Development of a user-friendly business development process

MARCUS HENRIKSSON
FRIDA KJELLBERG

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Marcus Henriksson
Frida Kjellberg

New Business innovation funnel

Opportunity selection decision (G0)
Development decision (G1)
Execution decision (G2)
Launch decision (G3)

0 Ideation
Create, collect, refine, combine and assess ideas

1 Pre-study
Investigate environment, market, customers, competitors and suppliers

2 Development
Develop product and business model, perform technical and customer testing of product

3 Execution
Execute best opportunities into new products and services in the market

4 Sales
Sales, operations and product management

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Abstract

The purpose of this master thesis was to investigate how a process description for a business development team could be made user-friendly. The research included both investigating what changes that could be made to the process description in order to make it more user-friendly, as well as investigate what development methodology that was beneficial to use in order to achieve a user-friendly process description. The master thesis was conducted as a case study, investigating and improving the business development process that a small team, called Business Development, within the subdivision New Business at Fortum was working by.

The research started with an analysis of what problems the employees experienced with the current process description. When these problems had been identified, literature was reviewed in different areas of user-friendly design in order to understand how these problems could be solved; this in order to make the process description more user-friendly. This literature review resulted in the development of four criteria used for defining user-friendly design as well as for guiding the improvement work of the process description. These criteria were; Needed, Efficient, Learnable and Usable, and Visual. The literature review also helped defining two principles for the development methodology; User involvement and Iterative process. These principles were used and tested throughout the improvement work of this research and their usage is believed to have contributed to the success of the process description becoming user-friendly.

Guided by the user-friendly design criteria, changes were made to the process description in order to make it more user-friendly. Major changes included the removal of unnecessary methods and tools, the creation of a more structured process with methods and tools organised in a logical order in different sub-steps, the establishment of milestones, the development of a more organised folder structure for the methods and tools, the creation of an information slide for each tool including a description of the purpose, prerequisites, instructions and result, the development of more thoroughly explained instructions, the creation of example documents for each tool, the development of process flow illustrations, and the establishment of a clear and consistent colour coding for all methods and tools. These were the major changes made to the process description and the satisfaction of the employees indicates that the process description has become more user-friendly. The employees have expressed that the new process description is more usable than the old one and thereby can the aim of developing a more user-friendly process description be considered achieved.
Sammanfattning


Kriterierna för användarvänlighet guidade de förändringar som gjordes på processbeskrivningen för att göra den mer användarvänlig. De stora förändringar som gjordes var att obehövliga metoder och verktyg togs bort, en mer strukturerad process skapas med metoder och verktyg organiserade i en logisk ordning i olika delsteg, milstolpar lades in i processbeskrivningen, en mer strukturerad mappstruktur för metoderna och verktygen skapades, en informationssida innehållande syfte, förutsättningar, instruktioner samt resultat skapades för varje verktyg, mer utförligt förklarade instruktionerna skrevs, exempeldokument skapas för varje verktyg, processflödet illustrerades, samt ett tydligt och konsekvent färgschema skapades för alla metoder och verktyg. Dessa var de stora förändringar som gjordes på processbeskrivningen, och då de anställda var mycket nöjda med den nya processbeskrivningen så tyder detta på att de förändringar som gjordes har resulterat i en processbeskrivning som är mer användarvänlig. De anställda har uttryckt att den nya processbeskrivningen är mer användbar än den gamla och därmed kan målet med att utveckla en mer användarvänlig processbeskrivning anses uppnått.
Preface

This master thesis concludes our studies at the Integrated Product Development track, held within the Master of Science programme Integrated Product Design at the Royal Institute of Technology in Stockholm. The thesis work was performed at the energy company Fortum during the period January to June 2013.

In the development of this master thesis we have had many people helping us and without them this master thesis would not have looked the same. We would like to send our most sincere appreciations to our academic supervisor, Susanne Nilsson, who has helped us forming this master thesis and given us a lot of valuable insights during its execution. We would also like to thank our supervisor at Fortum, Sara Valentin, for always supporting and helping us in the improvement work of the process description.

Furthermore, we would like to thank the employees in the Business Development team at Fortum who have participated in the improvement work of the process description. Thank you, Rami Piik, Sofia Diakhate, Pekka Manner, Nadja Peltomaki, Sara Valentin and Eva Öberg-Arfwidsson for always taking the time to be interviewed and for giving us your valuable ideas and opinions. Without your participation, this master thesis would not have been able to be performed.

Marcus Henriksson and Frida Kjellberg

Stockholm, 4th of June 2013
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1. Introduction

Fortum is an energy company that generates, distributes and sells electricity and heat. Fortum's ambition is to create energy that improves life for both present and future generations. This is achieved by providing sustainable energy solutions that fulfil the needs for low emissions, resource-efficiency and energy security. (Fortum, 2013)

In addition to being sustainable in their core business of generating, distributing and selling electricity, Fortum has a department called New Business which is working with the development of sustainable products and services; this in order to strengthen their position as an environmentally friendly energy company. The department has existed since 2009 and during this time they have released products such as an energy display, solar panels for private houses, charging posts for electrical vehicles, as well as their latest product - home control - which makes it possible to turn on and off devices at home by using a mobile phone.

The New Business department is divided into four teams; Research and Development, Business Development, New Service Sales and Large programs. Of these four teams is it the Business Development team that has been the focus of this research. The Business Development team is working with the development of new products and services; this with the time perspective of up to two years from the initiation of a project to launch. The development of new products and services is performed under the name Business Development since it is the development of new business opportunities to offer their internal customers. The internal customers are other departments within Fortum such as Electricity Sales and Marketing (ESM), Heat, as well as New Business’ own team New Service Sales. This business development is very similar to traditional product development with the exception that the technical aspects of the products and services are not developed in-house at Fortum. Instead the team of Business Development collaborates with partner companies to develop the technical aspects of the products and services. These companies also manufacture the end product or service.

The Business Development team consists of four full-time working employees, three of them are situated in Finland and one is situated in Sweden. During the time of this master thesis work, two additional employees joined the Business Development team, one in Finland and one in Sweden. These were internal part-time recruitments from other departments within Fortum and both of the new employees therefore worked 50% of their working hours in the Business Development team and 50% at their old department.

1.1 Background and problem description

Before the autumn of 2012, the employees in the team of Business Development were developing new products and services with limited mutual structure to follow. The work was very ad-hoc and unstructured, and it was up to every person to decide what to do next in their project; this resulted in different analysis being performed in each project, and presentation material always had to be prepared from scratch. The lack of a common process also made the handling of projects hard for the management; this since it was difficult to assess where in the development process the different projects were, since they all performed different activities in different order.
To change this, the Business Development team hired a consultant to develop a new process together with the team during the autumn of 2012. The idea was to summarise how the different people in the team worked and based on this develop a common process description for them to follow; the developed process description was named The Idea To Market (ITM) process. The main goal with the new process description was for the team to be able to develop products and services faster, cheaper and with a higher quality; this through conducting each project in a standardised way. By following a standardised process, the team members hoped to be more confident in their development, knowing what step to perform after another and thereby ensuring that all important steps were performed.

However, after receiving this new process description they have encountered some challenges with introducing it in the team. The employees have had difficulties to start working with the new process description as well as the methods and tools included in it. To solve this problem, the department advertised for a master thesis work where the process description and its related toolbox should be critically analysed and further developed in order to become more usable for the employees.

When initiating this master thesis work, the first step was to investigate why the employees have had difficulties starting to work with the new process description; this in order to understand what changes that needed to be made to achieve a more usable process description. The result of this initial analysis was that the process description included a lot of methods and tools that the employees thought would help them in their work; however it was not clear to the employees in what order the methods and tools should be performed and how the usage of them would lead to the final goal of a launched product or service. In addition, a lot of the methods and tools were new to the employees and the instructions given in them were not detailed enough for the employees to understand how to use them. Thereby it was concluded that the usability problems the employees had with the process description were connected to the poor fulfilment of user-friendliness in the process structure and the methods and tools. The focus of the master thesis was therefore set to investigate how the process description could be made user-friendly.

1.2 Research questions and hypotheses

The purpose of the research conducted in this master thesis was to investigate how a description for a business development process could be made user-friendly. What factors affect the user-friendliness of a process description and how can this be designed in a user-friendly way? In addition to this, the research investigated how the improvement work should be carried out in order to achieve the end result of a user-friendly process description.

Research questions

How can a description for a business development process be made user-friendly?

1. How should the process description be designed in order to be user-friendly?

2. How should the improvement work be carried out in order to achieve a user-friendly process description?
Hypotheses
The first hypothesis considers the definition of a user-friendly process design. Here it is believed that the term user-friendly can be divided into different criteria that are important to consider for achieving a user-friendly design. These criteria should thereby be able to guide the development of a user-friendly process design and by ensuring that the process description fulfils these criteria, a user-friendly design should be achieved.

The second hypothesis that this research will be based on is the assumption that the consultant developed process description did not become user-friendly due to the fact that it was not adapted to the specific needs of the users. The delivered process description constituted of recognised methods and tools, however, these were not structured or explained in a way that made them usable to the employees. This lack of user adaption is believed to be a consequence of the consultant not collaborating enough with the employees during the development. Thereby, it is assumed that if the new process description is developed in close collaboration with the users, it will become better adapted to their needs and as a result of this it will become user-friendly.

Definitions
In this thesis, the use of the term “business development process” will consider a process for identifying new potential business opportunities and the steps and methods needed for realising these opportunities. The new business opportunities can be both products as well as services.

The term “process description” is defined as the guiding document for how to work according to a process; this includes everything from the visualisation of the process structure to templates for performing methods and tools.

1.3 Delimitations
The research is performed during the limited time of 20 weeks. Due to this, the tests performed on the new developed process description will only consider aspects of user-friendliness; how easy it is to understand and use the new process description. No long-term tests will be performed.

In this research, only one specific way of conducting the improvement work will be tested; this due to the time restriction of the research. Since no other way will be tested, this research can only conclude if this way was successful or not; no conclusions can be drawn concerning if this is the best way to perform a user-friendly improvement work.

This research will only consider the improvement work of one business development process for one small team at the company Fortum. Thereby can the generalizability of the results from this research not be guaranteed to other companies in other areas of business.

The research will not consider how the implementation of a new process description should be carried out. Instead it is believed that if the process description becomes user-friendly, the implementation of it will be very easily conducted.
1.4 Disposition

This section will in short describe the different chapters that are included in this master thesis report.

**Chapter 2 Method** – This chapter will describe the methodology that has been used for conducting this master thesis work.

**Chapter 3 Theoretical framework** – This chapter will present the literature that has been used for guiding the improvement work of this research.

**Chapter 4 Empirical findings** – This chapter will present the ITM process description that was developed by the consultant, as well as the problems connected with this process description which have been identified through interviews with the employees. A description will also be given of the development process that the neighbour department Electricity Sales and Marketing are working by.

**Chapter 5 Analysis and improvement work** – In this chapter will the empirical findings be analysed together with the literature presented in the theoretical framework. The literature will be used to understand the problems that have been identified, as well as serve as inspiration for what changes that can be made to make the process description more user-friendly. The changes that were made to the process description will also be described in this chapter.

**Chapter 6 Discussion** – In this chapter will the results of this research be discussed. The fulfilment of the hypotheses stated in the commencement of this research will be examined, as well as the success of using the user-friendly design criteria and user-friendly development principles will be analysed.

**Chapter 7 Conclusions** – In this chapter will the results and conclusions of this research be summarised; this in order to answer the initial research questions concerning how a description for a business development process can be made user-friendly.

**Chapter 8 Researchers’ findings** – In this chapter will the research that was performed in this master thesis work be reflected on. Difficulties that were encountered on the way will be discussed as well as decisions that have been made which might have affected the result of the research.
2. Method

The research performed in this master thesis followed a qualitative research strategy; emphasizing words rather than quantification in the collection and analysis of data (Bryman & Bell, 2007). In addition, the participants view - what they considered to be important and significant – was a large part in guiding the research. A close involvement with the subjects of the research was sought in order to gain a deeper understanding of the research.

In addition, the research can be classified as action research since it had a clear focus on action and the promotion of change at the department (Lewis, Saunders and Thornhill, 2009). The research was concerned with solving an organisational issue, the consequences of introducing a new business development process description, together with the employees who was affected by this problem in their daily work. This involvement of the practitioners is characteristic for action research and it has a clear benefit concerning change management since employees are more likely to support the implementation of something they have helped create (ibid). Consequently, an action research strategy includes both data gathering as well as facilitation of change.

The objective of action research is often a matter which is of genuine concern to the company and the pressure for change therefore originates from within the organisation (ibid). This was the case in this master thesis research, where Fortum advertised the thesis work since they themselves had found a need for change. The research considered a specific context and had a clear purpose and objective to fulfil.

Action research often follows an iterative process of diagnosing, planning, taking action and evaluating. The diagnosis phase constitutes of finding facts and analysing these; the purpose of this phase is to enable the action planning and lay the foundation for a decision to be taken on what actions to implement. After the actions have been taken an evaluation proceeds in order to assess the implementation; this evaluation forms the basis for the next cycle of the iterative process which includes further diagnosis, planning of further actions, implementation of actions and evaluation, and then it starts over again. (ibid)

Focus on action, involvement of the employees, and the importance of iterations were significant aspects that formed the basis of the research process used in this master thesis. In the next section the research design is presented; this is a design that is formulated from the strategy of action research.

2.1 Research design

In this section the research design used in this master thesis will be shortly described. A representation of the qualitative action research process used can also be seen in Figure 1.

The research started with the formulation of a general objective for the research. Following this was a first literature review which was performed in order to see what research that had been performed in the area of user-friendly design previously. The reason for this was to see how the topic of this master thesis fitted with previous research in the area as well as to ensure that the exact same research had not been performed before. The knowledge gained from this first literature review facilitated the formulation of research questions for the thesis work, which in turn helped achieve a tighter and more accurate objective for the research.
Following this was an extensive data collection phase which included interviews, observations and reading of project documentation. After the data collection followed an analysis of data phase. The aim of this phase was to analyse the collected data in order to find problems and improvement areas in the current description of the business development process.

The findings from the data collection and the following analysis then guided a second search for literature in the area of user-friendly design. The purpose of this second literature review was to find inspiration on how the business development process could be designed in a more user-friendly manner. The literature review also included searching for research in the area of product development; here the aim was to find best practice in the design of process descriptions for product development.

After this an iterative design process started, where the process description was improved through an improvement cycle with three steps; development, implementation and testing of changes, and evaluation of changes. In the development step, ideas were developed for how the identified problems in the process description could be solved; this by analysing the problems according to the literature found on user-friendly design. The process description was also

Figure 1. The qualitative research process used in this master thesis, based on Bryman and Bell’s main steps of qualitative research (2007) as well as Lewis, Saunders and Thornhill’s iterative process for action research (2009).
compared to the best practice found in product development, as well as compared to the existing process description used at the neighbour department of Electricity Sales and Marketing; this in order to find additional inspiration on how to improve the process description.

The suggested changes were then tested on the employees in the Business Development team in order to see how well they fitted with their needs and wishes. The results of these tests and the opinions of the employees were afterwards evaluated and this evaluation became the input for the next cycle of the improvement work where the process description was further improved. The improvement work continued like that, going around in the improvement cycle - developing, testing and evaluating - until a satisfactory process description was achieved.

The developed process description was the end result of the improvement work and the design of it answered the initial research question on how a description for a business development process should be designed in order to be user-friendly. The research and development methodology per se answered the other initial research question; how should the improvement work be carried out in order to achieve a user-friendly process description?

2.2 Empirical data collection

A data collection method is a technique for conducting empirical research. There are six major methods for data collection; questionnaires, interviews, focus groups, tests, observations and secondary data. (Johnson & Turner, 2003) The methods that were used in this thesis work were interviews, observations and secondary data, and these will be described in the sections that follow.

Interviews

A data collection method that was extensively used in this master thesis was interviews. The purpose of conducting interviews is to gather valid and reliable data that is relevant to the specific research question (Lewis et al., 2009). According to Kvale and Brinkmann (2009) can an interview be described as a conversation that has a purpose and a structure. The structure of a qualitative research interview can seem like an everyday conversation; however it actually includes a specific approach and technique for questioning (ibid).

Kvale and Brinkmann (2009) also explain that qualitative interviews should be encouraged to be as descriptive as possible in order to thoroughly examine the theme of the interview. This was taken into consideration during the interviews in the way that the interviewers encouraged the interviewees to give as much detailed descriptions as possible.

Interviews can be divided into three different methods of interviewing; unstructured, semi-structured and structured interviews. Structured interviews have pre-determined questions and the interviewer is not allowed to deviate from the interview guide line. The benefit of this type of interview is that the answers from the interviewees are easy to compare since they have all answered the same questions; this is good in quantitative research when statistics are sought. (Holme & Krohn Solvang, 1997)

Unstructured interviews can be compared to a conversation with the interviewee where no pre-determined questions are asked. In this type of interview it is the interviewee that decides what shall be discussed during the interview and to what extent, while the interviewer takes on a more
passive role and documents what is being said. However, unstructured interviews are very time consuming and it is often the time and recourses available that decides if a completely open dialogue can be achieved. This type of interview is good when you want the interviewee to decide what they want to bring up, to find out what is important to them. (Westlander, 2000)

Semi-structured interviews are a combination of the first two methods; it starts with pre-determined questions being asked, however the interview has the opportunity to develop in different directions depending on the interviewee's answers (Holme & Krohn Solvang, 1997). Follow-up questions can be added in order to further investigate something that the interviewee said; for example to ask for more detailed information or clarification (Johnson & Turner, 2003).

