2011-03-23	33 min	Contextual 3	Safety Center	Volvo Cars	2	EXP
16	2011-04-18	46 min	Contextual 4	Active Safety & Chassis	Volvo Cars	2	EXP
17	2011-04-18	42 min	Organizer 2	Product Planning	Volvo Cars	1	OIG
18	2011-05-03	55 min	Comparative 2	Open Arena	Lindholmen Science Park	3	EXP

*A phone interview

**** MIG – Moderator interview guide

OIG – Organizer interview guide

EXP – Exploratory interview, an open interview based on the interviewee's position and the research questions of the thesis

15.2 Appendix II: list of observations

This appendix contains the list of the observations carried out for the thesis. For each observation the date, time and the name of the event are presented

No.	Date	Length	Event	Participants	Study	Number of pages of notes (A4 computer written)
1	2011-02-08	10 h	Innovation Jam in Volvo Cars	Moderator 1-13, Organizer 1-3	1	6 pages
2	2011-02-09	5 h	Innovation Jam in Volvo Cars	Moderator 1-13, Organizer 1-3	1	2 pages
3	2011-02-22	2 h	Categorizing of the ideas of the ideas	Organizer 1-3, Moderator 11	1	2 pages
4	2011-02-23	3 h	Categorizing of the ideas	Organizer 1-3	1	1 page

5	2011-02-24	3 h	Evaluation of the incremental ideas	Organizer 1-3	1	2 pages
6	2011-03-03	3 h	Evaluation of the radical ideas	Organizer 1-3	1	3 pages
7	2011-03-14	2 h	Evaluation of ideas performed by moderators	Organizer 1 and 2, Moderator 1, 2 and 7	1	2 pages
8	2011-04-18	2 h	Active Safety review meeting	Innovation section manager, process leader, technical leader, area specialists, idea generator(s)	2	1 page

15.3 Appendix III: moderator interview guide

In this appendix the questions asked from the moderators during the interviews are presented.

Questions
How would you describe the purpose of the GIG?
In what ways do you believe the GIG contributes to VCC?
How would you describe your role as a moderator? How did this role vary during the GIG? How many different roles did you see? How did these vary?
In what other ways could the moderator contribute to the GIG?
What sort of person makes a good moderator? What sort of personality should the moderator have?
How well do you think that description fits with you?
When moderating the discussions, what did you look for in the ideas?
What was most important to you when selecting the final two ideas? How did you do the final selection of ideas? How could you say that one idea was more creative than the other?
How would you describe a creative idea?
On what criteria should ideas be selected?

How could the ideas be selected in a different way?
What sort of ideas do you believe were favored by the GIG? Why?
How could other types of ideas be generated?
How could the role of the moderator be changed in order to favor other types of ideas?
To what extent were the ideas suggested connected to the theme of mega cities? Why do think this was?
What do you believe is necessary for an idea to be implemented?
Whose responsibility is it to implement ideas? Why?
What did you learn by acting as a moderator during the GIG?
Now we will ask a few questions about the GIG itself. How do you think more participants could be attracted?
How was it sitting two shifts in a row? To what extent was the education you got prior to the GIG helpful?
Do you have any other comments/feedback on how to improve the GIG?

15.4 Appendix IV: organizer interview guide

In this appendix the questions asked from the organizers are presented. The questions are divided into five topics according to their content.

Topic	Question
Introduction	How would you describe your role in the selection process? Was this role consistent during the entire selection process? How did it change during the discussions?
GIG	What sort of ideas do you believed were generated by the GIG? Why?
	How could other types of ideas be generated?
Sorting of ideas	What do you think of the way the ideas were sorted?
	How could the ideas be sorted in a different way?
Selection of the incremental ideas	What do you think of the way you selected the incremental ideas?
	How did you find the questions? What did you like about them? What was missing?

Selection of radical ideas	What do you think of the way you selected the radical ideas?
	How did you find the questions? What did you like about them? What was missing?
General	What sort of ideas do you believed were generated by the selection process? Why?
	How could other types of ideas be generated?
	On what criteria do you think ideas should be selected?
	How could the ideas be selected in a different way?
	What sort of person should select the ideas?
	What kind of knowledge does the person selecting the idea need to have?
	What kind of background does the person selecting the idea need to have?
	Is there anything that should be done prior the selection phase? What?
	Would you like to add or comment on anything else?

15.5 Appendix V: sources of ideas

This appendix contains sources of ideas according to Rochford (1991).

Internal Sources

- Employees
  - Sales
  - Marketing
  - Research and Development
  - Technical Service
  - Customer Service
  - Production
  - Quality Assurance/Control
  - Management
  - Finance
- Internal market study reports
- Existing research and development programs
- Technological surveys
- Normal design development process

External Sources

- Customer needs
- Competitive pressures
- Absorption (diffusion of technology)
- Licensing
- Patent office
- Data hanks
- Existing needs analysis
- Research institutes
- Universities
- Government reports/agencies
- Shows/exhibits
- Public reports
- Scientific and trade publications
- Consultants
- Competitors
- Customers
- Vendors

15.6 Appendix VI: Volvo Cars version of the idea template

Idea template
Idea description:
Describe your idea (the main features) Is it mainly technology-driven or customer- and market-driven?
What are the benefits that the idea will deliver to customers (e.g. something new? something better? faster? cheaper?)
What are the benefits that the idea will deliver to the company?
Added value for customer and for VCC:
Does this idea solve an existing problem for the customer? Why is it a problem?
Is your idea attractive to the customer? In what way?
Is your idea a must-have solution or a nice-to-have solution?
Market type:
Is your company entering to an existing market, re-segmenting an existing market or creating a new market?
Describe if this idea: is new to the company? Is easily imitated by competitors? Is new to the market?

Competition:
What competition exists within this market?
Who do you see as the main competitor(s)?
Next steps:
What needs to happen before this idea can be developed?