In this master thesis were unstructured and semi-structured interviews used to collect empirical data. Structured interviews were not used since there was no need for comparison between the different interviewee's answers; instead the interviews were used to gain a more in-depth understanding of the working methods of the department as well as to gather the employee's opinions concerning the developed process description. Examples of questions used in the interviews can be found in Appendix 1.

Unstructured interviews were mostly used in the commencement of the research, when the objective and direction of the research should be specified. It was particularly useful to have this type of interviews in the beginning since the employees’ uninfluenced view of the process description was sought; pre-determined questions might have led the interviewees to start thinking about a problem they had not considered before. The purpose of this was to identify the problem areas that the employees thought were relevant and important for the research to consider.

Semi-structured interviews were the most commonly used interviews in this research; this since they allowed the researchers to focus the interviews towards the goal of the research while still keeping an open approach to what questions it was that would lead to that goal. When conducting the semi-structured interviews, the researchers had a list of themes and question areas to be covered during the interview as well as an interview guide with a few pre-determined questions to guide the interview. However, the order in which the questions were asked could vary depending on the flow of the conversation, as well as additional questions could be added in order to further explore areas that the interviewee brought up.

Since the interviews were used as a method for collecting data, it was important that the interviewers remained non-judgemental to the responses from the interviewees; this in order to not influence the interviewees’ answers (Johnson & Turner, 2003). In addition, the risk of the researchers asking leading questions was carefully considered during the data collection in order to not make the interviewee answer in any other way than truthfully.

During the interviews were notes taken extensively by the researchers in order to document the answers from the interviewees for later analysis. Audio recording was also used as a back-up which could be listened to afterwards if something was unclear in the documented notes. Some of the employees in the Business Development team are positioned in Finland, and therefore interviews with them needed to be conducted via video conference calls. This was however not considered to affect the research in any major way. In addition, at two occasions the Finnish employees flew to Sweden in order to meet with the researchers and be interviewed face-to-face.
The researchers also flew to Finland at one occasion in order to conduct interviews with and observe the employees in their normal working environment. During the research, 16 interviews were conducted with the six employees in the Business Development team. In addition to this, 3 interviews were conducted with other employees at the department of New Business as well as at the department of Electricity Sales and Marketing.

Observations

When using observations as a method for data collection, the researcher observes the participant in its natural environment. The reason for this data collection method is that people do not always know what they do and therefore they cannot articulate it; due to this it is important to observe what people really do. (Johnson & Turner, 2003) Observations were used as a data collection method throughout the master thesis work, one purpose of using observations was to complement the information gathered in the interviews and cross-check that the information given by the employees was correct. Another purpose was to look at how the employees worked with the fresh eyes of an outsider; this because when someone has worked in a certain way for a long time it can be hard to be critical and evaluate the own situation since that person has become blind to the flaws. By observing the employees, problems that the employees were not aware of themselves could be identified by the researchers.

However there is a considerable problem with observations and that is the reactivity factor; even though the observer tries to be as invisible as possible when observing, the participant will still be affected by the researcher's presence. This is something that needs to be considered when analysing the results from observations. Still, the impact of reactivity often decreases after the researcher has been observing for a while since the participants get accustomed to the presence of the researcher. Furthermore, an environment where the participants can act as natural as possible can also decrease the impact of reactivity. (Johnson & Turner, 2003) To try and reduce the impact of reactivity during the observations in this research, the researchers tried to be as discrete as possible during the observations in order for the participants to forget their presence. In addition, all observations were performed at the office in the employees natural environment, this to make them feel as comfortable and relaxed as possible. Furthermore, as the researchers were physically located at the department of New Business during the entire research, the employees had plenty of time to become accustomed to the presence of the researchers.

An observer can take on four different roles when performing observations; the complete participant, the complete observer, the participant-as-observer and the observer-as-participant (Lewis et al., 2009; Johnson & Turner, 2003). These four roles are briefly described beneath.

When the researcher is taking on the complete participant role, the researcher is attempting to become a member of the group that is being observed. This is done without informing the group that they are being observed. This role has the most qualitative approach since the observations are exploratory and open-ended. (Johnson & Turner, 2003) In the complete observer role, the researcher observes the group from the outside without informing them that they are being observed (Lewis et al., 2009).

Using the role participant-as-observer, the researcher spends an extensive amount of time within the group and joins the group as any other member, participating in the different activities conducted. In this way the researcher is trying to gain the trust of the group in order for the
participants to be more open to talk about their work. (Lewis et al., 2009) In this observation method, the group members are all informed that they are being observed (Johnson & Turner, 2003). Taking on the role observer-as-participant, the observer should only be a spectator, attending the group’s activities without participating in them. However, the participants are all informed that the researcher is there to observe how they act and work. (Lewis et al., 2009)

When conducting the first two types of observations there is no problem with reactivity since the participants do not know that they are being observed, however this type of research might raise some ethical questions (Johnson & Turner, 2003). The members of the group might share information with the researcher that they would not have shared if they had known the true purpose of the researcher's presence (Lewis et al., 2009). These ethical concerns can be avoided by instead taking on one of the last two observer roles where the participants are informed that they are being observed. However, by doing this the impact of reactivity might become a problem since the participants might act in a different way due to knowing that they are being observed. (Johnson & Turner, 2003)

In this research the role observer-as-participant was used by the researchers to observe the employees. The reason that this role was chosen was that the researchers did not want to affect the research by participating in the work performed by the employees; thereby the two roles complete participant and participant-as-observer were eliminated as options. When the new process description was tested on the employees it was important that the observers remained neutral in order to not affect the opinions of the employees. Furthermore, the employees were all informed that they were being observed and therefore a complete observer role could also be eliminated as an option.

Observations were mostly conducted in regular meetings and workshops with the employees in order to see how they worked. The method was also used extensively during the testing period of the new developed process description; this in order to see how the new process description could facilitate the work in a better way.

The researchers were located at the department of New Business during the entire research, so the researchers could observe the employees every day in their work since everyone was sitting together in an open-plan office. However, some of the employees in the Business Development team were located in Finland and therefore observations of them were mostly performed via video conference calls; except for the three times that the whole team met face to face. During all observations, field notes were taken extensively in order to be further analysed afterwards.

**Secondary data**

Secondary data is data that can be found in previous documentation or recordings that has been collected at an earlier time by another person than the current researcher. This data collection was probably done with an entirely different purpose and because of that, relevant secondary data might be hard to find. (Johnson & Turner, 2003) In order to find relevant secondary data and understand it, the researchers in this master thesis spent an extensive amount of time looking through different folders and documents on the company’s SharePoint site. The different employees at the department were also asked if they had any recommendations on documents that could contain suitable data to be used in this research.
There are several types of secondary data; personal documents, official documents and archived research data (Johnson & Turner, 2003). In this master thesis the secondary data that was used was primarily the documentation of the business development process description that was investigated. This process description had been developed by a consultant two months prior to the initiation of the research and the process description was documented in folders on the department’s SharePoint site. In addition to the process description, documentation from old projects on the SharePoint site was also used as secondary data; this to see what methods and tools the employees had previously worked with when performing business development. All the secondary data that were used in this research can be categorised as official documents since they were recorded on behalf of the organisation (Johnson & Turner, 2003).

2.3 Analysis of data

In a qualitative analysis of empirical data there are three ways of analysing that are common to use; summarising the data, categorising the data and structuring the data using narratives (Lewis et al., 2009). In this research, the analysis of data consisted of a summarising and a categorising part; no structuring of data using narratives was performed.

Summarising

In the first step of the data analysing, all documentation from the interviews and observations was thoroughly read in order to identify the key points in the data and summarise these into short statements. These statements were written down on post-it notes in order to subsequently be categorised into groups of problem areas.

Categorising

The next step of analysing the data included categorising it. This was achieved by grouping the post-it notes developed in the previous step together in order to find the larger problem areas, see Figure 2. The grouping of post-it notes was performed without a clear definition of what categories the post-it notes should be grouped according to; instead the post-it notes were moved back and forth on a whiteboard until defined problem areas could be seen and after that a category name was given to the problem area.

By categorising the data in this way, the main themes of the data collection emerged and the larger problem areas with the current process description became clear. It also became easier to search for patterns of relationship in the data as it was categorised into problem areas. As these larger problem areas were identified, the upcoming literature review could also be directed towards specific topics in order to find inspiration and suggestions on how to solve the problems.

Triangulation

By using two or more sources of data or data-collection methods in a research the data can be verified in order to secure that it is correctly understood (Lewis et al., 2009). In this research primary data was collected through interviews and observations; additionally, secondary data was collected through reading of process and project documentation. These different sources enabled cross-checking of the data and thereby they increased the validity of the result of this research.
2.4 Literature review

The literature sources that were used for information gathering in this master thesis were mostly books and peer-reviewed journal articles. When performing the literature review, the researchers read the articles and books in two steps; first they were skimmed through in order to assess if they were relevant to read for this research. If they passed this first step they were read more thoroughly by the researchers in order to gain a deeper understanding of the article or book and its subject. (Williamson, 2002)

Literature reviews were conducted at two times in this master thesis. The first literature review was aimed at gaining an overall view of previous research in the area of user-friendly design; this in order to see what the focus of previous research had been and to ensure that the research topic of this master thesis would contribute to the research in this area. In addition, research was sought on user-friendly development in order to find suggestions for how the improvement work of the process description should be executed in order for it to become as user-friendly as possible. The suggestions found were then tested in this master thesis work in order to afterwards evaluate their effectiveness. This first literature review was performed in the beginning of the research.

In the second literature review was literature sought on user-friendly design in order to find important aspects to consider when developing the process description; these aspects were then used to form the criteria that the first hypothesis proposed could be used for guiding the development of a user-friendly process description. The second literature review was also aimed at finding inspiration and suggestions for how the process description could be changed in order to become more user-friendly; the problems and problem areas found in the data collection guided this search of literature. In addition, the second literature review also included searching for research in the area of product development; here with the aim to find best practice for the design of process descriptions in product development. Even though this literature review was mainly conducted before the improvement work phase started, some additional literature needed to be sought during the improvement work in order to find further inspiration on how to solve some problems that arose.
In this section, literature concerning what constitutes as user-friendly design will be reviewed in order to find important aspects to consider when developing the process description. These aspects will form the criteria that the first hypothesis proposes can be used for guiding the development of a user-friendly process description. Aspects for achieving user-friendly design are therefore presented for the different design areas; effective interaction design, human-computer interaction and user-friendly work process design. In the end of this section will the identified aspects for user-friendly design be summarised and analysed in order to define the criteria that will be used to define and guide user-friendly design in this research.

Literature has been sought in three different subject areas; user-friendly design, user-friendly development methodology, and product development processes. Some keywords that have been used to search for relevant articles and books concerning these subject areas can be seen below.

Literature concerning user-friendly design; interaction design, user-centred design, user interface, user-friendly process design, process visualisation.

Literature concerning user-friendly development methodology; user-friendly development, user-friendly process development, implementation external consultants, knowledge transfer consultants, consultant process implementation.

Literature concerning product development processes; product development model, product development process, new product development process, method product development, product development tools, business plan, business development process.

Source criticism
In a qualitative study, source criticism is an important aspect to consider when searching for previous literature. When reviewing the literature there are four important aspects to consider; publication date of the article, if it is a primary or secondary source, trustworthiness of the source, and authenticity. The publication date is important to consider in order to ensure that the information in the article is up-to-date and relevant; since many research areas advance fast, old articles can become outdated quickly. If it is a primary or secondary source is important to investigate since secondary sources often adapt the information to fit their own interest and purpose; therefore primary sources are always to prefer. The trustworthiness of a source can be ensured by investigating the number of other researches that have referenced this source in their publications; the more articles the source is quoted in, the more trustworthy it can be considered to be. The last aspect, authenticity, is important to consider since there are a lot of information on the internet today, however far from all information is correct; it can range from small details that are wrong to the basic information being incorrect. (Eriksson & Wiedersheim-Paul, 2006) By reviewing the articles with these four criteria in mind, the articles that were not appropriate or relevant for this master thesis could be sorted out.

In order to secure the trustworthiness and authenticity of the literature used in this thesis, only peer-reviewed and published articles and books were used. If some information was considered questionable, additional sources were sought in order to cross-reference that the information was true. In addition, articles were mostly searched for on Google scholar, where the number of articles it was quoted in acted as a measurement for the impact the research has had on other studies and how reliable it could be considered to be. The date of publication was also
considered when reading an article, and the information in it was questioned if it still could be considered valid. Primary sources were also always preferred before secondary sources, and if an article had referenced another article the original source was always sought; however sometimes the original source could not be attained and in those cases the secondary sources were used.

2.5 Improvement work

The major part of this thesis work was spent in the improvement work phase; improving the process description. In this phase an iterative process was used and the users were highly involved in the development. According to Alben (1996), user involvement and iterations are two important characteristics of a design process in order to succeed with the development of a good interaction design.

A high user involvement ensures that the process meets the needs of the users at the same time as it is more likely that the users will endorse the new process if they have been involved in its development and their input have been used to improve the process (Massey, 2011). In addition, the user involvement contributes to a "controlled by us" feeling rather than the "imposed by them" feeling that often occurs when users are instructed to work according to a ready-made process that has been developed without user involvement (Massey, 2011). By improving the process in a collaborative way with the users, the users’ understanding of the process will also increase and this will according to Gable (1996) result in a more effective implementation.

For the iterative aspect of the development, inspiration was taken from agile development which is an iterative development methodology that allows projects to develop over time. By using several iterations in the development, the evolving needs of the users can be taken into consideration, resulting in a final service or product that is better suited for the users (Stickdorn & Schneider, 2011). Agile development can be illustrated as a spiral process where the process starts with a basic concept and the rapid development of a first prototype. This prototype is quickly tested and evaluated by customers in order to receive feedback for further improvements. After the evaluation, the requirements for the product/service are updated and the second lap in the spiral begins with the development of a new prototype, which in turn is evaluated by customers. The development continues like this going back and forth between creating new prototypes and testing with users. (Ullman, 2010)

An illustration of the iterative process that was used in the improvement work of this master thesis work can be seen in Figure 3; the process constituted of a development, implementation and evaluation phase. The number of iterations used depended on the feedback received from the users in the implementation phase; the iterations continued until the optimal process description, according to the users, had been achieved.
Development

In the development phase were ideas and suggestions developed for how the identified problems in the process description could be solved. The problems and problem areas that were the outcome of the empirical data collection were analysed and compared to the research found in the literature review in order to find inspiration on how to improve the process description and make it more user-friendly. The process description was also compared to best practice within product development as well as to the process description used at the Electricity Sales and Marketing department.

Idea generation was performed between the two researchers as well as with different users. By idea generating and co-creating with users, a wider range of perspectives can be gathered and involved in the development; it also facilitates future collaboration as it creates a shared ownership over the concepts being developed (Stickdorn & Schneider, 2011). According to Abras, Maloney-Krichmar and Preece (2004), listening to users discuss alternative designs can improve the designers understanding of the purpose of the product. This was why co-creation was used in this research; to gain a deeper understanding for the purpose of the process and for how it is used.
Implementation and testing of changes
During the implementation phase, testing was frequently conducted in order to investigate what the employees thought of the changes that had been made to the process description. The changes that were made to the process description were conducted on two different levels; changes concerning overall process structure and visualisation, as well as changes to specific methods and tools. First were the changes concerning the overall process structure implemented and tested, and secondly were changes regarding the different methods and tools tested. During the testing of changes, the employees were presented with a new developed process structure/method or tool and asked to try and follow the instructions and afterwards give their feedback on the changes made as well as suggest further improvements to be made.

Evaluation of changes
When the testing of changes phase was completed, the results from the observations and interviews were analysed and evaluated by the researchers. This evaluation resulted in suggestions for additional improvements to be made and these suggestions became the input for the next iteration of the improvement cycle. The improvement work was iterated in this way until the employees were satisfied with the developed process structure as well as the methods and tools included in the process description.

2.6 Validity and reliability
Validity and reliability are important criteria in assessing the quality of quantitative research. Validity refers to if the researcher really is investigating what is stated to be studied and reliability refers to what degree a study can be replicated. However, in qualitative research these measurements cannot always be applied according to the same definitions, this due to the different nature of the research. (Bryman & Bell, 2007) Therefore an extended and adapted version of validity and reliability was used in order to describe how the researchers of this master thesis secured the quality of the research. Following is a description of how external and internal reliability as well as external and internal validity were achieved in this study.

External reliability refers to the degree to which a study can be replicated. This criterion might be hard to meet in a qualitative study since it is impossible to freeze a social setting and the circumstances of an initial study. However, in order to increase the external reliability of the research, an auditing approach can be adopted where records are kept of all phases of the research process in order to simplify the replication of the study. (ibid) For this reason, the research performed in this master thesis was extensively documented in order to increase the external reliability.

Internal reliability concerns research where there is more than one observer; then the researchers need to agree about what they have seen and heard. This is similar to inter-observer consistency where it is noticed that there is a risk for a lack of consistency when there are more than one observer involved in the recording of observations and categorization of data; this due to the subjective judgement involved in such activities. (ibid) To avoid this risk the researchers in this master thesis communicated extensively; after each observation and interview the gathered data was compared and discussed in order to avoid differing opinions and thereby achieve internal reliability.
External validity refers to the extent to which the result of a research can be generalized to apply to other research settings; this is often a problem in qualitative research since these studies often concern small samples and case studies (*ibid*). This was also the case of the research performed in this master thesis. To manage this problem of external validity, rich descriptions were produced of the details of the research setting; this to make it easier for other researchers to evaluate the transferability of the findings of this research on to other settings.

Internal validity concerns the congruence between the researchers' observations and the theoretical ideas developed. This aspect is often a strength in qualitative research since the researchers often are in close contact with the subject of the research for a long period of time. (Bryman & Bell, 2007) In this study the researchers were situated at the department of New Business at Fortum for 20 weeks and thereby observed the setting closely for a long period of time, something that contributed to a high level of internal validity in the research. In addition was respondent validation used to increase the validity of interviews and observations; the findings from interviews and observations were presented to the participants in order to validate that the information was correct. Furthermore was the method of triangulation used to secure that the information used in the research was correct. The method includes using more than one source of data in order to cross-check the data and ensure that it is accurate; thereby increasing the validity of the research (*ibid*). In the research of this master thesis was empirical data collected through interviews, observations, as well as reading of project and process documentation.
3. Theoretical framework

In this chapter, the theoretical framework used in this research will be presented. The chapter is divided into three parts; user-friendly design, user-friendly development methodology, and product development processes. The first part, user-friendly design, relates to the first research question concerning how the process description should be designed in order to be user-friendly. The second part, user-friendly development methodology relates to the second research question concerning how the improvement work should be carried out in order to achieve a user-friendly process description. The third part, product development processes, presents best practice for processes used in product development; the purpose of this literature is to find inspiration on good process design as well as to ensure that all necessary parts are incorporated into the developed process description.

When reviewing the research performed concerning user-friendly design and development, no research could be found concerning business development processes in specific. In addition, all literature found on product development processes only included how a process should be structured on a higher level; no detailed descriptions could be found on how the process should be designed and used practically. Therefore, the scope of the literature review needed to be expanded into other design areas, such as Effective interaction design, Human-computer interaction, Work process design, User-centred design, as well as literature concerning development work by external consultants.

The literature area of Effective interaction design considers criteria for evaluating user-friendly product design, and this has been considered applicable to this research since the developed process description can be considered a product given to the Business Development team to use. The areas of Human-computer interaction as well as User-centred design have also been considered relevant for the development of criteria to evaluate the user-friendliness of the process description; this since the process description constitutes of methods and tools developed in different computer software, such as power-point and excel. The literature concerning work process design is from the area of environmental projects, however, reading the literature it can be concluded that a lot of the ideas and considerations are very general and it is therefore believed that they successfully can be transferred to the area of business development. The area of literature concerning consultancy work has been included since the chosen approach of action research can be compared to working as consultants at the same time as performing research. The literature on development work by external consultants therefore provides the researchers with important aspects to consider for performing a successful improvement work of the process description.

3.1 User-friendly design

In this section, literature concerning what constitutes as user-friendly design will be reviewed in order to find important aspects to consider when developing the process description. These aspects will form the criteria that the first hypothesis proposes can be used for guiding the development of a user-friendly process description. Aspects for achieving user-friendly design are therefore presented for the different design areas; effective interaction design, human-computer interaction and user-friendly work process design. In the end of this section will the identified aspects for user-friendly design be summarised and analysed in order to define the criteria that will be used to define and guide user-friendly design in this research.
Effective interaction design

In the article "Defining the criteria for effective interaction design", Alben (1996) presents the eight criteria used for determining quality of experience in the competition for the Interactions Design Award given by the Association for Computing Machinery. The purpose of this award is to acknowledge interaction design that leads to quality of experience for the users. The eight criteria used are; Needed, Learnable and Usable, Appropriate, Aesthetic experience, Mutable, Manageable, Understanding of users, and Effective design process.

The first six criteria make a direct contribution to the user experience, while the following two criteria consider the development process used by the designers - indirectly affecting the user experience (ibid). Beneath, a short description of the first six criteria will follow; however the last two criteria will be described in the following section about user-friendly development methodology.

The criterion Needed examines whether the product satisfies an actual need of the users. The criterion Learnable and Usable deals with questions concerning how easy the product is to learn and use; does it clearly communicate its purpose, how to start and how to proceed using it? It also considers how well the product allows for the different ways users will approach and use it; taking into account the different levels of experience and skills among the users. Appropriate is a criterion that questions if the design of the product serves the users in an efficient and practical way; does it solve the right problem at the right level? The next criterion, Aesthetic experience, considers the aesthetic aspects of using the product; is the product cohesively designed, is it exhibiting excellence in graphics and interaction? The criterion Mutable considers how well the product can be changed in order to suit the individual needs and preferences of users. It also considers if the design allows the product to develop in order to serve new and unanticipated needs. The last criterion, Manageable, questions if the design supports the entire context of use and not only its primary area of usage. For example, does it help users manage needs such as installation, training, maintenance, costs and supplies? (ibid)

These are the eight criteria that the contributions for the Interactions Design Award are evaluated according to. By developing these criteria the Association for Computing Machinery tries to define what great interaction design is, and this makes these criteria a good guidance in the work of designing an interactive product. (ibid)

Human-computer interaction

The goal of human-computer interaction (HCI) design is to produce interactive software that can be used efficiently, effectively, safely and with satisfaction by the users. Usability is the central concept of HCI and it is defined by the two aspects "ease of use" and "usefulness". One of the two is not enough since an easy-to-use system is of little value if it does not support its users' needs in terms of functionality. Even if it is not obvious, usability is tangible and can be quantified; the aspect "ease of use" includes measurable attributes such as learnability, speed of user task performance, user error rates, and subjective user satisfaction. A good design guideline is "Lead, follow, or get out of the way"; this suggest that a good interface design leads the novice user through the tasks, follows the intermediate user and gives informative feedback, and gets out of the way of expert users. (Hartson, 1998)
In the article "Exploring colour in interface design" Shubin, Falck and Johansen (1996) explains the importance of choosing and combining colours right in order to experience the potential of the different interactions of colours. All different combinations of colours can achieve an effect that is not found in the individual colour; therefore is colour a useful design tool. For example, can the combination of complementary colours with similar light values be very powerful as it draws the viewer's attention to it. (ibid)

**Work process design**

The purpose of procedures is to help project teams implement the tasks that are described in a typical project work plan. When designing procedures and processes, it is important to consider those who will use these in their everyday work. In the ideal situation procedures should be "process thinking" made visible, however, many workers will say that procedures are bureaucracy made visible. (Massey, 2011)

In the book Best Practices for Environmental Project Teams, Massey (2011) dedicates the 10th chapter to focusing on how to design user-friendly work processes for project teams. In this chapter attributes are described that define an effective process which is highly valued by the team members who implement it - the process users. The opposite of these performance attributes are often the barriers that inhibit continuous process improvement and therefore are they important to consider when designing an effective and user-friendly process. A benefit of having an effective process is that it will simplify and speed up the training of new staff. It will also allow the new employees to gain confidence quicker; knowing that they are performing the job correctly if they are following the procedure. (ibid)

One important aspect to consider for a work process to become effective is that it is considered user-friendly by those who use it. In order for a process to be user-friendly it needs to have easy access, be easy to implement, and represent the most efficient way to complete the work - according to the users; this in order to motivate the employees to use it. If it is too bureaucratic and difficult to use, the employees will find other ways to perform work without using the intended procedure. To be an efficient process the tasks should be placed in a proper sequence since this will allow the work to be performed in less time as well as it will eliminate process redundancies. (ibid)

Procedures that are easy to implement require less time for understanding the process, the procedure should use little narrative verbiage since users do not have the time to read it; instead should an effective procedure use a lot of visuals. Favourably, a good procedure starts with a flow chart that visually shows how the procedure works and thereby illustrates the big picture to the user. In addition, the responsibilities in the process should be clear, process steps should be described in the correct sequence, forms should be accurate and clear, checklists should be included, and it should contain examples of what is acceptable work. When developing checklists it is important to design them to engage thinking instead of just doing; therefore they need to contain acceptable criteria and consider risks. The exhibits that are suggested to be included in the procedure could be examples of properly completed forms, screen shots of computer documents, photos with annotations as well as video clips. The purpose of this is to aid the training of the procedure and clarify how the different steps should be performed. Annotations are useful in these examples in order to clarify the different steps and key points of the example. (ibid)
Finally, a process needs to be easy to revise in order for it to be updated continuously. If the procedure review cycles require too much time and effort, the managers will become reluctant to revise the procedure. This can result in that employees update and change the procedure for their own use and that the official procedure no longer is the one being used; something that can become a problem when new employees are hired and trained according to an obsolete procedure. (Massey, 2011)

**User-friendly design criteria**

After reviewing the literature in the areas of effective interaction design, human-computer interaction, as well as work process design, several important aspects have been found concerning the development of a user-friendly product/software/work process. Analysing and comparing the aspects found, it can be concluded that four of the aspects can be found in all three areas of research; Needed, Efficient, Learnable and Usable, and Visual. Since these aspects were considered important in all three areas of research, it was assumed that they would be important for the achievement of a user-friendly process description in business development as well. The identified aspects were therefore chosen to represent the criteria that would be used for guiding the user-friendly development of the process description in this thesis work. The chosen criteria, as well as the aspects found in the literature that they relate to, can be seen in Table 1.

In order to use the criteria for guiding the improvement work of this master thesis, the different criteria have been defined as following. The criteria needed considers if there is a need for the process and all of its methods and tools. Efficient relates to that the process and the usage of its methods and tools should be the most efficient way to conduct work; maximum result should be achieved for the time invested. Learnable and Usable concerns how easy the process description is to follow and how easy it is to understand and use its methods and tools. Visual relates to the usage of visuals in order to clarify the process structure and simplify the usage of methods and tools.
Table 1. Comparison of the chosen design criteria for user-friendly design in this research and the aspects considered in the literature on user-friendly design.

<table>
<thead>
<tr>
<th>Literature Criteria</th>
<th>Effective interaction design</th>
<th>Human-computer interaction</th>
<th>Work process design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needed</td>
<td>Needed</td>
<td>Usefulness Subjective user satisfaction</td>
<td>Meet the needs of the users</td>
</tr>
<tr>
<td>Efficient</td>
<td>Appropriate</td>
<td>Usefulness Speed of user task performance</td>
<td>Efficient process Easy access Easy to implement Tasks in proper sequence</td>
</tr>
<tr>
<td>Learnable and Usable</td>
<td>Learnable and usable</td>
<td>Ease of use Learnability User error rates Subjective user satisfaction</td>
<td>Less time for understanding the process Inclusion of exhibits Easy to implement</td>
</tr>
<tr>
<td>Visual</td>
<td>Aesthetic experience Cohesive design</td>
<td>Ease of use Colour combinations</td>
<td>Little narrative verbiage A lot of visuals Usage of flow charts</td>
</tr>
</tbody>
</table>

3.2 User-friendly development methodology

In this section, literature concerning user-friendly development methodology will be reviewed in order to find development principles to base the improvement work of this research on. Since the second research question considers how the improvement work should be carried out in order to achieve a user-friendly process description, it is important to define what principles this improvement work will be based on in order to later evaluate its success. Aspects which are important to consider in the aim of achieving a user-friendly development process are therefore presented for the different design areas; effective interaction design, development work by external consultants, user-centred design, and human-computer interaction. In the end of this section will the identified aspects for achieving a user-friendly development process be summarised and analysed in order to define the development principles that will be used to perform and evaluate the improvement work of this research.
Effective interaction design

Here are the last two criteria from the article "Defining the criteria for effective interaction design" described, these are the two criteria that considered the development process used by the designers; Understanding of users and Effective design process (Alben, 1996).

The criterion Understanding of users considers how well the design team has understood the needs, tasks and environments of the intended users of the product. The Effective design process criterion questions if the product was a result of a well-thought-out and well-executed design process. For this criterion the jury expects the design process to include user involvement, iterations and multidisciplinary collaboration in order to success with developing a good interaction design. (ibid)

Development work by external consultants

When firms are engaging external consultants for implementing a process, they expect the consultants to transfer their knowledge about implementation to the employees in order to make it possible for them to maintain the process without further external help (Ko, Kirsch & King, 2005; Gable, 1996). Therefore, during the consultants work, the consultant should try to improve the clients understanding to achieve a more effective implementation (Gable, 1996).

Consultants are basically selling their services, and the customers of services do not value the quality of the service on just the result of the service, but on the whole process of the service delivery. Therefore, it is important that a consultant that wants to help an organisation considers both the end result as well as the development process. (ibid)

In order for a work process to become effective, it needs to be endorsed and used by its target group. By designing a process that meets the needs of the users, the likelihood of the process being used increases. In addition, if the users are involved in the development of the process and their input is utilised in order to improve the process, it is more likely that the process will be endorsed by the users. However, many procedures are developed by professionals without involving the users and this often leads to faulty processes containing many errors. (Massey, 2011)

User-centred design

User-centred design (UCD) is a design process that lets the end-users have an influence on how the design takes shape (Abras et al., 2004). Karat (1996) defines UCD according to “For me, UCD is an iterative process whose goal is the development of usable systems, achieved through involvement of potential users of a system in system design.”

Vredenburg, Mao, Smith & Carey (2002) explains that the five most commonly used methods for UCD are iterative design, usability evaluation, task analysis, informal expert review and field studies. During this research the methods iterative design, usability evaluation and task analysis has been considered suitable to use for creating a user-friendly process description; these methods will be described further beneath. The methods informal expert review and field studies have however not been used.

The outline for a process description for developing new products or services can be structured in a somewhat clear linear way; however the development is not linear in reality. When
developing new products or services it is important to understand that, at every stage of the development process, a step back might need to be taken, or even a restart from scratch. Using an iterative approach, enables the developers to learn from the mistakes that were made in the previous iteration, and thereby assure that the result of that iteration cycle is better than the previous. (Stickdorn & Schneider, 2011)

There are two main types of usability evaluations; summative evaluation and formative evaluation. Summative evaluation is used to evaluate a finished product; to measure the level of usability achieved. In contrast, formative evaluation is used to detect and solve usability problems before the interaction design is finalised; thereby aiding the development of a user-friendly design. Formative evaluation relies on both quantitative and qualitative data. The quantitative data can be gathered through benchmarking tasks looking at parameters such as time on task and error rates, as well as through performing user questionnaires. User questionnaires can produce subjective data such as user satisfaction. (Hartson, 1998)

When analysing this quantitative data, the data is compared against pre-determined usability specifications with measurable goals to determine success in the interaction design. The purpose of collecting quantitative data is to use it as a measurement for the progress of the development; this in order to see that the usability is actually improving with each design iteration, as well as to know when to stop iterating. However, even more valuable than the quantitative data is the qualitative data gathered in usability evaluations. This data can help identify critical incidents that can indicate usability problems in the design. (ibid)

Another important aspect when designing a user interface is to understand what tasks the users will utilize the system for and how those tasks will be performed. One way to describe the tasks and the relationships between tasks and subtasks is called task analysis. Since designing for usability implies understanding user tasks; task analysis is an essential method for achieving good interaction design. (ibid)

**Human-computer interaction**

In order to achieve good usability, attention needs to be focused at both the product as well as the development process. A user interaction development process should be an iterative process of design and evaluation; through this will the design specification for the user interface evolve step by step. Additionally, in order to perform good interaction design, it is important to involve users early and repeatedly in the development process. One way of involving the users is through "participatory design"; this suggests that the users should be involved in creating designs they will be using, and that all stakeholders should have equal say concerning the interaction design. (Hartson, 1998)

Interaction development must also involve some form of usability evaluation; one way to identify usability problems is to use rapid prototypes; this is an early and inexpensive method for evaluating usability problems before resources are dedicated to implementing that design in software. These rapid prototypes can at an early stage be developed using only paper and pencil; this has proven to be as effective in discovering usability problems as using interactive computer-based prototypes. Paper prototypes are also considered more flexible in exploring variations of interaction behaviour. (ibid)
User-friendly development principles

In the presented literature have the importance of having an effective design process been stressed; it has been suggested that it is as important to focus on the development process as on the final product in order to achieve a user-friendly product (Alben, 1996; Gable, 1996; Hartson, 1998). The importance of user involvement has been emphasised in all reviewed areas of research and this strengthens the hypothesis stated in the commencement of this master thesis, where it was assumed that a close collaboration with the users will make the improved process description better adapted to the users' needs and thereby make it more user-friendly.

In order to test this hypothesis, two principles have been chosen for the improvement work of this research; user involvement and iterative process. Both these principles have been discussed frequently in the reviewed literature and all reviewed areas of research agree on that these principles are important to consider in the aim of achieving a user-friendly design.

These principles have been used to guide the improvement work, and the evaluation of the principles success have enabled the researchers to answer the second research question concerning how the improvement work should be carried out in order to achieve a user-friendly process description. In Table 2 can the guiding principles be seen, as well as how these relate to the different aspects presented in the previous theory section.

Table 2. Comparison of the chosen development principles for user-friendly development in this research and the aspects considered in the literature on user-friendly development.

<table>
<thead>
<tr>
<th>Literature Principles</th>
<th>Effective interaction design</th>
<th>Development work by external consultants</th>
<th>User-centred design</th>
<th>Human-computer interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>User involvement</td>
<td>User involvement</td>
<td>User involvement</td>
<td>Let the end-users have influence</td>
<td>Involve users early and repeatedly Participatory design</td>
</tr>
<tr>
<td></td>
<td>Understanding of users</td>
<td>Meet the needs of the users</td>
<td>Involvement of potential users</td>
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<td></td>
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<td></td>
<td>Task analysis</td>
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<td>Usability evaluation</td>
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<tr>
<td>Iterative process</td>
<td>Iterations</td>
<td>Iterative process</td>
<td>Iterative process of design and evaluation</td>
<td>Rapid prototyping</td>
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3.3 Product development processes

The ITM process that the consultant developed can be considered equivalent to a product development process with the exception that no technical development or production is performed; instead these activities are performed by partner companies. For this reason, this section will review literature on best practice in product development processes in order to be able to compare the old ITM process to these processes in the improvement work and see if any important activities are missing as well as receive inspiration on how the ITM process can be improved.

Ulrich and Eppinger (2012) describe a process according to the definition: “A process is a sequence of steps that transforms a set of input into a set of outputs”. A product development process is the different steps and activities that needs to be performed in order to create, design and commercialise a product. Many of these steps and activities are not physical, but rather intellectual and organisational. (ibid)

There is no precise way to design an organisation’s product development process and no organisation's process is the same as another ones. Some organisations want to follow a detailed and specific product development process, while others do not think that a description of the process is necessary. The same organisation might also have different processes for different types of development projects. A development process that is well defined is useful for quality assurance of the resulting product, coordination of the team roles, planning milestones and deadlines, managing the project, as well as further improvements. (ibid)

Stage Gate

Stage-Gate is a systematic process for proceeding a new product project through the various steps from idea to launch, see Figure 4. The Stage-Gate process divides the project into discrete and identifiable stages; the number of stages is predetermined and is usually between four and six. Each stage consists of pre-described, multifunctional, and parallel activities which are designed to gather the information needed for moving the project to the next decision gate. These decision gates acts as checkpoints where the project is compared to "must meet" project requirements. At the decision gate is a go or kill decision taken for the project; it is decided if the project is allowed to proceed into the next stage or if it should be terminated. (Cooper & Kleinschmidt, 2001) Usually there is a formal meeting at the gate, where the project team reports their progress to the management (Ullman, 2010). Present at the meeting are senior managers from the different functions who "own" the resources the project requires (Cooper & Kleinschmidt, 2001).

These decision gates help the project team to know at an early stage of the process if the project is not considered feasible and thereby should be terminated before any more recourses are spent on it (Ullman, 2010). This is important since the cost of a development project often increases exponentially over time. Other benefits of using a Stage-Gate process includes; improved teamwork, less recycling and less rework, improved success rate, earlier failure detection, better launches, and shorter cycle times (Cooper & Kleinschmidt, 2001).
Cooper & Kleinschmidt (2001) gives an example of the different stages and gates that usually are included in a product development process if a Stage-Gate approach is used. The process consists of five different stages; Preliminary Investigation, Build business case, Development, Testing & Validation and Full production & Market launch. Between these stages are the gates; Initial screen, Second screen, Decision on business case, Post-development review and Pre-commercialisation business analysis. The process starts with ideas from the previous Ideation being assessed in the initial screen, and it ends with a Post implementation review, see Figure 5.

Figure 5. Example of a Stage-Gate process for product development. (Cooper & Kleinschmidt, 2001)
British Standard BS 7000 'Guide to managing product design'

The guide to managing product design explained in the British Standard BS 7000 describes the key activities that need to be performed in order to develop new products. The process is divided into four overall stages: Motivation need, Creation, Operation and Disposal. These stages in their turn consist of more detailed phases with a defined outcome of every phase, see Figure 6. (Cross, 2000)

Figure 6. The key activities needed to develop new products according to BS 7000. (Cross, 2000)
The 10 most conducted activities in new product development

In the study that Mahajan and Wind conducted in 1992, they asked their respondents to identify the activities that they were conducting when developing new products, ranging from new product idea generation to market launch and planning. The ten most conducted activities according to this study are listed in Figure 7. (Mahajan & Wind, 1992)

Figure 7. The ten most conducted activities in new product development.
(Mahajan & Wind, 1992)
Business plan

When starting up a new business, one of the first steps is to create a business plan. A business plan is a tool for understanding how the business will work; it provides an organised way to conduct investigations (Entrepreneurship centre, 2002). The business plan can be used as a feasibility study and reality check of the idea in order to make more informed decisions, to plot a course and plan the implementation, as well as be used as a selling tool for attracting investors. The business plan aids with; focusing the business activities and maximising the usage of resources, understanding the financial aspects of the business, gathering important industry information, anticipating and avoiding possible obstacles, setting specific goals and measurements to evaluate progress over time, expanding in new and lucrative directions, and persuading investors for funding (Abrams, 2003). An example of a business plan outline is given in Figure 8; however the content may differ depending on the type of business, the purpose of the plan and the intended reader (Entrepreneurship centre, 2002).

1. Table of contents
2. Executive Summary
3. Company Profile
4. Marketing Plan
   • Industry Trends
   • Product/Service
   • Target Market
   • Competitive Analysis
   • Marketing Mix
     ✓ Promotion
     ✓ Place
     ✓ Price
     ✓ Product
5. Operational Plan
   • Suppliers
   • Manufacturing Plans
   • Operating Requirements
   • Human Resources
6. Financial Plan
   • Start-up Costs
   • Cash Flow Statement
   • Income Statement
   • Balance Sheet
7. Appendix

Figure 8. Example outline for a business plan (Entrepreneurship centre, 2002).
4. Empirical findings

In this chapter, the previously developed Idea To Market (ITM) process will be described. This process was developed by a consultant together with the Business Development team during the fall of 2012. After a first description of the process will the identified problems concerning the ITM process be explained. The last section of this chapter will give a short description of the subdivision Electricity Sales and Marketing's development process; this is a department that the Business development team collaborates with extensively. The empirical findings have been collected through interviews and observations with employees at both the department of New Business as well as the department of Electricity Sales and Marketing (ESM), as well as from reading project documentation available on the two subdivisions’ SharePoint sites.

4.1 ITM process

This section will describe the original Idea To Market (ITM) process. The original process was divided into four major phases; Ideation, Development, Execution and Sales, as can be seen in Figure 9. Beneath will the major components and focus of the different phases be described.

![Figure 9. An overview of New Business’ “Idea to market” process.](image)

**Ideation**

In the Ideation phase, the process included methods and tools for comparing the value vs. effort relationship of ideas, and tools for making opportunity proposals and assessments. These tools were used to decide which opportunities that should be further developed in the Development phase. The Ideation phase ended with a Gate1 decision; here it was decided which of the ideas that were thought to be enough of an opportunity to be brought forward into the development phase. This decision was made by a steering group for the project including department managers.
Development
In the Development phase, the initial idea was investigated further and a business case was developed around it. The business case included different methods and tools for investigating and developing the different elements of the business case, and thereby developing the idea further. First a tool called Business case exploration plan was undertaken; the purpose of this tool was to estimate the uncertainty and importance of the different elements of the business case for that particular idea. By multiplying these two factors an uncertainty score was attained for each element of the business case and the element with the highest score was considered most uncertain and should therefore be carried out first; this in order to avoid potential killer variables later in the development. Consequently, this tool decided the order in which the activities in the Development phase should be carried out.

The different elements that were included in the business case and that were put into the Business case exploration plan tool were Opportunity proposal, Market segmentation, Competitive analysis, Customer segmentation, Product description, Differentiation and competitive advantage, Business model, Product segmentation, Product packaging and pricing, Financial analysis, Operational assessment, Risk assessment and Roadmap.

The Development phase also included initiating the development of a project plan and as this phase came to an end, a project charter was to be finalised. The phase ended with a Gate2 decision; here the steering group decided on if the project was ready to go in to the Execution phase or not.

Execution
As the Execution phase was initiated, the project charter was further developed into a project plan which defined the work that was about to be carried out in this phase. The phase included the development of a Go To Market plan which in turn included a product plan, marketing plan, sales plan and launch plan. There were no methods or tools included in this phase in order to develop the Go To Market plan.

The phase ended with a Gate3 decision where the steering group decided if the project was ready for launch and additionally if the timing was right for launch.

Sales
The developed process did not include any material for the Sales phase, here the product was supposed to be handed over to the regular operations, and thereby was the project terminated after the launch phase.

Practical usage of the process description
The process delivered by the consultant was documented in a folder on the team's SharePoint site. There was one root folder which included 26 additional folders which were named after the method or tool that the folder included, however some folders could contain several methods and tools. The folders with the methods and tools were not separated according to which phase they belonged to, instead they all lay in the root folder and the name of the tool decided the order of the folders. The root folder also included overview documents of the process as well as some instruction documents.
When working according to the process, the business developer should look at the overview document and find the name of the next tool or method to use. When knowing what tool to use next, the business developer should go into the root folder and find the folder with the name of the tool and then perform the methods and tools included in this folder. However, in the Development phase the business developer should start with performing the Business case exploration plan and then let the result of this uncertainty assessment decide in which order the different elements of the business case should be performed.

When all the methods and tools included in the phase that the business developer was working in were finished, the results from the methods and tools should be summarised in one power-point presentation that constituted the material that was supposed to be shown to the steering group at the gate-meeting.

Methods and tools
The ITM process included approximately the same elements as the team had used in their development before. The difference was that before the employees had made every element from scratch in every new project, however with the new process they received some methods and tools to follow, as well as templates for presentation material. The new process description also resulted in the department receiving some completely new methods and tools to help them with their development work.

The process consisted of different types of computer documents; there were excel tools, power-point templates, power-point checklists and pdf-examples. Most of the excel tools contained calculations which resulted in some kind of numerical result; this result was either shown in a graph or in a table which could be used to make comparisons between different alternatives. The power-point documents were all templates that were supposed to be filled out with information gained from some investigation. The checklists were also made in power-point documents; these consisted of pre-fabricated lists with areas and aspects that were supposed to be investigated and afterwards check marked. To some tools there were example documents that showed what the tool could look like when it was completed and filled out; these example documents were both saved as power point and pdf-documents.

4.2 Identified problems with the ITM process
In this section the identified issues and problems with the ITM process will be described. A summary of the identified problems can be found in Appendix 2. The problems are divided into two categories; problems concerning the process structure and problems concerning the methods and tools. The problems described in this chapter were used as input for the improvement work performed on the process description.

Process structure
The overall picture of the process description was not clear to the employees; they had a hard time understanding how the different tools related to one another and they could not see the final goal of using the process description, they did not know what they were working towards. There was an overview document included in the root folder of the process; however this document was very cluttered and difficult to understand, see Figure 10.
Figure 10. Overview illustration of the different methods and tools in the process.

Overall, the process was not very structured; the employees thought it needed to be clearer, more intuitive and easier to use. There was no overall description of the process flow on a lower level than the process phases, the only thing similar to a process flow map was the overview illustration showed in Figure 10. Instead, the process consisted of methods and tools placed in different folders with no linking line of argument or traceability between them. The employees did not know how they should continue after having used one tool, for example if they were supposed to use another tool or show the result to someone.

Since the folders with the methods and tools were not grouped according to the phases of the process and neither numbered in the order they were supposed to be performed, the linking between the different methods and tools was hard to see. Since some of the methods and tools needed to be performed before others, it was important for the employees to know in which order they should be performed. In addition, the employees were missing an overall summary of the different tools that were included in the process and where they could be found. Since some folders contained more than one method or tool, the name of the folder did not always correspond to all tools located in it and this made it hard for the employees to know which tools that were located in which folder.

Due to that there was no linking between the different methods and tools, it was not possible for the employees to see how changes made to one tool affected the result from another tool. If the employees needed to iterate a step of the process and make changes to one tool, they did not know which other tools that were affected by this and thereby should be redone.

Another confusing aspect was that the phases in the Lean innovation funnel had two different names, as can be seen in the coloured boxes in Figure 9. There were also some other confusing names in the process description, for example was the same abbreviation, MVC, used at different places in the process, meaning different things. In one tool the abbreviation signified Minimum
Viable Concept while in another tool it meant Market Value vs. Cost. An additional name confusion concerned the term "business case"; the people working at the department of New Business associated the name "business case" to only an excel document with cost calculations concerning the product while the consultant used the name "business case" to describe everything that was produced in the Development phase of the process.

Generally, the process included few checkpoints; there were only gates between the different phases and no reality checks within the phases. Due to the length of the Development phase, which could go on for months, time and resources might be wasted on a project that in the end would not be launched. The time aspects of the different phases were also missing in the process description; there were no time schedule like a Gantt chart included in the process description.

Methods and tools
The employees thought that the developed process description included too many folders and tools for it to be used efficiently. They felt hopeless when they opened the folder structure and saw all the folders and tools; this hopelessness also related to that they did not know where to start working and how they would reach the end. In addition, the employees thought that some of the tools included too many steps that had to be completed; the tools were considered too extensive in order for them to be effective and easy to use.

The methods and tools in the process description were not considered to be very intuitive and easy to understand by the employees; many of the tools lacked or had poor instructions on how to use them. For many of the methods and tools it was not clear from where the input was supposed to be derived; the employees were confused if the input was supposed to be based on guessing and gut feeling or on thoroughly conducted research. Neither did the process description clarify when external customers should be involved in the process and their opinions used as input for the methods and tools. It was also unclear which tools that demanded collaboration with team members and which tools that could be used on your own. The amount of time that was needed to complete a method or tool was also unclear to the employees; due to this it was hard for the employees to understand how much effort and time that they were supposed to put into a method or tool.

Another confusing aspect for the employees was that the purpose of many tools was unclear; they did not know when to use the tool since the benefit and value of the tools were not described. In addition did many of the tools not clarify what the result indicated; it did not say what the result should be compared to and what could be considered a good or bad result. Neither did it explain what the result of the tool should be used for; should the result be used as input for another tool or should it be presented to someone and used for making a decision? Overall, it was unclear what the next step after completing a tool was.

Many of the tools were performed in excel files, however often it was hard for the employees to understand how the excel files should be used. There were often many tabs in the excel files and there were no instructions saying which tab the employee was supposed to start working with. In addition, the explanations were often scarce in these files and the explanations that did exist could be hard to find since they were hidden as comments to the different fields; only a small red triangle in the corner of the field indicated that a comment could be found there. Another problem with the excel files was that the colour coding differed between the different files. In
some excel files were the fields that were supposed to be filled out coloured yellow, however in some other files were those fields coloured white or another colour; this made it hard for the employees to understand which fields that should be filled out.

An additional problem was the inconsistent naming of the methods and tools; for some tools the folder had one name, and then the documents inside the folder were named something else. This made it hard for the employees to know which folder to open since it did not share the same name as the tool they were looking for. Once the employees had found the right folder, the next problem occurred; to find the right file to open. The folders often contained more than four documents with similar names and the same document was often saved as both a power-point or excel and a pdf. Sometimes it was the power-point document that was supposed to be opened and used for working, and sometimes it was the excel file or pdf-file; this made it confusing and time consuming for the employees who had to open all files in order to know which one to use. In addition to the files that were supposed to be used as templates, there were often example files added to the folders; these example files were also saved in both power-point or excel as well as pdf. However, every tool did not have a corresponding example document to show how the tool should be used and for some tools there were only an example document included and no template document.

A major problem with the process description was that it lacked methods and tools for several phases. There were no methods or tools for performing idea generation in the Ideation phase; no tools were included for creating, collecting, refining and combining ideas, as was falsely indicated by the process illustration showed in Figure 9. Instead the phase only included methods and tools for assessing ideas and deciding on if they should be further developed in the Development phase. In the Execution and Sales phase were no methods or tools included at all. Additionally, the process lacked a post-project evaluation; an evaluation like that would enable the department to learn from every project and create lessons learned for future projects.

The tool Business case exploration plan, see Figure 11, was supposed to estimate the uncertainty of the different elements of the business case and thereby be the guiding tool for in which order the methods and tools in the Development phase was supposed to be undertaken. However the employees thought that this tool was very unclear and they questioned the result of it as they based their input for the uncertainty and importance scoring on only gut feeling. In addition, some methods and tools needed to be performed before others as the result of one tool should be used as input for another; this undermined the purpose of the Business case exploration plan since the resulting order from this tool did not always constitute the order in which the employees in the end performed the tasks.
4.3 ESM's process

Another subdivision within Fortum called Electricity Sales and Marketing (ESM) had an own business development process which they had been working according to for the past twenty years. This was a process that they used in the development of, for example, new electricity contracts. However, ESM is often the internal customer of New Business' projects and thereby do the two subdivisions collaborate extensively. ESM is often involved from the start of New Business’ projects as one of the stakeholders, and from the Execution phase is the subdivision involved extensively in the development and from the start of the Sales phase is the idea that ESM should take over the project completely. For this reason, it was thought to be interesting for this master thesis to investigate ESM's process and see if parts of this process also could be incorporated into the ITM process in order for the two processes to correspond better and thereby facilitate the collaboration. In addition was it articulated by employees at the two subdivisions that one future aim was to have one business development process by which both subdivisions could work.

ESM's process was called the Offering development process and it was built up by six phases; idea generation, opportunity selection, build concept, development and testing, launch and post launch, see Figure 12. For each phase, the input to the phase, the activities in it and the output from it were described in the process description. Following each phase was also a gate where decisions were taken concerning if the project should continue into the next phase or not. For these gates the process description defined questions that needed to be answered before...
advancement into the next phase could be carried out. The gate was by definition closed until the answers to the questions were satisfactory enough to open the gate. Beneath are the phases of ESM’s process briefly described.

Figure 12. Overview of ESM’s Offering development process.

**Idea generation**
This phase includes gathering ideas from employees, market and customer research, as well as formulating and documenting all ideas. The output is a brief description of the ideas, key figures to describe market attractiveness and financial impact, investigation of strategic fit, and an estimation of time & resource allocation needed for the opportunity selection phase.

**Opportunity selection**
This phase includes investigating the strategic fit, defining the product according to customer needs and interests, performing a business analysis which includes market, finance, risk and competitive analysis, performing a preliminary technical and legal assessment, as well as produce a preliminary project charter.

**Build concept**
This phase includes a detailed technical investigation and concept description. In addition, should a project plan be produced in this phase including a time plan, needed resources and costs. The developed documentation from the opportunity selection phase should also be updated in this phase.

**Development and testing**
In this phase is the project managed according to the project plan developed in the previous phase. Processes and systems are prepared to support the product offering, internal and external communication is managed, pilot customers are identified and pilots are carried out, marketing and launching plan is prepared, education and information material is produced and a product review plan is created.

**Launch**
In this phase does the internal and external launch take place.

**Post launch**
In this phase does the product review process take place.
5. Analysis and improvement work

In this chapter, the improvement work conducted in this master thesis will be presented. The chapter includes an analysis of the empirical findings and the theoretical framework, as well as a description of those changes that this analysis has resulted in for the process description.

The first section will describe the improvement work approach that was used and in detail explain how the principles of user involvement and iterative process were used in practice when improving the process description. The second section will go through the changes that have been made to the original ITM process description in order to solve the identified problems and make it more user-friendly. The changes are organised under headings with the name of the user-friendly design criteria that guided this change to be made. In this way it can be seen how the user-friendly criteria - Needed, Efficient, Learnable and Usable, and Visual - were used in this improvement work as well as what changes their guidance resulted in. In the last section of this chapter, the final process description will be described and the end result of the changes made will be explained.

In the improvement work of this research, the thesis workers could be seen as both researchers conducting action research, as well as external consultants developing and delivering a new process description. Therefore was a work methodology for both conducting action research, as well as literature concerning external consultants, applied to the way the improvement work was conducted. In the reviewed consultant literature, the importance of knowledge transfer was emphasised for the long-term success of process implementation (Ko et al., 2005; Gable, 1996). In order to achieve a good knowledge transfer in the improvement work of this master thesis, the employees were involved as extensively as possible. By taking part and discussing the process design, the master thesis workers’ knowledge could be transferred to the employees and thereby could the possibility of the department maintaining the process themselves and improving it in the future be increased.

Moreover could the improvement work performed by the master thesis workers be considered selling the service of creating a new improved process description; and since customers of services do not value the quality of the service on just the result, but rather on the whole process of the service delivery (Gable, 1996), it was important for the thesis workers to consider the way the improvement work was conducted in order to increase the likelihood of the employees being satisfied with the result. In order to achieve a satisfying service delivery, the employees were included in the development of the new process description; they were frequently updated with information on the changes made to the process description and asked to give their feedback on it.

5.1 Improvement work approach

To test the hypothesis stated in the commencement of this research - that in order to develop a user-friendly process, it needs to be developed in close collaboration with the users - the two principles of User involvement and Iterative process have been applied throughout this improvement work.

The principle of Iterative process has required the improvement work to be conducted in an iterative way, where changes were made, evaluated and then changed even further with every
improvement cycle. This approach has the benefit of allowing the design specification for the user interface to evolve step by step according to Hartson (1998). Hartson (1998) further explains that in order to perform good interaction design, it is important to involve users early and repeatedly in the development process; something that strengthens the usage of the other development principle, User involvement. The improvement work had a high user-involvement were the improvements were tested on the employees after each iteration in the development cycle; this in order to receive new input for further improvements to be made. Another reason for involving the users in the improvement work is that a work process only becomes effective if it is endorsed and used by its target group; and the likelihood of this can be increased by involving the users in the development since this increases the chance of designing a process that meets the needs of the users (Massey, 2011). The employees were therefore included in the development process from the start and their opinions were used throughout the entire improvement work.

The changes that were made to the process description were conducted on two different levels; overall process structure and visualisation, as well as changes to specific methods and tools. First were the changes concerning the overall process structure carried out; this included re-organising the order of the methods and tools, and creating a clearer and more easily understood visualisation of the process. These changes were tested and iterated several rotations in the improvement cycle in order to find a suitable process structure and a good visualisation for the employees. During the re-organisation of the process structure, a need for additional methods and tools was also identified. For these new tools, templates were created and improved by iterations with the employees. Secondly were changes regarding the different methods and tools developed. These changes included improving the instructions and explanations as well as making the visualisation of the methods and tools more intuitive; the overall aim was to make the methods and tools easier to understand and work with for the employees. These changes were also iterated several rotations in the improvement cycle in order to become optimal for the employees. Since most of the methods and tools in the ITM process belonged to the two phases Ideation and Development and since most problems and improvement areas found in the empirical data collection concerned these two phases, it was decided that the improvement work of this research would only focus on improving these two phases.

Process structure
The first part of the improvement work consisted of the researchers performing research on how the employees had been working previously. According to Massey (2011), it is important to consider those who will use the process in their everyday work when designing a new process and therefore were interviews conducted with all employees in the Business Development team in order to understand how they work and what activities that needed to be included in the new process description in order for it to support the employees’ work. This analysis of needed activities was performed as a task analysis where the tasks and the relationships between them were described in order to understand what tasks the users would utilise the process for and how those tasks would be performed; this is an essential method for achieving good interface design according to Hartson (1998). As a result of this task analysis, it became clear to the researchers which tools that were redundant in the ITM process and thereby could be removed, as well as what activities that were needed by the employees however not included in the ITM process; for these activities, methods and tools needed to be developed for the new process description.
In addition were a usability evaluation performed on the old ITM process description. This evaluation can be classified as a summative usability evaluation, since it was used for evaluating a finished product in order to measure the level of usability achieved (Hartson, 1998). The finished product was in this case the new process description and the employees were therefore asked to evaluate the usability of it and specify if they had encountered any problems while working with the process description; this to find improvement areas to work with during the improvement work of the process structure. The result of this usability evaluation clearly showed that the ITM process description had several usability problems and these are the problems described in the empirical findings chapter of this report.

When the process was to be restructured, the researchers first developed a suggestion for the new process structure which was shown to the employees in individual meetings. The suggestion for a new process structure was created as a rapid prototype made of just papers, tape and pencils. Rapid prototyping is an early and inexpensive method for evaluating usability problems in human-computer interaction; the purpose of the method is to identify usability problems with the design before resources are dedicated to the development of software and these rapid prototypes have proven to be as effective in discovering usability problems as using interactive computer-based prototypes (Hartson, 1998). Since an iterative development methodology was chosen to be used for improving the process structure, it felt like a waste of time and resources to develop the first drafts of the process structure in nice looking power-point presentations; this since the structure was likely to change a lot by the feedback given from the employees. Therefore was inspiration taken from human-computer interaction, and prototypes were developed as sketches of the process structure. It was also believed that the sketchy appearance of the prototypes would communicate to the employees that the process structure was not a final and decided one and thereby invite them to change. By making the prototypes look like little time had been put into developing them, the belief was that the employees would feel easier about making changes to them.

After having explained the new structure in the individual meetings with the employees, a co-creation session followed where the employees were asked to give their feedback on the new structure and then restructure the process themselves in order to better suit their needs and preferences. This approach of participatory design is one way of involving the users in the improvement work (Hartson, 1998); and by allowing the users to take part in creating the process description it is believed that the they will be more likely to endorse and start using it; this since their involvement increases the chance of the process description meeting the needs of the users (Massey, 2011). To perform the co-creation session with the employees, they were given a pre-made material consisting of some blank A3 pages, pencils, as well as small pieces of paper with the process elements’ name on; see the left picture in Figure 13. The employees then constructed their own version of how the process structure should look like by attaching the different process elements to the A3 papers with tape, see the right picture in Figure 13.

This restructuring exercise was performed with all six employees in the business development team and from every exercise the opinions and changes from that restructuring were used as input for the next iteration of designing a new process structure; i.e. the process structure was improved between the meetings with the different employees, thereby testing the employees different ideas on the other employees. When all employees had received the chance to restructure the process, a workshop was conducted in Finland with all six employees in the
business development team in order to improve the process even further together, see Figure 14. The employees were encouraged to interact extensively with each other during this co-creation session; this in order to have an open discussion about the new process and create a shared ownership of the developed process description. The open discussion aimed to ensure that everyone felt that their opinions had been taken into account and that they all were satisfied with the end result. This was important since all opinions from the individual restructurings had not been implemented into the new process description as some of the employees had colliding ideas. These colliding opinions were brought up and discussed during the workshop, and at the end all employees could agree on a mutual process structure.

Figure 13. Pictures from one of the restructuring exercises.

Figure 14. Improvement work at the workshop in Finland.
Methods and tools

In the initial interviews with the employees, a lot of problems and difficulties concerning usability were expressed regarding the methods and tools in the ITM process. The first improvement work performed on the methods and tools was therefore conducted to try and solve these problems for one tool. When this first tool had been changed according to the results from the interviews, usability tests were conducted with the employees in order to see if the changes had removed the previous problems and increased the usability of the tool. Usability evaluations are an important part in interaction development according to Hartson (1998), and the usability tests performed during the improvement work can be classified as formative evaluations since their purpose was to detect and solve usability problems before the design was finalised; thereby aiding the development of a user-friendly design. The tests were performed in the way that the tool was given to the employee on a computer and no additional instructions were given to the employee than the ones written in the tool. The computer was connected to a projector so that the researchers were able to see how the employee moved the mouse pointer around in the tool and in what order the employee completed the tasks. Notes were taken by the researchers on situations where the employee seemed to hesitate or situations of the opposite where the employee was very quick and did not seem to read the instructions. These notes where afterwards discussed with the employee in order to understand the way the employee used the tool; however, during the test, no conversation took place between the researchers and the employee.

After having completed the tool, the employee received an evaluation questionnaire that consisted of the four different criteria used for defining user-friendly design in this research; Needed, Efficient, Learnable and Usable, and Visual. See Appendix 3 for the complete evaluation questionnaire. For each criterion, there was a one to ten scale were the employee could evaluate how well the tool fulfilled this criterion. There was also a comment section where the employee could give comments concerning the fulfilment of the criterion and suggest improvements for how the tool could be changed in order to better fulfil the criterion. These comments were used to feed the next improvement cycle in order to improve the tool on the criteria that had received a bad score in the user-friendly evaluation. The scoring on the other hand was used as a measurement for the progress of the development. As explained by Hartson (1998) can quantitative data be used to see that the usability is improving with each design iteration, this to know that the development is going in the right direction as well as to know when a satisfactory design has been achieved and the iterations can stop.

After completing the evaluation questionnaire, an interview followed were the employees were asked to give their open opinions about the method or tool and comment on how easy and clear it was to understand; here the employees did not need to limit themselves to the four criteria. The employees were also encouraged to give suggestions for how they would like the method and tool to be changed in order to be easier to use. This feedback on the changes was used for further evaluation and improvements. When the improvement iterations had achieved a satisfactory tool according to the users, this first tool was used as a standard for how to improve the rest of the methods and tools. Ideally, several improvement iterations should have been performed on each of the tools in the process, however due to the number of tools in the process as well as the time restriction of the research, this was not possible.
5.2 Changes made to the process description

In this section the changes made to the original ITM process will be described. These changes have been guided by the usage of the user-friendly design criteria; Needed, Efficient, Learnable and Usable, and Visual. In order to solve the identified problems described in the empirical findings, it has been examined if these problems can be explained by the poor fulfilment of the proposed criteria for user-friendly design. Thereby testing the hypothesis stated in the commencement of this research - that the term user-friendly can be divided into different criteria that are important to consider for achieving a user-friendly design, and by ensuring that the process description fulfils these criteria, a user-friendly design should be achieved.

The changes that were made to the process description were conducted on two different levels; changes concerning overall process structure and visualisation, as well as changes to specific methods and tools. In addition to using the criteria for user-friendly design to guide the changes made to solve the identified problems, inspiration has also been taken from the best practice processes presented in the theoretical framework as well as from ESM's Offering development process previously described in the empirical findings.

Process structure

In this section, the changes that were made in order to solve the identified problems concerning the process structure will be presented and described as to how and why they were made. The changes are sorted under the heading of the user-friendly design criterion that guided its conception.

Needed

In order for the process description to become user-friendly, everything that was included in it had to be relevant and needed for performing business development. If the included activities were not useful, unnecessary time and effort would be spent on performing tasks that did not contribute to the success of the business development project, and this would restrict the process from becoming user-friendly. On the other hand, if important activities were missing in the process description, the success of the project would be jeopardised. Therefore it was important that the right activities were included in the ITM process description, and to ensure this the different phases of the ITM process were compared to the key activities presented as important in the literature on best practice in product development, see Table 3.

From this comparison it could be seen that the ITM process was missing a preliminary investigation phase where a feasibility study should be performed on the idea in order to assess the likelihood of its success. In this phase a market study should be performed where potential customers and competitors are identified, as well as a preliminary financial analysis should be performed to calculate the potential revenues of the new business, see Table 3. A preliminary investigation phase like this was also included in ESM’s Offering development process; this phase was called the Opportunity selection phase and it included preliminary investigations of customer needs and interests, market, finance, risk as well as a competitive analysis. Since ESM often is the internal customer of Business Developments’ projects and thereby extensively involved in the development work, it was considered important that the two departments’ development processes corresponded well.
<table>
<thead>
<tr>
<th>ITM process phases</th>
<th>Best practice processes</th>
<th>Stage gate</th>
<th>BS 7000</th>
<th>Mahajan &amp; Wind</th>
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</thead>
<tbody>
<tr>
<td><strong>Ideation</strong></td>
<td>Ideation</td>
<td>Trigger</td>
<td>Product planning</td>
<td>New product idea generation</td>
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<td></td>
<td>Initial screen</td>
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<td>New product concept screening</td>
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<td></td>
<td>Preliminary investigation</td>
<td>Feasibility study</td>
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<td>Detailed market study for concept development testing</td>
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<td>Second screen</td>
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<td>Detailed market study for market identification, positioning and strategy</td>
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<td>Business/financial analysis</td>
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<tr>
<td><strong>Development</strong></td>
<td>Build business case</td>
<td>Design</td>
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<td>Product development</td>
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<td>Decision on business case</td>
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<td>Post-development review</td>
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<td><strong>Execution</strong></td>
<td>Testing and Validation</td>
<td>Production</td>
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<td>Pre-market volume forecast using prototype</td>
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<td>Pre-commercialisation business analysis</td>
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<td>Market test/trial sell</td>
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<td>Full production and Market launch</td>
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<td>Disposal</td>
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<td></td>
<td>Post implementation review</td>
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</table>
As a result of the comparison with best practice as well as with ESM's Offering development process, a new phase, called the Pre-study phase, was added to the ITM process, see Figure 15. This phase consisted of an environment investigation which had the purpose of analysing the market, potential customers, competitors, suppliers, as well as the financial aspects of the project. Some of these activities had previously been included in the Development phase, however by moving them to an own phase, the Development phase could be shortened and the risk of wasting time on an unsuccessful project could thereby be reduced by the shortened time between gates. The new phase also enabled one more decision gate to be included before the Development phase; this made it possible to evaluate future projects based on the preliminary investigations and take a development decision based on fact rather than guessing the potential of the opportunity as was previously done in the gate after the Ideation phase.

By adding this new Pre-study phase, the new process description came to consist of five phases, where the different phases and gates corresponded to the first five phases of the Offering development process, see Figure 15. Since the G1 gate in the old ITM process corresponded well to the G0 gate in the Offering development process it was renamed G0 in the new process description, and the name G1 was given to the added gate after the new Pre-study phase. The gates G2 - Execution decision, and G3 - Launch decision, remained the same in the new process description since they already corresponded well to the G2 and G3 gates in ESM's process. The Post Launch phase in the Offering development process was not investigated if it should be included in the new process description or not; this due to that the research and improvement work of this master thesis was decided to focus only on the first two phases of the ITM process; Ideation and Development. However, a post implementation review was included as a last activity in the Stage-gate process presented in the best practice literature, thereby suggesting that it could be an important activity to include. In addition, a post-project evaluation was requested by some of the employees during the initial interviews. Therefore it was suggested to the department that a post-project evaluation should be included as a future improvement.

Another activity that was identified missing by the comparison with best practice was customer testing, see Table 3. No form of testing was included in the old ITM process description, however, in the interviews with the employees it became clear that they usually tested the products in-house to assure that they lived up to the supplier specification and fulfilled all technical requirements. However, customer tests were seldom performed according to the interviews and if they were, it was usually at a very late stage in the development process, leading to changes, according to the customer feedback, being difficult to incorporate into the product. Therefore were two occasions for customer testing added to the new process description. The first testing was added in the new pre-study phase; there testing of product concepts was performed together with the customer investigation activity. The idea of testing the product concept early was to easily incorporate the feedback from the customers into the development of the product and thereby ensure early on that the product would fulfil the customers' wants and needs. The second testing was placed at the end of the development phase, and the idea here was to test the product and ensure that it fulfilled all the customer wants and needs that it aimed to fulfil. The second testing also included a price testing to see what the customers were willing to pay for the product. If this second testing of the product was not to satisfaction, then the sub-steps Product development and Business model development needed to be iterated in order to change the product to better satisfy the customers.
The Business development team performs different kinds of projects, some are development projects of completely new products and services while others are development projects for developing add-ons to old products; improving the old product by developing some new feature to it. Ulrich and Eppinger (2012) describes that it is common that the same organisation has different processes for different types of projects; this to satisfy the different needs of the projects. However, the Business Development team only have one process for performing their projects, even if the nature of the projects vary, and due to this it is important that the process description can be adaptable to the different needs of the different types of projects. For example, for the add-on projects a lot of the information developed in the different methods and tools in the process description are already known from the previous project on the core product. In addition, Alben (1996) states that a product needs to allow for the different ways users will approach and use it; thereby pointing out the importance of adaptability for the individual user as well. To enable this needed adaptability, a purpose description was written for every method and tool; the idea with this was that by understanding what the tool can be used for and what the result of it is, the employees should be able to decide if they need to use the tool or not. The importance of knowing the purpose of a product was also explained by Alben (1996) who says that a product should clearly communicate its purpose in order for it to be user-friendly; the
incorporation of a purpose description in all methods and tools thereby increased the user-friendliness of the process description.

To increase the possibility to adapt the process description even further to the employees' individual needs, the method and tools that did not need to be performed in a certain order were showed in parallel in the new process description, thereby giving the employees the option to choose which method or tool to work with first. This also allowed the development projects with more than one business developer to divide the work easily and work simultaneously. However, even if the process description was designed in a way so that it could be adapted to individual needs, it was clarified to the employees that they needed to go through every part of the process description even if not performing all the tools; this in order to assure that no step of the development was missed.

Efficient
The criterion efficient relates to that the process description and the usage of its methods and tools should be the most efficient way to conduct work. In order to fulfil this criterion the structure of the process was examined and changes were made to make the structure clearer to the users and thereby make the process description more efficient to use.

The structure of the old ITM process was very poor and it was unclear to the employees which methods and tools that belonged to which phase, and in what order the methods and tools should be conducted. This confusion made the ITM process very inefficient to use. The one thing that was considered to be the reason for this confusion was the usage of the tool Business case exploration plan. The purpose of this tool was to estimate the uncertainty and importance of the different elements of the business case in order to decide in what order the elements should be carried out; the element with the highest score should be carried out first in order to avoid potential deal killers later in the development. Since this tool thereby decided the order of the methods and tools, this order would change from project to project, and this is believed to be the reason that the employees felt confused about the process structure. Therefore was the tool removed from the new process description, however to keep some of the good aspects of it, a small deal-killer discussion was added in the beginning of the Development phase; this in order to bring up the critical aspects of the development so that these aspects could be kept an eye on during the project.

The removal of the Business case exploration plan opened up for the creation of a more efficient and structured process flow where the methods and tools were organised to be performed in a logical and fixed order. According to Massey (2011), a process must represent the most efficient way to complete work in order to motivate the employees to use it. If it is too bureaucratic and difficult to use, the employees will find other ways to perform work (ibid). This was also articulated in the Appropriate criterion by Alben (1996); saying that a product must serve the user in an efficient and practical way. Additionally, to be an efficient process the tasks should be placed in a proper sequence since this will allow the work to be performed in less time (Massey, 2011). Therefore was a fixed order of the methods and tools developed together with the employees in the Business Development team; this resulted in the new developed process description clearly showing the traceability and linking between methods and tools. See Figure 16 for an example of how the methods and tools belonging to the sub-step Product Development were arranged.
When comparing the ITM process to the best practice processes found in the literature review, it was noticed that the ITM phases were on a higher level than the elements described in best practice; thereby did each phase in the ITM process include several elements from best practice, see Table 3. Due to this, some of the phases in the ITM process could be rather lengthy and go on for months; and since decision gates only existed in-between the phases this could mean that a non-promising project could be continued longer than necessary. To solve this, it was decided that in the new process description every phase should be divided into smaller sub-steps and these sub-steps should be ended with a milestone, see Figure 17. These milestones would act as smaller checkpoints in-between the decision gates and at the milestones the current status of the project should be assessed. This is believed to enable an earlier detection of non-successful projects and thereby enable an earlier termination to avoid wasting resources. It is important to be able to know as early as possible in the process if a product will be successful or not since the costs of product development projects often increases exponentially over time; thereby it is desirable to terminate a non-feasible project as early as possible (Cooper & Kleinschmidt, 2001).

To develop these checkpoints, inspiration was taken from work process design where Massey (2011) states the importance of including checklists in a process in order to evaluate the progress. Therefore were checklists with questions created for every milestone in order to evaluate the current status of the project. When developing checklists, Massey (2011) states that it is important to design them to engage thinking instead of just doing and that they need to contain acceptable criteria and consider risks. Therefore, it was decided that the checklists with questions at each milestone should be answered together with a colleague in order to discuss the project and evaluate the risks of proceeding to the next sub-step of the phase; this to avoid the employees just answering the questions quickly by themselves and not really considering what they mean. The questions in each milestone concerned what had been done in the current sub-step and what the result of the different activities was; if the questions could be answered
satisfactory, the project could proceed on to the next sub-step of the phase. However, if some aspects were unclear at the milestone, parts of the sub-step needed to be iterated before the project could proceed. In this way it could be made evident earlier if a project was progressing as intended or if it had encountered some problems that might risk the products success on the market. By detecting this earlier, non-feasible projects could be terminated and this would ensure that the employees are not wasting time working on projects that are going to be terminated later. Thereby did the inclusion of sub-steps and milestones make the new process description more efficient.

Figure 17. The sub-steps and milestones included in the Development phase.

The time aspect of the different phases was not included in the ITM process; there was no estimation of how long time the different phases should take. Therefore, a suggestion was made by the thesis workers that a standard Gantt chart with time estimations for the different phases and sub-steps should be included in the new process description. In this way the employees could be given a better idea of how much effort they should put into each part of the process and thereby avoid performing too thorough and inefficient investigations. However, to develop this Gantt chart several projects need to be performed according to the new process description in order to obtain realistic time estimations, and therefore the creation of this Gantt chart is left for the department to perform themselves after the new process description have been used for some time.

Learnable and Usable
The criterion Learnable and Usable concerns how easy the process is to understand and use and one problem relating to this was the folder structure of the old ITM process. In the initial interviews it was discovered that the users thought there were too many folders and tools in the root folder on the process SharePoint site; the folders with the methods and tools where not grouped according to the phases of the process and neither numbered in the order they were supposed to be performed. Due to this, the employees had difficulties finding and accessing the tool they wanted to use. In addition were duplicates of the same file saved in different folders
and in different file formats and this made it even more confusing to the employees concerning which file they should open. According to Massey (2011), one important aspect for a work process to become effective and user-friendly is that it is easy to access and easy to implement by the users. Therefore, a new folder structure was designed where the methods and tools were arranged according to the phases and sub-steps of the process description. Each phase got a folder named after it in the root folder and inside these folders, where folders named after the different sub-steps of the phase. The sub-step folders in their turn included folders with the methods and tools that were supposed to be performed in that sub-step of the phase. The methods and tools folders included one template document and one example document for the tool, duplicates in different file formats that had been located in these folders before were removed in order to avoid confusion of what document to open and work in. These tool documents were named exactly the same as the name of the folder they were located in, with the exception that the example document had "(example)" added to the file name. All folders were also numbered in order to show in what order the phases/sub-steps/methods and tools were supposed to be carried out, see Figure 18. This new folder structure made it easier for the employees to find and access the tool that they needed since it was consistent with the structure of the process description, and this made the folder structure more learnable and usable for the employees.

![Folder structure](image)

**Figure 18. The new folder structure for the methods and tools.**

**Visual**

In order to make the process structure more user-friendly, visuals have been added to the new process description in order to solve some of the identified problems as well as clarify the process structure.

The overall picture of the old ITM process was not clear to the employees who had difficulties understanding how the different tools related to one another and which tool that should be performed first. In addition did the employees think that the goal of using the process description was unclear, they did not know what they were working towards. Guided by the criteria visual, changes were made to the process description in order to make it more visual and as a result more user-friendly. Massey (2011) explains that a good process description should start with a flow chart that visually shows how the process works. The Lean innovation funnel in the old ITM process, see Figure 9, can be seen as that kind of flow chart, however on a very high level and this was not enough to guide the development process according to the employees. There
was also another overview illustration of the process included in the root folder, however this illustration was very difficult to understand and therefore useless to the employees, see Figure 10. Therefore were new illustrations of the process description created to show which methods and tools that were included in the different phases of the process and in what order they should be performed, see Figure 19. These illustrations were saved in one guiding power-point document for the process, see Figure 20, and placed in the root folder on the process SharePoint site. When working according to the process description, the employees could always go into this guiding power-point document to see where in the process they were and what activity that needed to be performed next. A shorter, overall picture of the process phases and sub-steps was also created to give the employees a good overview of the process, however on a more detailed level than the Lean innovation funnel, see Figure 21.

Figure 19. Illustration of what sub-steps and tools that are included in the Pre-study phase.
Figure 20. Guiding power-point document for the process description.

Figure 21. Overview illustration of all phases and their sub-steps.
Methods and tools

In this section, the changes that were made in order to solve the identified problems concerning the methods and tools will be presented and described as to how and why they were made. The changes are sorted under the heading of the user-friendly design criterion that guided its conception.

Needed

In order for the process description to become user-friendly, all methods and tools included in it had to be relevant and needed for performing business development. Therefore was the usefulness of the methods and tools included in the old ITM process examined. In addition to this, it was examined if any important methods and tools were missing in the old ITM process; this in order to ensure that all methods and tools needed for performing a successful business development project were included in the new process description. In order to ensure this was the old ITM process compared to the literature presented on best practice in product development.

When the employees were interviewed about the old ITM process, they said that there were too many methods and tools included in the process description. If they had to go through all of the tools the development process would take too long time and therefore some of the tools were never used. According to Alben (1996), it is important that a product satisfies an actual need of the users and the products of this improvement work are the methods and tools in the new process description. Therefore were all methods and tools in the ITM process thoroughly analysed together with the employees in order to evaluate which methods and tools that were needed and thereby should be included in the new process description. To be considered needed a method or tool needed to contribute with some new information that was necessary for the development work and that could not be derived from any other method or tool in the process. From this analysis, three tools that were included in the old ITM process were identified as not needed; those tools were therefore removed or replaced by other more suitable tools. The tools that were removed were Business case exploration plan, MVC canvas as well as the Product canvas. Thanks to this investigation, it could be assured that all methods and tools that were included in the new process description had a purpose and were needed in order to succeed with the development work.

By analysing if there were any methods and tools that were missing in the old ITM process, the master thesis workers saw a need for developing methods and tools for conducting new product idea generation. No such method or tool was included in the old ITM process, instead the process started with just an evaluation and screening of ideas. Therefore were collaborative methods and tools added to the first phase Ideation in order to generate, refine and combine ideas. Another aspect that was considered missing in the old ITM process was customer interaction. No customer investigation was included in the process description and this was considered necessary by the thesis workers to include since the likelihood of a product becoming successful or not largely depends on if the product satisfies the customers' wants and needs. To incorporate this need in the new process description, a customer investigation was included at the beginning of the process. The aim of this investigation was to study the wants and needs of the customers, as well as to investigate if the customers had any problems concerning the product area that could be solved. Later in the process, those identified customer values were to be translated into product properties at a group ideation workshop.
Many of the projects that are performed in the team of Business Development are development projects of products and services in new business areas than Fortum previously has been active in. Therefore is a large part of the development process devoted to developing a business plan, which is a tool for conducting organised investigations in order to understand how the business of a product or service will work (Entrepreneurship centre, 2002). According to Abrams (2003) can a business plan be used as a feasibility study of an idea in order to make more informed decisions, plot a course of action and plan the implementation; this incorporates a lot of the work performed in the team of Business development. The ITM process included many methods and tools for investigating the business opportunity and for differentiating from the competitors. However, when the methods and tools were compared to the suggested outline for a business plan presented by the Entrepreneurship centre in 2002, see Figure 8, some important parts were found missing in the ITM process description. The marketing plan was missing an analysis concerning the marketing mix and therefore was Kotler's four P - promotion, place, price and product - added as a method for investigating the marketing aspects of the product or service. In addition was an operational plan missing in the ITM process description; no investigations were made concerning potential suppliers, manufacturing plans and operating requirements. Therefore was a supplier investigation added to the development phase of the new process description in order to investigate potential suppliers and select the best one to cooperate with. Manufacturing plans and operating requirements were however left for the supplier to conduct; this since the department of New Business does not perform any manufacturing in-house.

**Efficient**

The criterion efficient relates to that the process description and the usage of its methods and tools should be the most efficient way to conduct work. However in the initial interviews, employees expressed opinions concerning that many of the tools included too many steps, which made them too extensive and therefore not efficient and practical to use. The excel tools often consisted of numerous of tabs, in some tools the tabs were so many that all tabs could not be seen at once. This together with the fact that the tabs were not numbered and often poorly named made it hard to know which tab to start working with. According to Alben (1996), in order for a process to be effective, the design must serve the user in an efficient and practical way. Therefore was an analysis made of the different steps in all methods and tools; this in order to see if there were any irrelevant and redundant steps that could be removed. In addition to the removal of steps, were the names for the tabs in the excel tools changed in order to be more descriptive to the content of that tab. The tab names were also numbered in the order they were supposed to be carried out, see Figure 22.

![Figure 22. The different tabs in an excel tool.](image)

**Learnable and usable**

Learnable and Usable concerns how easy it is to understand and use the methods and tools included in the process description. This was the criterion that most problems identified in the initial interviews related to. The employees thought that it was hard to understand how to use the different methods and tools since many of the tools entirely lacked instructions on how to use
them. In addition were many of the methods and tools new to the employees and this required them to be more thoroughly explained than if a more experienced user would use them. New instructions were therefore written for all methods and tools, where the different steps of the methods and tools were thoroughly explained, not assuming any previous knowledge by the users; this in order to facilitate the usage for employees with no experience of the method or tool.

In addition was an information slide added to every method and tool in order to give some brief information about the tool to the user. According to Alben (1996), it is important that a product clearly communicates its purpose, as well as how to start and how to proceed using it, in order for it to be user-friendly. Therefore did the information slide include information on what the purpose of the method or tool was, what needed to have been done before using the tool - the prerequisites-, instructions on how to use the tool, as well as what the result of using the tool was. An example of how an information slide could look like can be seen in Figure 23. This information slide was placed so it would be the first thing that the user would see when opening up a method or tool to use.

![Portfolio Assessment](image)

**Figure 23. Information slide in the beginning of a tool.**

Another problem that was identified concerning the usability of the process description was that different names were used in the ITM process for referring to the same method or tool. This problem with inconsistent naming was solved by going through all the folders and documents and ensuring that the same name was used for a method or tool at all places in the process description, as well as used as the name of the folder. It was also ensured that the same name or abbreviation was not used to refer to two different methods, as previously with the abbreviation MVC. The chosen names for the methods and tools were also reviewed in order to ensure that the names corresponded to the content of the tool. The names should be as descriptive as possible in order for the users to understand the purpose of the tool, however, without being too long. The confusion around the name "business case", were the employees associated the name with only an excel document with calculations and the consultant referred to the whole development work in the Development phase, was solved by removing the term business case completely from the process description and thereby eliminating the risk of misinterpretations.

Furthermore, example documents of how the different methods and tools could look like when completed was considered very important to include in order for the process description to become learnable and usable. Massey (2011) states that a work process should contain examples
of what is considered acceptable work; this to aid the training of the procedure and clarify how the different steps should be performed. These examples could consist of properly completed forms, screen shots of computer documents, photos with annotations as well as video clips (ibid). Some of the tools in the ITM process had corresponding example documents to show how the tool could look like when the work was completed, however far from all methods and tools had these example documents. In the new developed process description, every method and tool was therefore given a corresponding example document. This document was for all power-point tools saved in pdf-format in order to avoid confusion of which document that should be opened to work in. However for the excel tools, the example document was also saved as an excel; this to be able to fully use the example and see how a number entered in one field affected the calculations.

In addition, by assuring that the process description and all the methods and tools included in it were made in simple software that the employees were familiar with, it was believed that the methods and tools would be easier to learn and work with for the employees. Therefore were the process description and all of its methods and tools developed in simple software such as power-point, excel, word and pdf; software that all employees were familiar with and easily could make changes to. This was also important in order for the process description to be easy to revise; a factor that is important to consider in order for the process description to be continuously updated and improved (ibid).

**Visual**

In order to make the methods and tools more user-friendly, the criterion Visual has been used for guiding changes concerning the graphical representation and the aesthetic aspects of the methods and tools. Alben (1996) declares that a product should be cohesively designed and exhibit excellence in graphics and interaction in order to achieve quality of experience and be user-friendly. Therefore, a consistent colour coding was developed for the process description and all of its methods and tools. This colour coding was based on the standard colours used within Fortum. All the tools had a green theme, with headlines in white on a dark green background and instructions in black on a very light green background. Fields that was supposed to be filled out had the colour white, and all fields that were already filled out or were to be filled out automatically by some calculations had a mid-dark shade of green, see Figure 24. To make it even easier to know which fields that should be filled out, in addition to the white colour of the field, the new excel files consisted of unlocked and locked fields. Thereby were the fields that were supposed to be filled out the only ones that were unlocked and could be edited.

Since there would be different people with different levels of experience using the process description, it was considered important that the process allowed for the different ways these users would approach and use the process description; another criterion for achieving a user-friendly product according to Alben (1996). This is elaborated by the design guideline described by Hartson (1998) "Lead, follow, or get out of the way"; suggesting that a good interface design leads the novice user, follows the intermediate user, and gets out of the way of the expert user. In order to incorporate this in the methods and tools, it was decided that all the instructions should be gathered in one place at the top of the slides and tabs of the tools; this would allow the novice users to receive the information they need while the more confident users could scroll down pass the instructions and start using the tool immediately.
In addition where comments with further instructions and explanations added to important fields in the excel files; this to allow the novice users to receive more information if needed while not being in the way for the more experienced users. During the interviews it was articulated by the employees that these comments where hard to see, only a small red corner on a white field indicated that there was a comment to be read. However, when the background colour of the fields were changed from white to green the red corners became more visible due to that green is the complementary colour of red. Using a combination of complementary colours can be very powerful and it is good to use in situations when something must call attention to itself (Shubin, Falck & Johansen, 1996).

![Evaluate Market Value](image.png)

**Figure 24. The colour coding of a tool.**

Some of the methods and tools in the process could benefit from being performed in a group of people instead of being completed by one person alone, and some tools needed input from customer interaction. To illustrate this in the process description, symbols were added to the developed illustration of the process flow; indicating were customer interaction, team collaboration or iteration was needed, see Figure 25. As Massey (2011) states; procedures should use little narrative verbiage since users do not have the time to read it, instead should an effective procedure use a lot of visuals; this indicating the benefit of using symbols instead of text. The instructions included in the methods and tools were also made as short and concise as possible in order to avoid unnecessary text.
5.3 Final improved process description

This section will sum up the major changes that were made in the improvement work and present the final improved process description. What benefits the changes made have resulted in for the employees in the Business Development team will also be described.

Process structure

In the new developed process description have an additional phase been added, the Pre-study phase; thereby does the new process description consist of five phases and four decision gates. This makes the new process description consistent with the phases of ESM's Offering development process and this is believed to facilitate the collaboration between the departments.

The old Lean innovation funnel illustration over the process flow, have been updated with the new phase Pre-study, see Figure 26. This illustration of New Business’ innovation funnel has been put up on a wall in the office in order for it to be used as a communication tool were the current status of the team's different projects are mapped out. In this way it is easy for all employees to see where in the process the different projects are and this is believed to motivate the employees in their work as they can see how the work is progressing as well as how far/near the final goal they are.

Figure 25. Explanations page for the abbreviations and symbols used in the process illustration.
Figure 26. An illustration of the old ITM process compared to the new improved business development process.

For every phase in the process, sub-steps have also been created; this to enable the inclusion of milestones which act as smaller and more frequent checkpoints where the current status of the project could be assessed after each sub-step. See Figure 27 for an overview picture of the phases and sub-steps included in the new process description.
Within the sub-steps, methods and tools have been placed in a logical and fixed order with clear traceability and linking between them, see Figure 28. This fixed order of the methods and tools is probably the largest difference between the old ITM process and the new developed process description. The result of the structuring was that the fixed order made it easier for the employees to know where in the process they were working and what the next step to be performed was.

Figure 28. The logical and fixed order of the methods and tools included in the environmental investigation sub-step.
In addition was a better folder structure for the methods and tools documents also created; this was made like a tree structure where the folders were named and numbered according to the phases and sub-steps in the process that they corresponded to, see Figure 29. The clearer folder structure also made it easier for the employees to find the right methods and tools to use; this made the process description more efficient to use since no time needed to be spent trying to navigate between the methods and tools in order to find the right one to use. This was probably one of the changes that had the biggest impact on the process description becoming more user-friendly to the employees; this since the non-existing structure of the old ITM process was a large problem for the users who spent a lot of time searching for right methods or tools to use.

**Figure 29. The new folder structure for the methods and tools (same as Figure 18).**

Methods and tools

All the methods and tools that were included in the process description consisted of one template document in power-point or excel and one example document in pdf. In order to make the methods and tools more efficient to use, redundant and irrelevant steps have been removed, as well as the steps have been numbered in order to simplify the usage. To solve the problem with the employees not understanding how to use some of the methods and tools, clear and concise instructions have been created for all methods and tools as well as example documents have been developed to show what a properly completed tool could look like. These clearer instructions have resulted in more confident users as the employees now know that they are performing the tool in the right way. In addition can these fool proof instructions make the introduction of new employees easier as they will not need to ask as many questions on how to work; and by knowing that they are performing the tool in the right way, they can also gain confidence faster.

By making the tools easier to use, there is also a larger chance that the employees will actually use them; this based on the fact that people are lazy by nature. In addition, all methods and tools were given an information slide where the purpose, prerequisites, instructions and result of the method or tool were described; this to give the employee some brief information about the tool, see Figure 30.
Figure 30. Example of an information slide.

Some tools from the old ITM process were removed in the new process description since these tools were not considered useful; these tools were Business case exploration plan, MVC canvas and Product canvas. By removing the tools that were considered not useful, the employees became more motivated to work according to the process description; this since they knew that all the methods and tools included in it were useful and would contribute to their projects success. In addition did the removal of tools shorten the development time and thereby did the process description become more efficient to use, another aspect that motivated the employees to use it.

In the analysis of the old ITM process, it was found that there were some activities that were missing in order to perform successful business development; therefore were tools that could fulfil the needs of those activities added to the process description. The tools that were added in the new process description were Idea generation, Market analysis, Customer investigation, Supplier investigation, Preliminary financial analysis, Customer testing, as well as a Marketing analysis.

The methods and tools in the old ITM process did not have a consistent visual appearance; no method or tool looked the same as another tool. This made the usage of the methods and tools confusing to the employees as well as it looked unprofessional in presentations. Therefore was a standard visualisation created for all methods and tools; including a consistent colour coding. This resulted in that all methods and tools looked the same, which limited the confusion of what to do in the different methods and tools, see Figure 31.
Figure 31. The standard visualisation of an excel document.
6. Discussion

In this chapter will the results of this research be discussed. The fulfilment of the hypotheses stated in the commencement of this research will be examined as well as the success of the user-friendly design criteria and user-friendly development principles will be analysed.

6.1 User-friendly process description design

In the commencement of this research was a hypothesis stated saying that the term user-friendly should be dividable into different criteria that are important to consider for achieving a user-friendly design. In order to define these criteria, previous research in the area of user-friendly design was reviewed. What was realized through this review was however that no previous research could be found on the subject of user-friendly design in development processes. All literature found on development processes considered how the development should be structured on a higher level and what parts that needed to be included in such a process to make the development work more efficient; however, there were no detailed descriptions for how the processes should be designed and used practically. Therefore, inspiration was taken from other areas of research in order to formulate the criteria for user-friendly design that were supposed to guide the improvement work of this research. The areas used were effective interaction design, human-computer interaction, as well as work process design, and even if these areas are very different considering that the end result of their development being products/software/work processes, the conclusions made in these articles concerning what aspects that are important to consider for achieving a user-friendly design were very similar. Therefore, the assumption was made that if these aspects for defining user-friendly design can be used in all these three areas, they should be applicable to the area of business development process design as well. The criteria chosen to guide the improvement work of the business development process description were therefore the four most common aspects found in the reviewed literature; these aspects were Needed, Efficient, Learnable and Usable, and Visual.

In the development of the new process description, these four criteria for user-friendly design have been used to direct the investigation on how the ITM process could be made more user-friendly. The criterion Needed has been used to critically analyse every activity, method and tool used in the ITM process in order to evaluate together with the employees which activities that were needed and useful; this has resulted in methods and tools being removed since they were not considered necessary. The criterion Efficient has been used in the way that the process structure and the construction of the methods and tools have been critically analysed in order to investigate if they could be restructured in any other way to more efficiently serve the users. The criterion Learnable and Usable has driven the critical analysis of the user understanding of the process description and the methods and tools in it. From this analysis, unclear aspects of the process description have been identified as well as methods and tools which the users did not understand. The criterion Visual has been used to critically analyse the visualisation of the process description and evaluate how this could be improved.

The result of these investigations and analyses has been the realisation that the ITM process was the weakest on the two criteria Learnable and Usable and Visual; when analysing the process description most problems found could be related to these two criteria. Considering the definition of usability presented in the literature of Human-computer interaction, these two
criteria can in turn be related to the aspect "ease of use" (Hartson, 1998). The other aspect that Hartson (1996) stated was imperative for the achievement of a usable system was "usefulness" and this aspect can be related to the other two criteria used in this improvement work; Needed and Efficient. The aspect "usefulness" was defined as to how well the system supported its users' needs in terms of functionality (ibid); and analysing the ITM process with the two criteria Needed and Efficient it can be concluded that the process did provide the users with useful methods and tools, as well as the introduction of the process was considered making the development work more structured and efficient than working ad-hoc as previously. Thereby seeing the benefits of the ITM process, the employees were motivated to start using it. However, the reason the employees had difficulties to do so can be explained by the poor fulfilment of the aspect "ease of use". This observation strengthens the statement made by Hartson (1998); that one of the two aspects "ease of use" and "usefulness" is not enough to achieve a usable system. The literature states that an easy-to-use system is of little value if it does not support its users' needs in terms of functionality (Hartson, 1998); however this research has indicated that the opposite is also true for a business development process, that even if the process supports its users in terms of functionality it is of little value to them if it is not easy-to-use. Thereby, it can be concluded that in order to achieve a user-friendly process description for business development, the both aspects "ease of use" and "usefulness" need to be considered.

Going back to the four criteria Needed, Efficient, Learnable and Usable, and Visual; were these criteria useful for guiding the improvement work and did the usage of them ensure that a user-friendly process description was achieved? What can be concluded is that all problems that were identified concerning the poor usability of the ITM process description could be explained by the poor fulfilment of one of the proposed criteria. However, if this indicates that the chosen criteria were the right ones or if it just demonstrates that the criteria were very general and all-embracing can be discussed. Nevertheless, the new process description has been very well accepted among the employees in the Business Development team and almost everyone have started to work according to the new process structure. Several of the employees even started to work according to the new designed methods and tools before the improvement work had been finalised. As the suggested improvements were presented to the employees in order to receive their feedback on the changes made, the employees asked if they could receive a copy of the new designed tool in order to start using it immediately. This indicates that the employees consider the new process description and its methods and tools to be easier to use than the original one, and that they believe the process and its methods and tools will support them in their work. In addition, the employees have given a lot of positive feedback concerning the new process description, comments have been made on that the structure is much clearer, that it is easier to understand in what order the different activities should be performed, as well as it is easier to understand how to use the different methods and tools. Taking all of this together, it can be concluded that the employees think that the new process description is more usable than the old one and thereby can the aim of developing a more user-friendly process description be considered achieved.

The satisfaction of the employees in the Business Development team indicates that the chosen criteria for guiding the development of a user-friendly description for a business development process worked. However, by this it is not said that these are the only criteria that can be used for developing a user-friendly business development process, there might be other criteria that can be just as good or even better to use; however, this is something for future researchers to
investigate further. Furthermore, if the success of the improvement work was thanks to the usage of the four user-friendly design criteria, or if it was a result of the second hypothesis and the close collaboration with the users, cannot be ascertained. In order to determine if it is the usage of the first hypothesis, the second hypothesis or the combination of them both that has resulted in a user-friendly process description, the hypotheses need to be tested separately in different case studies; this is also something that can be investigated further in future research.

6.2 User-friendly development methodology

The second hypothesis that this research was based on was the assumption that if the new process description was developed in close collaboration with the users it would become better adapted to the needs of the users and thereby become more user-friendly. To test this hypothesis, two principles for the improvement work was decided - User involvement and Iterative process. These principles and the success of their usage will here be discussed. The discussion will consider if the principles are suitable to use for the development of a business development process description and the evaluation will be based on if the process description that was the outcome of this improvement work was considered successful by the employees or not.

The principal of User involvement was practised extensively during the improvement work by having discussions, asking for feedback, as well as performing co-creation sessions with the employees. The improvement work started with a user investigation in order to understand how the employees in the Business Development team worked. To understand the users and how they worked was considered especially important in this improvement work since the master thesis workers had not worked at the department themselves and thereby had no previous experience on how the department worked with business development. However, even if the master thesis workers would have worked at the department previously and thereby known how they conduct business development, the result of this research indicates that it still is important to interview other employees since different people might have differing views and opinions.

The second guiding principle - Iterative process - specifies the approach which was used during the improvement work; first were changes made to the process description, these changes were then evaluated by the users in order to receive feedback, and then further changes were made to the process description. These steps were then repeated for several iterations until a satisfactory result had been achieved. This approach was used since it was not believed likely that a perfect design would be developed in the first attempt. Even if the users specified wants and needs in the initial user investigation, these wants and needs changed during the improvement work. The users might have thought that they knew what they wanted in the beginning; however as the design started to evolve, the users' specified new and changed wants and needs as they saw the preliminary results. Therefore was an iterative process good to use since it allowed the users' wants and needs to evolve during the improvement work.

Involving all employees in the Business Development team throughout the entire improvement work also ensured that the new process description and its methods and tools lived up to the employees' expectations. Even if the changes that were made were based on the information gained through the initial user investigation, it was considered important to test the changes on the users in order to see that they actually satisfied the users in the end; this since misinterpretations easily happen. The continuous involvement of the employees also made it
possible for them to see how the process description improved successively. By showing the employees how their feedback has affected the changes made with every iteration cycle and how this has contributed to the resulting final process description, it is believed that the employees became more positive towards the new process description. This since they felt that the process description was something that they had helped to develop and therefore they felt an ownership over it. As a result of this positive attitude, all employees have either started to work with the new process description or showed an interest for doing so, and this is believed to be a result of the guiding principle of user involvement.

The two guiding principles that were tested in the improvement work of this research have proven to be successful for improving the process description in this case study; this based on the positive feedback received from the users, as well as the fact that the employees have already started to work with the new process description. Since the resulting process description was considered successful by the users, one can draw the conclusion that the process used for developing the process description was a good way to conduct the improvement work. Therefore, it can be recommended to use the principles of user involvement and iterative process when developing a user-friendly process description for business development projects.

However, to be able to say if the iterative, customer involving development methodology used in this improvement work is the best way to conduct an improvement work of a business development process description, the result of it needs to be compared to a development project were no iterations and customer involvement have been performed. However, this could not be done in this master thesis due to time restrictions and the fact that the thesis work only involved one company and one business development process description. Therefore the result from this master thesis can only state that using an iterative process and extensively involving the users was a successful way to perform the improvement work of a business development process description, however if it is the best way cannot be said.

On the other hand, it was realised in this research that an iterative and user involving development approach can be very time consuming as it involves a lot of repetitions as well as it takes up the employees’ time. Therefore, it needs to be considered how much iteration that is economical justifiable to perform and how many users that are justifiable to include in the development. However, using an iterative and user involving development methodology can have some economic benefits as well, such as that the users are trained on how the process description works during the improvement work, and as a result of this, no training might be needed for the employees that have been involved in the development. In addition, the new process description is believed to reduce the development time for future business development projects. This reduced development time is believed to be a result of the creation of a more structured and efficient process, the removal of unnecessary activities as well as the easier usage of the methods and tools thanks to the clearer instructions and colour coding. This suggests that creating a process that is user-friendly is not only beneficial to the individual user, but also to the company since a user-friendly process can accelerate the development process. However, this needs to be confirmed by long-term testing of the developed process description, where the projects’ development times are compared to the development times achieved before the new process description. This could however not be tested in this research due to time restrictions; when this report was written, no development project had been performed from beginning to end with the new process description.
7. Conclusions

In this chapter will the results and conclusions of this research be summarised; this in order to answer the initial research questions concerning how a description for a business development process can be made user-friendly.

7.1 User-friendly process description design

Through the results presented in this research it can be concluded that a process description for business development, needs to fulfil the both aspects "ease of use" and "usefulness" in order to be user-friendly. The original ITM process description investigated in this research did only fulfil the aspect "usefulness" and due to its poor fulfilment of the aspect "ease of use" the employees could not practically use the process description in their work.

In order to fulfil these two aspects; four criteria have been tested in this research for guiding the development of a more user-friendly process description. These criteria are Needed, Efficient, Learnable and Usable, and Visual; where the first two criteria correspond to the fulfilment of the aspect "usefulness" and the two last criteria correspond to the fulfilment of the aspect "ease of use". These criteria have been the guiding framework for the improvement work; where the aim has been to improve the process description in order to better fulfil these criteria. The major changes that have been made to the process description to better fulfil these criteria will be listed below.

Needed - evaluate which activities, methods and tools that are needed and useful.

- Unnecessary methods and tools have been removed from the process description.
- Necessary but missing methods and tools have been added to the process description.
- A purpose description has been written for every method and tool in order to enable the employees to decide themselves if a method or tool is needed to be used or not.

Efficient - evaluate the structure of the process in order to make it more efficient.

- A more efficient and structured process flow was created, where the methods and tools were organised to be performed in a logical and fixed order.
- Sub-steps were created within every phase of the process and these sub-steps were ended with a milestone. These milestones are supposed to act as smaller checkpoints where the project will be evaluated according to a checklist with predetermined questions. By using these milestones it can be noticed earlier if a project has encountered some problems that might risk the products success on the market.
- A new folder structure was designed where the templates for the methods and tools were organised according to the phases and sub-steps of the process description; this to make it easier for the users to access and use the tools.
- Irrelevant and redundant steps were removed from the tools in order to make them faster and more efficient to use.
Learnable and Usable - evaluate the user understanding of the process description and its methods and tools.

- An information slide was added to every method and tool including a short description of the purpose of the method or tool, the prerequisites for using it, instructions on how to use it, as well as what the result of using the tool was.
- Thoroughly explained instructions were written for all methods and tools, not assuming any previous knowledge by the users.
- Comments with further instructions and explanations were also added to important fields in the excel files; this to allow the novice users to receive more information if needed while not being in the way for the more experienced users.
- An example document was created for every method and tool in order to show what the different methods and tools could look like when completed.
- The process description and all the methods and tools included in it were developed in simple software that all employees were familiar with.

Visual - evaluate the visualisation of the process description and its methods and tools

- A guiding power-point document was created for the process; this document included new illustrations of the process, showing which methods and tools that were included in the different phases of the process and in what order they should be performed.
- An overall picture of the process phases was also created to be put up on a wall in the office; this to be used as a communication tool were the current status of the different projects could be mapped out.
- A clear and consistent colour coding was developed for the process description and all of its methods and tools. White was used to indicate what fields that should be filled out by the user, these areas were the only ones coloured white in the tools.
- Symbols were added to the process flow illustration to indicate were customer interaction, team collaboration or iteration was needed.
- All instructions were gathered at the top of the slides in the tools; this to allow the novice users to receive the information they need, while the more confident users could scroll down pass the instructions and start using the tool immediately.

These were the major changes that were made to the process description in order to make it more user-friendly and the satisfaction of the employees concerning the improved process description indicates that it has become more user-friendly. The employees think that the new process description is more usable than the old one and thereby can the aim of developing a more user-friendly process description be considered achieved.

7.2 User-friendly development methodology

The usage of the two principles - user involvement and iterative process - was very successful in the improvement work performed in this research. The employees contributed with a lot of valuable ideas and opinions, and without their feedback the process description would not have become as user-friendly as it is. The benefits identified with using a user involving and iterative development approach will be listed below.
User involvement

- The developed process description became better adapted to the needs and wishes of the employees and this motivated them to start using it.
- The user involvement approach gave the employees a feeling of ownership over the new process description; this since they had contributed to its development.
- The employees learnt how the process description worked during the improvement work; thereby no training was needed after the completion of the process description.

Iterative process

- The iterative development methodology allowed the users' wants and needs to evolve during the improvement work.
- The employees could see how the process description improved successively and this made them more positive to the end result.
- This approach ensures that the end result will be good since iterations are continued until a satisfactory result is achieved.

However, using an iterative approach where the users are involved extensively in the development was realised to be very time consuming. The improvement work of this research has taken up time from the employees' normal working duties and it has therefore been difficult to perform as much iteration as wanted. Therefore, it is important to consider how much time the employees have available before initiating an iterative and user involving development approach. On the other hand, the end result of the user-friendly changes made to the process description is believed to be a reduced development time for future business development projects; thereby it might be worth investing some of the employees' time in the improvement work in order to save time on future projects.

Nevertheless, other benefits have already been achieved thanks to the new and more user-friendly process description developed in this research. The employees are more motivated to using the new process description in their everyday work since it meets their needs better than the old one. The new process description makes the employees more confident in the work they are performing since the new and thoroughly explained instructions ensure them that they are using the tools correctly. Finally, the new visualisations of the process illustrate to the employees what they are working towards as well as it visualises how the work is progressing, and this gives the employees a feeling of self-fulfilment.

To conclude, a process description that describes how the work should be conducted is needed in order to conduct successful business development. This process description should include all activities necessary for performing a successful development project. However, even if the process description includes all the right activities, this is not enough to assure that the process description will be used. In order to ensure that the process description will be used by the employees it needs to be user-friendly and represent the easiest way to perform work.
8. Researchers' reflections

In this chapter will the research that was performed in this master thesis work be reflected on. Difficulties that were encountered on the way will be discussed as well as decisions that have been made which might have affected the result of the research.

Finding relevant literature on the two research questions stated in this thesis work was hard; we did not find any literature specifically considering user-friendly development of a business development process. Instead literature had to be derived from other areas of research such as user-centred design and interaction design; these sources of literature were analysed to see if they could be used in this research. For example was literature concerning how to develop user-friendly products used in order to understand how the process description should be developed; the justification for using this theory was that the process description could be seen as a product. However, not finding relevant literature is actually positive for this research as it means that there is not much research performed in this area. The purpose of this master thesis is therefore also to show the lack of research in this field, and with this research set a first foundation for future researchers to continue investigate. This research is not enough to definitively say how a user-friendly process description should be developed; it is just the empirical testing of one methodology at one company. Therefore, further research needs to be performed in order to verify that this methodology works for the improvement of other business development processes at other companies as well as test other methodologies to see if there is anyone better for the purpose of achieving a user-friendly process description.

We chose to focus our improvement work on the phases Ideation and Development in the ITM process since most of the problems that we found during the first analysis of the ITM process related to these phases. These phases also included almost all the methods and tools developed by the consultant, the phases Execution and Sales had almost no methods and tools developed for them, and since this research considered an improvement work and not a development project performed from scratch, the phases Ideation and Development were better suited for the purpose of the research. We also felt that with our knowledge and experience within the area of product development we would be able to perform a better improvement work on the first part of the process description than the later; this since the focus of our studies is product development and not marketing and sales.

The improvement work could actually be conducted more effortlessly than we thought it would be; we were prepared for that some people would be reluctant to change and do not want to use the new process description as they wanted to work as they always had done. However, everyone was really optimistic to the development of a new process description and they were very adaptive to the changes made and started to use them almost immediately after they were finished. This can be thanks to that the Business development team was a relatively new team at the relatively new department of New Business, and because of this, no one in the team had worked according to a specific process for a particularly long time and therefore they had no deep rooted way of working. On the other hand had most of the employees never worked according to a structured product development process before, and due to this there was a risk that the employees saw the structuring of their work as a confinement. However, everyone at the department was very motivated to receiving a structured process and this made the improvement work a lot easier for us.
When conducting the improvement work in this master thesis, we have used an action research approach and therefore we have been switching the focus between being researchers and consultants. When the improvements were made to the process description, the focus was to deliver a process description as good as possible within the limited timeframe; this is the same focus as a consultant would have. However, when making these improvements, we also had to critically analyse everything that was done in order to be able to draw conclusions and contribute to the research of user-friendly process development. This critical analysis could however be questioned since we were supposed to critically analyse our own improvement work. To be able to assess the success of the improvements made to the process description, we needed to be totally impartial, which of course was not possible. However, during the whole improvement work, we have tried to not develop an emotional connection to the improvements made, and instead allowed the users to decide what was considered good or bad; thereby making it easier to further develop or discard the improvements. If the improvement work had been conducted without the research focus present, the time needed for the improvement work could probably have been reduced. On the other hand, if the research part of the thesis would not have been considered during this improvement work, the changes made to the process description would not have been as thoroughly examined and therefore it might not have provided the same quality.

During the spring, two new team members have been working half time with the Business development team and they have been a great source for feedback on the process description. Both of them joined the team through a job rotation programme and have thereby no previous experience of product development. Since they joined the team after the consultant left, they had not been involved in the development of it and neither received a presentation on the final process. Therefore, the only knowledge they had about the process was the one presented in the process description, they had to rely on the instructions and explanations given, and this made them perfect for testing the user-friendliness of the process description. The two new employees were given the process description on their first day at New Business and told to try and understand it, after looking at it for about one hour we interviewed them to see what problems they saw with starting to use the process. This resulted in clear data saying that the process description was hard to understand for a person that is not already familiar with it; this kind of data would not have been possible to derive from the original team members, since they all had been involved in the development of the old process and thereby received some further explanations of the process description than what was given in the final material. In addition, the original team members had all started to work with the process description and this resulted in that they felt that the parts they had worked with the most were the best and most easily understood parts; however if they had worked with the other parts as much, they might have been just as easy to work with. Due to this realisation of the benefit of testing the process description on someone that had not been working with the process before, we decided to test our new developed process description on other employees at New Business outside the team of Business Development. By doing this we could receive data on how user-friendly the process description was to someone that was completely new to it, something that felt important to us in order to ease the introduction of new employees.
A large part of the Business development team was positioned in Finland, only our supervisor and one of the two persons working half-time in the team were positioned in Sweden, which where the location where we conducted our master thesis work. This has of course resulted in some problems and made the work harder than if everyone would have been positioned at the same location. Interviews with the team members in Finland had to be performed in video conference calls and this made it more difficult to test the new developed material on them than on the Swedish team members; due to this the team members in Sweden were more involved in the development than the Finnish team members. Our supervisor at Fortum has been the one person that we have had the closest contact with, whenever we have wanted some fast feedback on something she has been the easiest person to turn to; this both due to her role as our supervisor as well as the fact that she has been the only fulltime team member located in Stockholm. Therefore, a lot of the improvements that have been made to the process description have been based on her opinions, giving her a larger influence on the final process description than the rest of the team. However, to be able to evaluate and reduce the risk of us developing a process only suited for one person, we have always tried to double-check that the opinions used for improving the process is shared by more people than one. In addition, at the workshop performed in the middle of the improvement work, we tried to sum up everyone’s opinions and present these to the team in order for them to discuss differing opinions and ideas.

When conducting the master thesis we have been sitting in the middle of the team at Fortum’s office in Stockholm; something that has been very beneficial for this research. Our supervisor has been sitting right beside us, working according to the ITM process during the whole thesis work and this has given us instant feedback on the improvements made to the process description. Being located at the office has also made it possible for us to better understand how they are working by informally observing them in their everyday job. By sitting at their office, we have also been able to use their computers, SharePoint sites, intranet and communication media; this has made it possible to collect a lot of secondary data to analyse and use as input. However, one problem that resulted from our location in the middle of the team was that we could not critically discuss the process description and their working methods as freely as we would have wanted; this since everything might not have been suitable for them to hear. Therefore, we have had to go in to small meeting rooms to discuss more openly and this might have restricted the quantity of discussions held between us two thesis workers. However, even if the discussions might have benefited from sitting apart from the rest of the team, the other benefits of sitting close to the team were considered more important for the research and thereby the choice of sitting in the middle of the team.
References


Entrepreneurship Centre (2002). Writing an effective business plan. Canada: Ottawa Centre for Regional Innovation


Stickdorn, M., & Schneider, J. (2011). *This is service design thinking.* Hoboken, NJ: John Wiley & Sons, Inc.


Appendix 1. Example of interview questions

Can you describe your view of the process? Do you have an overall picture of how it works?

**Needed**
Are there any methods and tools in the process that you think are unnecessary?

Can you find anything that you think is missing in the process description?

Do you know any methods or tools that are not included in the process right now, that you think could be valuable to use in this process?

**Efficient**
If you compare this process description to the previous one, where the Business case exploration plan was the guiding document for the process description, what advantages and disadvantages do you see?

What do you think about the order of the methods and tools?
- Does this order seem reasonable to you?
- Should they be placed in another order? Why? How?

What are your thoughts on the folder structure?

Do you think that folders with documents is a good way of structuring a process?
- How would you rather structure the process?

**Learnable and usable**
Do you understand how the process description is structured?

Do you feel that the descriptions and explanations for the methods and tools are clear and easy to understand?
- How could they be improved?

Do you understand how the different methods and tools are linked to the different phases of the process?
- How could this be made clearer?

**Visual**
When it comes to visualisation, how do you think the process should be visualised in order to be as easy as possible to understand?
- Can you give an example?

What do you think of the colour coding?

Is there anything else that you would like to comment on concerning the process description? Anything else you came to think of during this interview?
## Appendix 2. Summary of identified problems

<table>
<thead>
<tr>
<th>Problems</th>
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<tbody>
<tr>
<td><strong>Process structure</strong></td>
</tr>
<tr>
<td>Overall process description picture not clear</td>
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<tr>
<td>Poor structure in the process description</td>
</tr>
<tr>
<td>Hard to see the linking between methods and tools</td>
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<tr>
<td>A summary of the methods and tools included in the process description is missing</td>
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<tr>
<td>Inconsistent naming of the folders and tools</td>
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<tr>
<td>Two different names for the same phase</td>
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<tr>
<td>The same abbreviation, MVC, was used at different places in the process</td>
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<tr>
<td>Different definitions of the term “Business case”</td>
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<tr>
<td>Generally few checkpoints with Go/No-go questions</td>
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<tr>
<td>Time estimations on the different phases are missing</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Methods and tools</strong></th>
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<tbody>
<tr>
<td>The process description included too many folders and tools</td>
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<tr>
<td>Too many steps in the methods and tools</td>
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<tr>
<td>The tools were not intuitive and easy to understand</td>
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<tr>
<td>Poor instructions in the methods and tools</td>
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<tr>
<td>Poor explanations of what the input for the tools was supposed to be based on</td>
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<tr>
<td>Not clear in which methods and tools external customers should be included</td>
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<tr>
<td>Not clear for which methods and tools collaboration was needed</td>
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<tr>
<td>The different methods and tools were missing time estimations</td>
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<tr>
<td>Unclear purpose of the methods and tools</td>
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<td>Unclear what the results of the methods and tools indicated</td>
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<tr>
<td>Unclear in what order to work in the excel tools</td>
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<tr>
<td>Scarce and hidden explanations in the excel tools</td>
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<tr>
<td>Inconsistent colour coding</td>
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<tr>
<td>Not clear what documents to work with in the different folders</td>
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<tr>
<td>Some tools lacked example documents</td>
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<tr>
<td>Some tools only consisted of example documents and lacked templates</td>
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<tr>
<td>Confusing file formats for the different documents</td>
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<tr>
<td>The Execution and Sales phases lacked methods and tools</td>
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<tr>
<td>No tools for performing idea generation in the Ideation phase</td>
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<tr>
<td>A post-project evaluation was missing</td>
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<tr>
<td>The guiding document, Business case exploration, plan was unclear and difficult to understand</td>
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Appendix 3. Evaluation questionnaire

Needed
Is the tool needed in the process? Does it fulfil a purpose?

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Comments:


Efficient
How efficient and practical is the design of the tool? Does it seem easy and fast to use? Is there any time wasted on unnecessary tasks?

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Comments:
**Learnable and usable**
How easy is it to understand the tool? Are the descriptions clear? Do you understand the purpose of the tool? Do you know how to start and how to proceed using the tool?

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<th>Very difficult</th>
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<th>Very Easy</th>
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Comments:


**Visual**
Do the visuals help you to understand how to use the tool? How cohesive are the aesthetic aspects of the tool? Is the tool consistent and clear in the design?

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<th>Not visual</th>
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<th>Very visual</th>
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Comments:


