Promoting Usability in an Agile Environment

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Abstract

This project was done in collaboration with an IT consultant company in Stockholm, Sweden. The company wanted to integrate usability activities into their Agile software development process. The thesis gives an introduction to how User Centered Design and Agile fit together in practice and how usability work can be sold to customers. Furthermore the thesis gives recommendations on how to raise the awareness of usability within the company and concludes by suggesting an integrated process of Agile and User Centered Design.

Främjandet av användbarhet i en agil miljö

Detta projekt gjordes i samarbete med ett IT-konsultföretag i Stockholm. Företaget ville integrera användbarhetsaktiviteter med sin agila utvecklingsprocess. Avhandlingen ger en introduktion till hur användarcentrerad design och agil passar ihop i praktiken och hur användbarhetsarbete kan säljas till kunder. Dessutom ger avhandlingen rekommendationer om hur man kan höja medvetenheten om användbarhet inom företaget och avslutar med att föreslå en integrerad process av användarcentrerad design och agil.
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Introduction

Nowadays there are high demands for IT systems to work flawlessly and without interruptions. In addition, IT systems have to appeal to the intended user group, solve the right problems, keep the users interested and have them coming back for more.

In order to meet the high demands, IT practitioners have started combining Agile and User Centered Design (UCD). The different focuses of the two methods have the potential to deliver high quality software. UCD is a development method with the user in focus. It is focused on designing systems with good usability, systems that are based on users’ needs and the context of use. UCD is part of the research field of Human-Computer Interaction; being a mixture of cognitive science, computer science, graphic design and interaction design. Agile is a software development methodology that focuses on delivering working software through high productivity and close collaboration with the business side. Methods within Agile have been used in software development for over a decade, and with good results.

Working with improved usability of systems has been my focus over the last ten years. At each chance I have gotten through the years I have tried to involve actual users and done my utmost in understanding users’ situation and the context of use. Furthermore, I have used the Agile software development methodology at my place of work. I have experienced the good productivity of Agile software development. What I also experienced was the lack of usability focus in the process. The programming part of the process always had the leading role. Usability activities never reached the planning board; neither were they ever discussed during planning sessions. Ever since, I have been very curious about finding ways to combine the two in practice.

When reflecting on interesting projects for my thesis; I discovered an IT consultant company that wanted to combine usability activities with their Agile development process. They believed that by including usability activities in the development process, they could eventually lower the cost of software development. I knew right away that the project was made for me.

Problem definition

The IT consultant company (“the company”) is working according to the Agile software development methodology. Their current development process does not include any specific usability activities. The company wanted suggestions on how to integrate their Agile development process with usability activities as well as suggestions of usability methods that could fit within their development process.

Objective

The aim of the project was to research how Agile and usability fit together in practice and which usability activities were most appropriate for the company’s Agile
development process. In addition, I wanted to research which factors could help with the integration of the two processes; UCD and Agile.

**Structure of thesis**

The thesis starts with background information on usability and Agile, followed by a literature study that reviews relevant literature and case studies on how Agile and UCD fit together in practice, the usability maturity of organizations and the return on investment (ROI) of user research and design. The chapter after that describes how the project was carried out, the choice of methods and how each method was executed. The succeeding chapter includes the results from the different methods along with an analysis of the results. Finally conclusions are drawn from the results and then discussed.

**Glossary of terms**

*Below is a list of common terms along with their short description:*

- **Kanban:** a software development methodology within Agile.
- **Product Backlog:** a list of features that are to be implemented in a project/system.
- **Product Owner (PO):** a business representative in Agile. The PO decides what features will be built in which order they are developed.
- **QA:** Quality Assurance
- **ROI:** Return on investment
- **Scrum:** a software development methodology within Agile, based on iterations (sprints).
- **Sprint:** one iteration in the Scrum development process; it ranges from one to four weeks.
- **Sprint ahead:** in cases where usability activities and programming are separate tracks within a project, then user research and design is done one sprint ahead of development.
- **UCD/UCSD:** User Centered (Systems) Design.
- **User story:** explains how a system feature is to be used in a given context.
- **UX:** User experience, comprehends all aspects of digital products that users experience directly.
Theoretical Background

This chapter covers the literature study and gives explanation to the different terms used within the Agile development process and user centered design (UCD). The focus of the literature study was on how to evaluate companies’ usability maturity, how Agile and UCD fit together in practice and finally how usability work can be “sold” to customers.

Usability

Usability is defined by the International Organization for Standardization (ISO) as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction, in a specified context of use”[1].

Jakob Nielsen defines usability by five quality components [2]:

- **Learnability** - How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency** - Once users have learned the design, how quickly can they perform tasks?
- **Memorability** - When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- **Errors** - How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction** - How pleasant is it to use the design?

Nielsen also mentions another key attribute, which is utility. Does it do what the users need? He states that usability and utility are equally important and together determine whether something is useful.

In his book on web usability, Steve Krug writes about *Krug’s first law of usability*; which is “Don’t make me think!” . He wants web pages to be self-evident, obvious and self-explanatory. “[The user] should be able to “get it” – what it is and how to use it – without expending any effort thinking about it” [3, p.11].

User Centered Design, User Centered Systems Design and UX

Donald Norman coined the term “User Centered Design” (UCD) in his book *The Design of Everyday Things*, first published in 1988 [4, p.188]. He describes user-centered design as “[...] a philosophy based on the needs and interests of the user, with an emphasis on making products usable and understandable. [...] Design should make sure that (1) the user can figure out what to do, and (2) the user can tell what is going on”. He also suggests that the design should, as much as possible, operate without instructions. If needed, necessary instructions should only need to be given once. When explaining a successful design, it would yield replies such as “Of course”, or “Yes, I see”. If the instructions lead to the person saying “How should I remember that?” the design has failed.
Jan Gulliksen et al. proposed a definition of User Centered Systems Design (UCSD) and have defined twelve key principles for the adoption of a user-centered development process. The principles are based on existing theory, as well as research and experiences from a large number of software development projects [5]. The UCSD process is visualized in Figure 1.

![Figure 1: The User Centred Systems Design process [5]](image)

User experience (UX), comprehends all aspects of digital products and services that users experience directly. The key factors that contribute to the quality of user experience are usability, usefulness, learnability and aesthetic appeal [6].

In various articles and papers, there are many different terms used for quite similar concepts. Terms like UCD, User-centered system design (UCSD), User experience (UX), Usability and Interaction Design are all used with a similar meaning. In this paper I will refer to UCD when discussing user centered design processes and UX when discussing user experience and/or people working with usability activities.

**Agile**

Agile software development is a group of software development methodologies that share a common philosophy; which is fully described by the Agile Manifesto [7]. The purpose of the manifesto is: “[...] uncovering better ways of developing software by doing it and helping others do it. [They] value:

- Individuals and interactions over processes and tools.
- Working software over comprehensive documentation.
- Customer collaboration over contract negotiation.
- Responding to change over following a plan”.

An agile process is based on iterative and incremental development, where requirements and solutions evolve through collaboration of self-organizing, cross-functional teams. Agile promotes adaptive planning, evolutionary development and delivery, a time-boxed iterative approach, and encourages rapid and flexible response to
change. It is a conceptual framework that promotes foreseen interactions throughout the development cycle [7]. Figure 2 describes the process.

Two of the software development methodologies in the group are Scrum and Kanban, which are also development methods used by the company. Without going into detailed characteristics of the two methods, it is worth mentioning a few.

Scrum contains a set of predefined roles and methods. For each project there is a Scrum master, who ensures the process is followed and removes impediments; a Product Owner, who represents the stakeholders and the business side and the Development Team, which is the group that does the design, coding, testing and implementation [9]. A Sprint is a basic unit in Scrum and represents a single iteration. It is a time-boxed effort of a constant length which can last from one week up to a month [10], [11]. Each sprint results in a release of the product [7]. Scrum limits the work in progress (WIP) within each iteration, i.e. a sprint [12].

Kanban is more adaptive and imposes fewer constraints than Scrum. It has no predefined roles or fixed sprints. Kanban focuses on the workflow state and limits the work in progress (WIP) within each state.

Both methods have a respective planning board (Scrum board and Kanban board), see Figure 3. The main difference lies in the limit Kanban puts on a workflow state (the state “Ongoing” in this case). The writing “WIP max 2” in Kanban indicates that only two tasks (work in progress (WIP)) are allowed on the specific workflow state each time. Scrum on the other hand limits the WIP within a sprint (the whole board), not necessarily each state or column. Since Kanban is not dependent on sprints, the Kanban board is persistent, whereas the Scrum board is reset between sprints.
In this paper, I will use the term Agile as a superset of individual methods such as Scrum and Kanban.

**Usability maturity**

*Before I started suggesting ways to add usability to the software development process at the company I needed to understand the current state of usability activities, i.e. the usability maturity of the company.*

In 1998, Jonathan Earthy published the “Usability Maturity Model: Human Centeredness Scale” [13]. The model suggests six levels of a company’s usability maturity. The levels are based on attitude, technology and management practices which comprise steps towards a fully human-centred approach. The model includes a comprehensive checklist along with follow-up practices for management in order to reach a higher level of usability maturity.

Human Factors International, Inc. conducted a worldwide survey on User Experience Practice Maturity in April 2009 [14]. The survey was completed by 1123 individuals within the software development industry. The findings were published in May 2009 along with a list of all questions that made up the survey.

In February 2012, Tomer Sharon described a simple UX Research Maturity Model [15]. His model divides companies into four levels of maturity based on staff composition and the attitude among staff towards user experience design and research. What was even more interesting about his writing was that the online article also included recordings from interviews with two experienced UX practitioners, Jared Spool[16] and Donna Spencer [17]. The interviews focused on companies’ maturity towards user experience design and research. The results from the interviews were in short “They (Jared and Donna) don’t try to convince companies who can’t be convinced”.

Jakob Nielsen describes eight stages of Corporate Usability Maturity [18], [19]. He states that “organizations typically progress through the same sequence of stages, from initial hostility to widespread reliance on user research.” Each stage is described in order for
organizations to be able to identify their own usability maturity. Descriptions as to how organizations reach the next level are also provided.

Even though it is very tempting to do a full analysis of the company’s usability maturity level, it will not be included in my thesis. I will however use the different models and checklists as inspiration for my own research.

**UCD + Agile**

Many researchers and UX practitioners have written about the integration of Agile and User Centered Design (UCD) methods. Judging by the many articles on the topic it is obvious that there is need for some adaptation between the two in order for them to work out and bring out the best in both [5], [8], [20–30],[31–39]. As the results of Lester’s empirical inquiry [27] suggest that using a hybrid approach of Agile and User Centered Design on small-scale projects is easy to implement, but is not without challenges.

Quoting from a recent sold-out seminar held by Jeff Patton [24], “[he] spoke directly to folks working in an Agile environment who struggle with knitting user-experience design practices together with the iterative process they work in.” This indicates that developers and UX practitioners are at least willing to combine the two approaches and that they are on the lookout for best practices in doing so.

**Reported results of the integration**

*Before going into the deep about what needs to be done to integrate Agile and UCD, I wanted to find out whether the combined processes were actually delivering better software.*

A systematic review on the Agile method Scrum alone [40] showed strong evidence about the relation between Scrum and productivity. It also revealed that there was increased product quality, client satisfaction, cost reduction and better team motivation. Several case studies [8], [25], [29], [30] state that their combined process of Agile and UCD is yielding better results concerning quality of product and development process. A systematic review of User Centered Design (UCD) and Agile [28] reveals that 26 of 58 papers specifically report that the (attempted) integration of UCD and Agile has improved communication and collaboration between the development and design teams.

According to Desirée Sy’s article on adapting UCD to Agile [8], she states that the Agile UCD process her company is working after is resulting in better-designed software than the previous waterfall UCD process. Among other things, she mentions that more of the product is designed than before, usability investigations are conducted throughout the entire product release lifecycle and the most important designs are worked on first, wasting no time on unused designs.

Jakob Nielsen summarizes [41] that “Agile methods aim to overcome usability barriers in traditional development, but pose new threats to user experience quality. By modifying
Agile approaches, however, many companies have realized the benefits without the pain.”

**Common factors of Agile and UCD**

*After having researched whether the combination of Agile and UCD could produce better software; I moved on to explore whether the two approaches had any common ground to build on.*

When looking at key principles of both Agile and User Centered Design (UCD), one can see a few resemblances. Both approaches see people as being more important than processes and emphasize face to face communication. UCD takes it a step further by wanting the communication to take place in user context [5], [7], [42]. Both approaches require a good visualization of the project and providing simple design representations. The visualization of the project can be in the form of a certain planning board (e.g. Scrum-Board, User Experience Board [8]) or a specific project room [25].

Another thing the approaches have in common is their reliance on iterations and incremental development [21], [26], [27]. The first principle of Agile [7] clearly states that “The highest priority is to satisfy the customer through early and continuous delivery of valuable software”. One of Gulliksen’s twelve key principles of UCD [5] is evolutionary design; the system development should be iterative and incremental.

**Opposing factors of Agile and UCD**

There are quite a few things Agile and UCD do not have in common. I believe the main difference stems from the fact that the main focus of the two approaches is different. As stated in Sohaib’s abstract [26] to his literature review; “Usability focuses on how the end users will work with the software whereas Agile development focuses on how the software should be built”.

Jakob Nielsen agrees and writes that “Agile’s biggest threat to system quality is the fact that it’s a method proposed by programmers and mainly addresses the implementation side of system development” [41]. Others have also stated that the problem with Agile is that it has not paid much attention to usability and UCD [5], [32], [34].

**Deliverables and documentation vs. No documentation**

The Agile Manifesto values “Working software over comprehensive documentation” [7]. However, deliverables, the so-called documentation, have been the focus of user experience and design work for a long time. The deliverables take on many different forms; such as user interface specification, user/stakeholder research results, prototypes, process flows and wireframes. In Jared Spool’s coverage of challenges and opportunities for UX and Agile in 2012, he states that one of challenges of integrating Agile and UCD is that Agile teams don’t care about deliverables [21].

**Focus on user vs. Focus on customer**

One hardly has to mention where the focus is in User Centered Design, it is obviously on the user. Eleven of Gulliksen’s twelve principles of UCD [5] include the word user, usability or use. Looking at the Agile Manifesto [7], there is no mentioning of the end-
user, the context of use or usability. However the manifesto values customer collaboration. The customer should become a member of the team and write and prioritize stories and test the software. In many cases the people that take on the role as Agile customers are not real end-users [5], [26]. Jeff Patton describes in his case study “Hitting the Target: Adding Interaction Design to Agile Software Development” [37], that when using Agile methods alone, his team managed to deliver high quality software quickly. The software however did not please the end-user which still ended up slogging through the system to accomplish necessary day-to-day work.

**Working software vs. Usable Software**

It is a common goal for Agile and UCD to deliver working software. According to the Principles behind the Agile Manifesto [7], “Working software is the primary measure of progress”. In addition to working software, UCD focuses on usability, which is defined as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction, in a specified context of use”[1].

In spite of these differences people still see no reason why Agile and UCD processes could not be integrated [5], [21], [24].

**Problems and solutions**

Following are commonly reported problems with the integration of Agile and UCD. The problems listed are followed by suggestions from various researchers and specialists on to how to solve the issues at hand.

**Holistic overview**

The lack of holistic overview appears to be the most common problem with the integration of UCD and Agile projects [5], [24], [31–33], [43]. A panel of six UCD practitioners discuss the subject of “how teams can accomplish holistic design when Agile teams are planning and building features in piecemeal fashion” [31].

In order to gain holistic view of projects, Jared M. Spool talks about development teams needing to reach a shared understanding of the project at hand [21]. He mentions low fidelity prototyping (i.e. sketching) as a good method for bringing out the concept of the project. Prototyping is also very fast and effective, thus fitting very well to the Agile development process [44].

Both [28], [45] mention the importance of maintaining a coherent vision of the information architecture. In [28], da Silva et al. suggest the sharing of documents, artifacts and especially knowledge between the teams (development and UX) as a way of maintaining the big picture.

**Time**

Time is also a common factor of many problems of joint UCD and Agile projects. Participants in an empirical inquiry [27] felt that the UCD involvement was time consuming. A special interest group on Agile user experience reported that developers were often waiting for designers [33]. Another stated that doing the design and the development of that design during the same sprint (in the same time frame) did not
work well [32]. A few mentioned that due to the short timescale of sprints in Agile development, user research and design would not often fit into a sprint, neither did proper usability testing [8], [21].

Quite a few researchers recommend a separate parallel track for user research and design. To avoid the situation where developers are waiting for designers; the separate UX track should be one or two sprints ahead the development track. The process should also start with a “sprint zero” where most preparation work is done [8], [22], [23], [28], [32], [33], [45].

In her article on Adapting Usability Investigations for Agile User-Centered Design, Desirée Sy explains quite well how to intertwine the two separate tracks, development and interaction design [8]. The figure from her article shows how code and design go from one track to the other at different cycles, see Figure 4.

Figure 4: Desirée Sy’s explanation of the two separate tracks [8]

Jeff Patton points out that by making the first sprint heavy on IT and low on design, designers can earn extra time for design [22]. According to Budwig et al. [32], who used the sprint-ahead method, they experienced some problems of getting necessary input from the development team since the UX team was working a sprint ahead.

To address the problem of design not fitting within a sprint, a few have proposed chunking the design work [8], [21], [22], [24]; that is breaking design apart into sprint-sized pieces.

In order to make room for usability testing within a sprint, some recommend the RITE method (Rapid Iterative Testing and Evaluation). According to RITE; errors discovered during a test session are corrected before the next session. That is done to avoid repetitions in the testing process [23], [33]. Jakob Nielsen agrees and suggests a better use of resources by running small tests and revise the design between each one [2]. Some also mention that the time with users should be well spent and leveraged for multiple activities. Those activities could include usability testing, contextual interviews and observations [23], [33]. Desireé Sy uses three different approaches for usability investigations [8]. Early in the process her team performs an in-house usability test with
internal users, in mid-process they perform an in-house usability test on real users. Later in the process the usability test is conducted on real users in their working environment.

**Documentation**

Two separate case studies reported on lack of documentation. The fact that requirements were not well documented, led to uncertainty and confusion about deliverables [25], [32].

To solve it, Jeff Patton recommends researching, designing and modeling up front, but only just enough. He states that companies that are successful in incorporating UX work and Agile, always do up front user research and modeling that result in things like personas, workflows etc. Some Agile teams use “sprint 0” for this initial research [22].

**The Agile customer**

A weak Agile customer has been a problem in some cases [33], [38]. The people that take on the role as Agile customers are not always real end-users and do not provide the right information about the real context of use [5], [26].

Lynn Miller suggests the user experience person to take on the role of the Agile customer. The UX person already knows how to act as end-user representative and has the skills and knowledge to prioritize requirements [38].

**User stories in the wrong order**

A user story describes in one or more sentences what a user does or needs to do as a part of his or her job function. Federoff and Patton both mention that user stories are often implemented in the wrong order. In some cases user stories are prioritized by a business representative (a so-called product owner in Agile) and sometimes they are prioritized by the developers who order them according to the ease of implementation [24], [31].

According to Patton, the user story backlog should be a map [24], [43], [46]. User stories should be prioritized according to criticality (from top to bottom) and usage sequence (from left to right). The map has also been proven to provide means to get everyone on the team thinking and talking about the user experience. Figure 5 describes in which order Patton suggests user stories should be implemented, starting in the top-left corner.

![Figure 5: Jeff Patton’s user story backlog, the Story Map](image)
User feedback
The method for gathering user feedback in Agile is insufficient for the UCD process [8]. A special interest group for Agile user experience agrees and claims that often user feedback is not enough and even ignored [33].

Desirée Sy criticizes the method for gathering user feedback in Agile methods; which is to conduct a focus group, demonstrate new features and ask for users’ opinion. She suggests that there are situations where observations of real usage are more appropriate. Some may think that usability testing takes up considerable time. It does not have to, according to Nielsen, you only need five testers to discover over 75% of the errors [47]. Jeff Patton recommends building a pool of users to validate design before and after it is built [22]. The pool has to be large enough so that the designer doesn’t call in the same users every week, but contacts them every second month or so.

Although many very good solutions have been suggested, I am aware that Agile processes differ between companies. What reportedly worked for one company does not necessarily work for others. I think Jeff Patton phrased it very well: “Build a better aim – Deliver high quality software on time while satisfying end-users” [37].
How do we “sell” usability

Even though various researchers and UX and Agile practitioners are writing about how the combined efforts of Agile and UCD deliver better software; there is still one stakeholder that needs to be convinced, that is the one paying the bill; the customer.

When asked in an interview how to deal with customers that are not willing to pay for user research and design, Jared M. Spool simply replies “if they don’t get it, don’t try to convince them, leave!” [15].

The Usability Professional’s Associations (UPA) has listed the business benefits of usability [48]. They are: increased productivity, decreased training and support costs, increased sales and revenues, reduced development time and costs, reduced maintenance costs and increased customer satisfaction. The UPA has also collected various statistics regarding the return of investment (ROI) of usability [49].

My favorite representation is though Susan Weinschenk’s ROI poster and video describing the ROI of User Experience [50]. See an extract from the poster in Figure 6. Using very vivid examples in her video she explains why companies should invest in user experience. She puts forward measurements that are very easy to relate to. Most of them are linked to the benefits listed by the UPA, but some are an addition to that list, such as e.g. increased conversion rate, increased registration, lower bounce rate, more use, save time and reduce errors. The video alone should have any customer convinced!

![Figure 6: Extract from Susan Weinschenk’s ROI Poster [50]](image-url)
Methods

Following are descriptions of the methods used while conducting my research. Good access to the people working at the company as well as access to any kind of documentation relating to the company’s development process was extremely valuable to my work and strengthened the results.

This was in brief my setup (see Figure 7):

\[\text{Figure 7: My method process in brief.}\]

Literature study

Learning from the experience of others is one of the main objectives of a literature study. Reading reports from different case studies, systematic reviews and method comparisons can give valuable insights on what to look for in a research like this one.

In my search for relevant literature, I looked for the following:

- How to measure the current state of usability activities within a company?
- The Agile development process.
- How Agile and usability activities integrate in practice (problems and solutions).
- How to “sell” user experience design and research to customers?

The sources I used for gathering information were mainly ACM Digital Library, Google Scholar, conference papers and journal articles. I also read various online articles and blogs from known UX practitioners. The review of the literature is included in the Theoretical Background chapter of this thesis.

Interviews

“Direct feedback from interested individuals is fundamental to human-computer interaction (HCI) research” [50, p. 178]. In the book Research Methods in HCI, the authors describe interviews as such:

“The ability to go deep is perhaps the strongest argument in favor in interviewing. By asking questions that explore a wide range of concerns about a problem and giving interviewees the freedom to provide detailed responses, researchers can use interviews to gather data that would otherwise be very hard to capture. Given a chance to talk, and questions that encourage reflection and consideration,
interviews may go on at great length, generating ideas and sharing insights that would have been lost to surveys” [50, p. 178].

Because of the ability to go deep I decided to use interviews as my primary method of gathering information. I wanted to get a good and broad understanding of the company’s software development process. I tried to identify opportunities in the process in order to be capable of suggesting changes in their process; this done with the intention of improving the usability in their end products.

“Your data is only as good as the people you interview” [51, p. 63]. These words I had in mind when selecting my interviewees. In order to get an understanding of the whole process I interviewed people from the whole spectrum within the company, from front to back-end. That included people in management, sales, project management, usability specialists and back-end developers. In addition I interviewed people working for a different company that had already started integrating Agile and UCD. An interview guide was structured accordingly and was divided into relevant categories. See appendix A.

My goal with the interviews was to get a good understanding of the whole project process, from the early start when a potential client is contacted until a project is completed. The interviews were unstructured but with help from an interview guide listing relevant topics for discussion. The reason I choose unstructured interviews is that I had no knowledge of where the opportunities in the process were and I wanted my interviewees to be able to focus on a topic or a concern that they thought was important. In a way they were educating me, giving me new insights to the process and a chance to generate new topics to discuss in the next unstructured interview. I interviewed a total of 12 people, approximately one third of the people working for the company. One person I interviewed twice in order to clarify and confirm certain aspects from the previous interview. Each interview was conducted in a meeting room at the place of work and lasted for an hour. During the interviews I took notes. Being a fan of sketching; I asked my interviewees to do some conceptual mapping during the interview. That means asking participants to draw pictures or graphical layouts that describe their understanding of a situation [51]. I was interested in seeing how they experienced the involvement of usability activities in the current development process; and how they would like to see it in the future.

The external interview was conducted in the same manner as the internal interviews, which was un-structured. I went to see a pair of interaction designers working for a large governmental institution. The connection was made via the company since the governmental institution is a customer and has shown great interest in the integration of Agile and UCD. The interview lasted for approximately 90 minutes, but could have undoubtedly lasted twice as long due to the lively discussions we had. Prior to the interviews I had sent a short description of what I wanted to know regarding their work. That resulted in my interviewees being very well prepared with relevant information, images and descriptions of their current development process.
Documentation and analysis of interview sessions

When it comes to documenting interviews there are a few choices. One can audio or video record the session, have someone else in the room to take notes or simply write notes on a piece of paper during the interview. For my interviews I choose the last option, in this case I thought audio and video recording would simply be in the way, let alone another person in the room taking notes. I was afraid that it could actually change the way my interviewees would express themselves. Another reason was time; seeing that I was going to talk to at least 10 people, turning a single hour of recorded session into text might have taken several hours [51]. To make up for the lack of transcripts I summarized and rewrote my notes as soon as possible after each interview.

Due to the nature of unstructured interviews, the results can be difficult to analyze. I tried to identify patterns in the interviews and organize the comments and responses into various categories, based on the topics in the interview guide.

Presentation on usability

One of my goals with this project is to promote usability and user centered design; I also like to challenge myself and do new things. Therefore I decided to have a presentation about usability for the people at the company. I think everyone can benefit from being reminded of what usability is from time to time and especially to know how it can be integrated into development processes. I prepared the presentation to fit my audience as much as possible and based it mostly on the interviews I had conducted. Since at the end of each interview I asked if the person wanted me to discuss a certain topic related to usability; I had a list of topics to cover. I also added a few topics I considered the people at the company would benefit from hearing. Preparing my presentation in that way, I managed to keep it user centered; or audience centered in this case.

The topics I discussed were:

1. Designing systems for users is nothing new, what has changed? Why the focus on usability now?
2. What is the return on investment of user experience?
3. Where do usability activities fit within a project?
4. How do Agile and UCD fit together?
5. What methods are available for user research and design?
6. How do you deliver usability findings to the development team?
7. My experience from work.
8. How is the company doing when it comes to usability?

The slides from the presentation are in Appendix C.

According to Gulliksen: “[…] applying UCSD requires a profound shift of attitude in systems development” [5, p. 1]. I realized the shift would not come about in a day and thus decided to have the presentation earlier than later in my project. That done in order to give people time to reflect on the matter before asking them to participate in a workshop on usability activities. It would also allow them time to contemplate on the
subject and hopefully broaden their perspective before delivering my final suggestions. The presentation took place in April 2012; halfway through my project. I managed to gather 20 people for the presentation, which is little less than half of all the employees at the company. The presentation lasted for approximately 40 minutes, followed by many questions and very lively discussions which lasted even longer.

**Workshop**

Conducting a workshop is not actually a method by itself, but more of a means of combining different research methods in a certain sequence. Each moment in the sequence builds on the previous one. A workshop needs a clear workshop leader which follows a predefined plan of activities. The number of participants can range from three up to 20, though usually around ten participants. A workshop can yield concrete qualitative results in forms of sketches, prototypes, categorization etc. The participants of a workshop can come from many different directions; they can be actual users, domain experts or other stakeholders. The format of a workshop benefits from the mixture of the different competences and experiences of the participants. During the workshop, participants are expected to work, produce, create and explain their decisions [53].

When doing a research such as this one, it is critical to ground it on more than one primary method of gathering data. This is known in social science as triangulation. The multi-method design allows the researchers to be more confident of their results [54]. That is one of the main reasons I wanted to have a workshop. Another very important reason is that it gave me the opportunity of bringing together people that have different roles in the project process to discuss the process as a whole. I also wanted to get the different views from people on what could serve as the company’s best practices for designing software.

The workshop took place in May 2012 during a two and a half hours’ session with six participants. All participants were present at the usability presentation I held. The participants had the following roles within the company: Sales, Project Management, Scrum-master, UX, System Developer and User Interface Developer. I created a workshop plan to follow and used relevant information gathered from the literature review, the interviews and insights from the lively discussions after the presentation on usability. Prior to the workshop I put together a document containing six different articles; all of which were relevant for the topic. Participants were each asked to read one specific article before the workshop and be prepared to briefly explain to the other participants what the article was about. That I did in order to jump-start the conversation and have everyone focused on what we were going to discuss. The six articles I choose for the participants were:

- Google: Ten things we know to be true [55]
- IBM: An Agile Approach to User Experience Design [56]
- Windows User Experience Design Principles  [57]
- SCRUX Principles (see chapter Results from Interview - External)
- Key Principles of User Centered Systems Design (p. 5 – 9) [5]
I did not record the session nor did I ask anyone else to take notes. I relied on the deliverables (sketches, ideas, categorization etc.) produced during the session, as well as noting participants’ discussions and explanations during presentations. Below is an image of the workshop setup, see Figure 8. Each participant had post-it notes, a pen and some white paper. In addition the company offered the participants lunch during the break.

![Figure 8: The workshop setup.](image)

**Participant observation**

Participant observation is a qualitative method with roots in traditional ethnographic research. Generally speaking the researcher tries to learn what life is like for an “insider”, while remaining, inevitably an “outsider”[58]. I spent at least three working days a week at the company’s offices while working on my thesis. I was also offered to join the company on a three days’ conference in France, which I happily accepted. With the purpose of getting a feeling for how the people at the company worked; I wanted to take part in the daily routine and spend time with them. It is often the moments outside the meeting rooms that can be the most important, people discussing work related successes or problems over a cup of coffee. There is where I wanted to be and pick-up on those “little” but important things.
Results and Analysis

This chapter contains the results and analysis from my study at the company and the external interview. I will first present the interview results. After that are results from my participant observation, the presentation and the workshop presented. The results from each activity in my study became input to the succeeding one. That is why the results come in the order the activities were performed. In order to keep anonymity in my report I use “she” when referring to any of my interviewees or workshop participants.

Internal Interviews
The interviews provided me with very good insights to the people at the company; how they work, their obstacles and opportunities, what they want and most importantly what they are willing to do. Since the interviews were unstructured I tried to analyse the results by identifying patterns and organizing the comments and responses into different categories. The categories are: usability, usability activities, the process, the Agile aspect, the customer and the company.

Usability
I started all my interviews by asking how my interviewee would describe usability. From all but one I got descriptions such as easy to use, the system should support the user, the system should be invisible and it makes the user want to use the system. Only one person mentioned concrete business values related to good usability, she mentioned that in her current customer’s case, good usability of systems could result in fewer calls to the call centre and less development cost. This person also happened to have the least problem convincing her customer to invest in usability activities. When discussing end-users with my interviewees, it revealed that each of them had great empathy for the end-user and his working context.

When asked about measuring the impact that implemented solutions had on the users’ working environment, only one of my interviewees had concrete information. Her team had implemented a solution that gradually reduced the number of support calls from 20 – 25 support calls a week to only 8 – 10 a week.

Usability activities
The experience of using usability methods was very diverse within my group of interviewees. It ranged from not having ever performed any usability tests nor ever meeting a user face-to-face; to having close collaboration with the end-user and performing regular user tests. There was also a wide knowledge of different methods of user research and design. The methods that had been used were: user group analysis, stakeholder analysis, face-to face meetings with users, field studies, effect mapping, conceptual design, heuristic evaluation, workshops, prototypes (both hi-fi and lo-fi), sketching and creating wireframes. When asked about the experience of using prototypes; two mentioned that prototyping was very much appreciated in projects and that is was a good method for communicating with the customer or end-user. One interviewee that had no experience in usability activities expressed that she was very
interested in doing usability tests and learning how to sketch with users. She wanted the company to teach the employees how to collaborate and design with end-users. When I asked the developers if they had ever watched a real user use a system they had developed; two of the developers had. One of them said it was very useful and that she noticed how the user used the system in a way she had not anticipated. The ones that had not tried it, showed great interest in watching the end-user use their system.

As mentioned earlier I asked my interviewees to perform contextual mapping during the interviews. I wanted to know how each person estimated the current level of usability activities within the development process and how they would like it to become in the future. Contextual mapping was not appropriate in all of the interviews, due to different roles and responsibilities; thus I have drawings from five of my interviewees. The results can be seen in Figure 9; the pictures on the left (marked A1 to E1) describe the estimated level of usability activities whereas the pictures on the right (marked A2 to E2) describe the desired level of usability activities within the development process.

Drawing A1 describes a process with most usability activity in the start of a project, then a minor increase in the start of each sprint. As explained by my interviewee, she wanted the process to include considerably more usability activities in the start, followed by increased usability activities throughout the process. There is not much difference between drawings B1 and B2; the only difference is that my interviewee wanted steadier usability activities throughout the process. It is interesting to see that in drawing C1, usability activities go down to zero in the end of each sprint. That stems from the fact that the UX position is only a half position and the focus tends to shift towards programming at the end of each sprint. Drawing C2 describes a process that has a separate UX and development track. The UX track should be somewhat ahead of development during the whole project. In the case of drawing D1 usability activities are very low before release but after release it rises considerably. Drawing D2 shows that my interviewee wanted to double the level of usability activities during the development process. Drawing E1 explained how much of the usability activities took place in the beginning and end of projects, leaving no room to work on usability at other times in the development. In drawing E2 my interviewee explained how she wanted the usability activities to start without any technical involvement. Afterwards it would decrease and remain steady throughout the development phase, then increase again after the release in order to get user feedback.
To sum up, each of the drawings indicated that my interviewees all wanted either increased or steadier level of usability activities during the development process. This was confirmed later in the interviews where every one of the interviewees considered that there was room for improved usability and that projects would benefit from increased communication with the end-user. When I compared the drawings afterwards, it revealed another interesting fact. No two persons had the same conception of the current level of usability activities within the project development.

The Process
Five of my interviewees mentioned a lack of holistic overview in the process. It turned out it was based on two different aspects; one being the development process overview and the other being the project/product overview. Regarding the development process overview one of my interviewees mentioned that by having a clear image of the process
it could help explaining to customers how systems are being developed within the company. When it comes to project/product overview, there were a few different issues my interviewees mentioned. One mentioned that it was difficult to relate user stories to real context and actual user need. She wanted to have the user process up on the wall and make the whole usage process more visible. Another one needed better guidelines for the usage of the product. She wanted products to have their own design principles along with conventions about the usage of the desired product.

Three of my interviewees discussed how deliverables related to user research had become out of date at later stages in the project process. That had resulted in the deliverables becoming irrelevant and not being used throughout the project. This was confirmed by three different interviewees who mentioned that usability efforts were mostly in the beginning and then either faded out entirely or returned in the end of the project process. When asked if deliverables could be improved in any way, one suggested that the usability deliverables should be focused on the audience; that is the programmers in this case. When asked what kind of documentation would be appropriate, one of my interviewees said that she did not want to rely on heavy documentation.

The Agile aspect

The interviews revealed that not all projects were being developed according to the Agile methodology. Out of the five different projects that were discussed during the interviews, only two were according to Scrum, one according to Kanban and two had no specific structure. The reason for the last two projects not having any specific structure was due to the fact that the customer could not participate as much in the project as was required for Scrum and also the fact that the teams consisted of only one or two people.

The product back log (PBL) is a list of features that are to be implemented in a project; thus making it a very important documentation. When asked who was responsible for creating the back log; one of my interviewees had recently gone through the process of creating such a PBL herself. With little experience in creating one from scratch, she said would have needed guidelines as to how to put together a good PBL.

Sprint zero is a planning and preparation phase that Scrum teams sometimes use before the actual programming of the system takes place. Both Scrum projects I discussed had a sprint zero but with somewhat different focus. In one case the focus was on the technical aspect of the project and less on user research and design. Whereas the other sprint zero had the focus on user research and design.

According to the literature review, many companies have started having separate tracks for usability activities and development. In most cases the usability track is one sprint ahead of the development track. That is done in order to have enough time for user research and design and to avoid the circumstance were developers are waiting for the designers to complete their work. One of my interviewees mentioned that her team had tried to perform usability activities one sprint ahead of development; but it had its shortcomings. Even though the team managed to plan which user stories were to be
included in the following sprint, it still did not work. At a certain point in the sprint the UX people in the team (which was a 50% position divided between two developers) turned into developers only and had no time to do user research and design for the upcoming sprint.

One of the principles behind the Agile methodology is “Welcome changing requirements, even late in the development. Agile processes harness change for the customer’s competitive advantage” [7]. In reality it is not always simple to change. In one case the database structure was fixed very early in the process and posed limitations on the user interface itself, thus made it difficult to respond to any change the customer needed later in the development.

When user stories in Agile are considered done, they need to have fulfilled a certain list of requirements put together by the development team. In one case there was one usability requirement in the definition of done; it involved the user story to be approved by a user representative. In other projects there was no usability requirement included in the definition of done. One mentioned that the user stories were often very vague and it depended on the developer’s interpretation how the story was implemented in the system.

The Customer
The customer and his perception of usability activities were discussed in all of the interviews. One of my interviewees mentioned that some customers have very specific usability problems in mind when they contact the company. However; two of my interviewees said that the customer sometimes wanted the end product to have good usability without really being aware of what that included. She said that one customer thought that by having a graphic designer on the team equalled the system having good usability. Another customer was hesitant to having an end-user participate in the development in the event that the end-user would start asking for features that were not supposed to be included in the system. One of my interviewees explained that:

There was neither time nor budget for usability activities in our project. Therefore we had usability problems with our solution. In the beginning, we only managed to talk to the customer in order to understand the user need, never any normal user of the system. Now the team has become too involved in the system to be able to see it from the user perspective and too blind to notice the usability problems.

There were also discussions on how hard it was to convince the customer to invest in user research and design. One interviewee mentioned that sometimes the customer comes from the IT side and is therefore not very aware on the business values usability can deliver. Some customers had even refused to be charged for any usability or project management work; and only wanted to pay for development. I later found out that the three parts; project management, usability and development; were split up and priced separately on offers made to customers. One interviewee mentioned that management and sales should be more aware of usability, the problem was not that the customer did not want to pay for usability work, but that usability work was not being presented correctly.
The Company
The company has no specific UX strategy but there is a specific competence group focusing on UX within the company. The main objective with the group is to help the members of the group develop and gain experience within the UX domain. One of my interviewees wanted the UX competence group to be ready to give advice when someone (outside the group) needed help with usability matters. Another one, outside the group, wanted someone from the UX group to be able to perform a usability check of her product before releasing it; she was worried that the slightest error in the user interface could degrade the work that had been put into the functionality of the system. I asked one of my interviewees; which was a member in the UX group; if she would be willing to assist if such a request would turn up. She replied that she would be more than willing to assist.

Five people work with UX on a daily basis, but none of them is 100% working with UX. One project manager mentioned that she tried to balance the UX effort by having a non-UX programmer paired with a UX programmer. According to one of my interviewees; the focus within the company has been on the technical aspect of systems for a long time, and the company is very qualified in that aspect. Another one mentioned that the company had full ability to reach even higher if the focus was on the user and the user’s context.

Discussions after Interviews
At the end of each interview I used the time for informal discussions. It allowed me not only to explain certain usability activities that my interviewees were curious about but also to mention new methods for them to try out. To the people in sales I showed my favourite video on the Return on Investment (ROI) of UX [50]; that done with the purpose of linking concrete business values to user research and design. One of my interviewees was very interested in simplifying the process of usability testing. I sent her an article on DIY Usability Testing [59]. Another interviewee found the idea of visualizing the product back log with a story map very interesting, thus I forwarded to her an article on user story mapping [46].

External Interview
The interview I had with the two external interaction designers was very enlightening for me. It revealed an institution that had come a long way in the integration of Agile and UCD; and with good results. I wanted to know about their development process, and if they had succeeded in integrating Agile and UCD.

The Principles
In autumn 2011 the team started integrating Scrum and UX. They held two half day’s workshops bringing together developers, UX persons, project managers and domain experts to discuss the integration of Scrum and UX. They named the process SCRUX (Scrum + UX) and to convey the new way of working they put together the five “Principles for SCRUX”. Those are:

1. We embrace participation and transparency.
2. We work cross-functionally.
3. We embrace the user value.
4. We will maintain our own development and creativity.
5. We prefer building the right thing rather than building fast.

The Process
Every team is cross-functional and every member of the team takes part in activities. Even though the interaction designers in their case are not involved in programming, they are involved in technical decisions that may affect the usage of the system, such as choice of platform etc. When a project starts, the whole team participates in a workshop. At the workshop the team works towards a common understanding of the project goal, perform resource and time planning, choose appropriate methods etc. Following the initial workshop; comes a preparation phase. That is when both technical and user research is performed, the concept is designed and design principles are created. The preparation phase also covers idea generation, design documentation and technical design. Following the preparation phase is sprint 1 which includes design sessions, programming, data creation and usability tests. Figure 10 shows how they have visualized their own process and explains each step in their development process.

Figure 10: The development process (Adapted from Swedish)

If needed, the team can decide to replace a normal sprint (see Sprint 1 in Figure 10) with a sprint focused merely on usability testing (see Sprint N in Figure 10). They have used the previously mentioned RITE method (Rapid Iterative Testing and Evaluation) for usability testing. When asked if it was difficult to identify usability problems between tests using the RITE method; they stated that they have had no problems identifying and choosing usability problems that should be corrected before performing another test.

The team put together an example of how a user story can develop within a sprint; see Figure 11. From the image we can see that each user story can go through several iterations. Each one is usability tested before it is considered done and eventually released to the customer.
To begin with, the team tried to have UX work done alongside the development within the same sprint. But since it often resulted in developers waiting for designers and eventually the developers did it their own way, the UX part of the team now works a sprint ahead of development and delivers designs in good time. According to their experience, they considered it better to have smaller teams in order to keep good collaboration and work according to Agile. They considered a good combination consisted of 1–2 UX persons, 3 developers, 2 domain experts and 1 project manager. An example of a team that was too big consisted of 5 developers and 2 UX persons.

**Agile and Scrum**

In the beginning, UX activities were unclear in the product backlog (PBL). The focus was on the technical aspect alone leaving UX activities outside the Scrum board. *Planning poker* is an activity that takes place in the start of each sprint; it involves team members estimating how long time selected tasks are going to take in implementation. To start with, interaction designers were not taking part in planning poker, but they were present during it. Today, interaction designers are active in the planning poker, resulting in having UX tasks on the board and thus more visible in the project development.

They mentioned that in some ways the Scrum methodology could be limiting. For one, developers did not want to be disturbed with new information while they were in the development phase of each sprint. That resulted in interaction designers having to sit on new information for longer periods. They considered the fact that the team should be able to make changes late in the development, to be great, but not so realistic. In some cases the budget did not allow for it and in other cases the technical design did not allow for any changes late in the development.

A sprint demo meeting is a meeting held with stakeholders in the end of each sprint to demonstrate what has been implemented in that sprint. My interviewees had little or no faith in demo meetings. According to their experience there is not much exchange of ideas or criticism of the work being demonstrated. They mentioned that often pieces of
software are being demonstrated that are not very interesting to the stakeholders. They brought up one example where all stakeholders were gathered on a demo meeting to watch one of the developers demonstrate the log in/log out feature; leaving the stakeholders thinking: “Is that all?” They have actually planned and developed their own version of a sprint demo meeting and call it Design Critique. They want to assemble a small reference group (ca. five persons) when needed and ask them to comment on ideas and sketches. These sessions are expected to be more active and effective than regular demo meetings. They also want to have a specific demonstration environment (on-line) where members of the reference group can log in and test sprint releases. The demonstration environment could also serve as means to give stakeholders at other locations the opportunity to test sprint releases.

The Scrum Alliance describes the product owner role (PO) as being the one that, among other things, decides what will be built in which order. The PO should also define the features of the product or desired outcome of the project [60]. According to my interviewees, it has never been the case that the PO comes with all the requirements and team could start working directly from that list of requirements. It has always required research work in order to get better understanding for the user and his working environment. They suggested that the UX person could either take the place of the PO or work closely with the PO in order to bring forward the right user needs.

Their Advice
All in all they were content with working with Scrum as long as the focus was on the principles of Agile and not fixed on specific activities in the Scrum development process. To their opinion Scrum has very good intent but does not always result in something useful and sometimes energy was wasted for nothing. With that they referred to the demo meetings and the fact that in the end of each sprint teams can become stressed and make decisions based on lack of time instead of real functionality and need.

Their advice to other companies trying to integrate Agile and UCD is to pick the methods that fit for the project and use different methods to keep the creativity up. Do not use Scrum as a method, but pick elements from it that you need. Look at the Agile and UCD principles and make them your own.

Presentation on usability
As mentioned previously, the topics I covered in my presentation were topics I selected after having interviewed twelve of the company’s employees. The presentation was well received by my audience and yielded many questions followed by very lively discussions. One of the participants said:

*It was awesome to witness the lively discussions about usability, it showed me that there is an interest; it [doing usability work] doesn’t feel impossible anymore!*

The questions were mostly in relation to the Agile process and UCD and how the two could integrate. People were interested in knowing if it was possible to prepare designs one sprint ahead of development. It gave another employee the opportunity to share his
experience of staying one sprint ahead of development, and it was a good experience. One expressed his concerns about designing a sprint ahead of development would not comply with the Agile principles. Another one brought up the subject of changing requirements and doing designs that later became redundant. It was later agreed upon that one can never loose from learning new things and in some cases designing one sprint ahead might actually reveal issues that would only have been discovered in development.

When I mentioned that there was considerable knowledge about usability activities within the company which it is not being shared as it could; it spurred a new discussion about a specific forum exclusively for people in the UX competence group. It revealed that other employees were interested in the forum and wanted access to it without being in the UX competence group. Today, the forum has been opened up for all interested parties within the company.

The part about the return on investment (ROI) of UX gave people new insights as to why one should invest in user research and design. One participant also told me that the presentation answered questions that she had not thought of asking before. Another participant said:

   *You have created an understanding for usability activities in the organization and linked them directly to concrete business values.*

**Workshop**

As the workshop was limited to two hours, including a lunch break, I realized that it would be difficult to make any final decisions regarding the development process or best practices for the company. Instead I explained in the introduction of the workshop that I wanted to have suggestions for best practices or changes in the development process. The suggestions were to be based on the stakeholders of the whole process and the stakeholders’ needs from the process. The slides I used for the introduction are in Appendix E.

During the workshop, there was never a dull moment. Everyone was very engaged and participated in the discussions. I was very impressed by the way they were prepared and had obviously given a good thought to the articles they read prior to the workshop. Two had decided to recite from the most relevant parts of the selected articles, while another one managed to bring together and compare other articles with hers. One mentioned that she had discovered a new method while reading her article and wanted to use it right away in her project. The time schedule I had prepared soon turned out to be unrealistic; people obviously needed more than three minutes to explain the content of their articles, and that was appreciated. One told me after the workshop that I should have been stricter on the time limit but at the same time said that going through the articles really started the discussions. Another one said that I could have been stricter in order to stick to the schedule. To make up for lost time I managed to get everyone’s approval for lengthening the workshop by 20 minutes.
Directly after presenting all the different articles, the process stakeholders were discussed. The participants came up with 13 different stakeholders. Those were:


In two groups the needs of each stakeholder were discussed further. The results from those discussions can be seen in Figure 12 and Figure 13. A complete list of stakeholders and their needs is in Appendix F. One mentioned that the group work was too time consuming for the limited time we had, and that a suggestion for an integrated Agile/UX process would have been appreciated prior to the workshop.

Figure 12: Stakeholders’ needs from team A.

Figure 13: Stakeholders’ needs from team B.
After a very short lunch break, the two groups joined at the table to discuss what could be done in order to meet those needs and if by doing so; would it require any changes in the current setup? The discussions covered many aspects; I have categorized them in order to provide better overview of the discussions.

The Usability Aspect
All the participants agreed that usability knowledge needed to be spread within the company. People in the front line needed to have full understanding for usability and what it can convey. Usability is a form of quality assurance, just as testing is. It is not about specific persons but more a method of developing good software. The usability activities need to be Agile too; it has to be revisited all the time from the early start to the end. Usability has to be included in the process and should not be possible to dismiss. One of the participants said:

*The company needs more of these workshops, especially people in the management and sales; they are the ones that decide how we work.*

The Process
The participants expressed that they needed a better overview of the development process and a holistic view of the project at hand. In Scrum there is a risk for only focusing on single functions that are being developed rather than the context they are in, often they are not linked to a specific need or value. The holistic view does not have to be, and should not be very detailed. It needs to explain the concept; to show where the project is heading. Two of the participants stated:

*It is never so that you plan to build a car and end up building a boat; there is always a concept in the beginning.*

*It was very good to have a diverse group of people discussing the process; we gained better understanding for each other’s work.*

The Sales Process
Everyone agreed that the sales process and the contract made with the customer is a very important part of the process. The contract stipulates what is to be done and how. How the development process is presented in the contract is also very important. There should be no need to separate the work by methods; the customer should not be able to dismiss project management or usability in a project. The return on investment (ROI) of usability work needs to be explained to customers and sold. There is a challenge for the people in the front (management and sales) to keep the focus on the customer’s goals and not specific functions. One suggested to create a specific offer group within the company that would always be ready to assist sales people in preparing offers, helping them pointing out ROI of UX and discovering possibilities with the proposed offer.

Workshop Conclusion
- Management needs to take responsibility for the process to change.
- Everyone that is in sales needs to understand how UX works.
- The company needs a development process that integrates Agile and UX.
• The company needs their own (visible) manifesto.
• UX should be a constant and natural ingredient in the development process.
• Spread UX knowledge within the company.
• Don’t treat UX as something different!

Following are quotes from participants:

*I thought the workshop was productive and informative. It showed us that we have much to do when it comes to UX.*

*UX – a natural thing!*

*Nobody puts UX in the corner!*

**Participant Observation**

Promoting usability within the company was one of the goals with my project. Even though I cannot link any of the following actions directly as a result of my project, I will however list a few things I noticed during my stay at the company.

• Usability became a subject of discussions.
• ROI of UX became mentioned on sales meetings.
• A speaker was booked to hold a seminar on Agile/UX.
• People’s experience from usability activities were posted on the intranet.
• I was invited and participated in all UX competence group meetings.
• I was asked to give my opinion on usability matters in preparation for a sales meeting.
• I was asked to be a mentor for one of the employees concerning the Agile/UX aspect.
Conclusion

This chapter contains my conclusions drawn from the results and analysis presented in the previous chapter. I include recommended actions in order to raise the awareness of usability within the company as well as to help employees gain experience in using various usability activities.

Usability

When asked to describe usability, only one of my interviewees explained the concrete business values of good usability. It is important to raise the awareness of usability within the company and show employees concrete results of usability work. Employees need more confidence when discussing and deciding on usability activities within projects.

My recommendation: Start measuring the impact of usability activities. Measure how many calls to the customer’s call centre were before and after the company fixed the flow in the customer’s system. Measure how many users signed up on a customer’s website before and after the company worked on its improvements. Include measuring in each project start-up and finishing phase. Nominate a team member that takes responsibility for measurements.

To me, working for better usability requires certain state of mind, which is empathy for the user and his task. That is something I can say all the employees I interviewed at the company already do possess. There is considerable knowledge of different usability activities within the company; however there were a few employees that had little or no experience of usability activities. Employees need to be given a chance to try out different usability methods and deepen their knowledge within methods.

My recommendation: Plan for usability exercises and ask the more experienced employees within user research and design to conduct them.

The Process

There were two things that were notable regarding the development process. One was the lack of holistic view of the process. The other one was the low and irregular level of usability activities revealed by the drawings. If the usability efforts in a project are low and irregular, then it does not create any room for iterating designs decisions and eventually updating the deliverables. This would most likely result in deliverables becoming out of date as the project develops.

My recommendation: Have a steadier and more constant level of usability activities from the start of the project to the end. Keep a consistent user focus throughout the project.
The Agile aspect

There was already one team within the company trying to perform user research and design one sprint ahead of development, but without good results. As mentioned in the previous section, a more constant and increased level of UX efforts would enable the team to do user research and design one sprint ahead of development.

*My recommendation:* Do user research and design one sprint ahead of development.

In the beginning of Scrum projects, the team decides on the **definition of done**. The definition includes the requirement each user story must fulfill in order to be considered **done** or completed.

*My recommendation:* Add a usability requirement to the definition of done; it would make sure that the usability requirement would be fulfilled for each story before it is released.

The Agile manifesto stipulates that changing requirements are welcome, even late in the development process [7]. In order to do so, the system architecture must be as flexible as possible to welcome that change. In more than one case the system architecture had posed limitations to the flexibility of the system development, making it very difficult to respond to the desired change.

Both the discussions after my presentation and the workshop revealed the need for having the development process visible. Visualizing the integrated process of Agile and UX would not only benefit the development team but also the people in the front (sales and management). They could in a simple way explain how the company works and how projects develop within the company.

The Customer

Good usability is one form of quality assurance. The customer cannot be expected to understand usability or know why she should invest in it. The company’s presentation and packaging of usability work is very important. If usability is treated any differently than other parts of the software development; it will certainly be seen that way by the customer.

*My recommendation:* Put project management, usability work and development forward as a whole on offers, without the possibility of dismissing any part, then usability could more likely become a natural ingredient in the process. The company has to show the customer how software should be developed, do not risk sacrificing quality but explain why it is important to involve users in the process (see Figure 14).

*Figure 14: The three legged chair.*
The return on investment (ROI) of good UX is another way of reaching to the customer. The result of doing user research and design can be linked to concrete business values. The values are something that the customer relates to; such as less training costs, less development cost, fewer calls to call center, more online registration and fewer abandons from the web.

*My recommendation:* Present usability work in a way the business understands. Then the customer is more likely to buy-in on doing user research and design.

### The Company

If the company wants to succeed in doing usability work, there needs to be a focus on usability. The composition of the company’s employees and the structure of teams must make room for that focus. Currently there is no employee working full-time with usability and there are projects in development without any UX participation at all.

Two of my interviewees mentioned that they wanted more support from the UX competence group within the company. They wanted to be able to ask the group for usability advice. During another interview with a member of the same UX competence group, my interviewee was more than willing to assist in such cases.

*My recommendation:* Allow for employees outside the UX competence group to approach the UX competence group members for usability advice. I believe this is something the company could do effortlessly and by doing that, it could help share the knowledge within the company.

### Usability + Agile

One of the main goals of the project was to suggest usability activities that would fit the company’s Agile development process. In order to do so, the methods need to be utilized where appropriate in the development process. Bringing together my results from the literature review, the internal and external interviews, the discussions after my presentation and finally the workshop; I have put together a suggested development process for the company that integrates Agile and usability activities (see Figure 15).
Figure 15: A suggestion of the integrated process of Agile and usability.

The suggested process includes separate UX and development tracks where the UX track works a sprint ahead of development. Preparations of user stories include user research, wire-framing and usability testing. Usability testing becomes a part of the definition of done; making certain that usability activities cannot be dismissed during the development process.

The methods suggested (see Figure 16) are all capable of delivering concrete information relevant for a project. Contextual inquiry allows the team to observe the user in a natural environment; it being a place of work or play. It can give the team insights to how the product will be used and what factors in the environment might affect the usage of the product [52]. Focus is on light weight deliverables that are relevant, leaving less time wasted producing documents that are of no use. Oral storytelling is one way of giving direct feedback to developers during a sprint. Personas are fictional characters that each has their own drives, blocks, beliefs and feelings. They are based on actual users that have either been interviewed or otherwise researched. Personas help the team to keep focus on the end-user during the development of the product [52]. Scenarios provide a context of use for functions. Each scenario has a specific input, output, actions and limitations whilst providing the team with the ability to link functionality to real context of use, an actual need and user value.
Suggested Usability Activities

<table>
<thead>
<tr>
<th>Sprint 0</th>
<th>Sprint 1</th>
<th>Sprint 2</th>
<th>Sprint 3</th>
</tr>
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<tr>
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<td><strong>UX</strong></td>
<td><strong>UX</strong></td>
<td><strong>UX</strong></td>
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<tr>
<td>Gather data for whole project</td>
<td>Give feedback on development of sprint 1 stories</td>
<td>Usability test sprint 1 stories</td>
<td>Usability test sprint 2 stories</td>
</tr>
<tr>
<td>Prepare stories for sprint 1 (low UI/high tech stories)</td>
<td>Gather data and prepare stories for sprint 2</td>
<td>Give feedback on development of sprint 2 stories</td>
<td>Give feedback on development of sprint 3 stories</td>
</tr>
<tr>
<td><strong>Suggested methods</strong></td>
<td><strong>Suggested methods</strong></td>
<td><strong>Suggested methods</strong></td>
<td><strong>Suggested methods</strong></td>
</tr>
<tr>
<td>Contextual inquiry</td>
<td>Oral storytelling/explaining</td>
<td>Usability Test</td>
<td>Oral storytelling/explaining</td>
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<tr>
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<td>Interviews</td>
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<td>Sketching</td>
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<td>Usability Test</td>
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<td><strong>Suggested deliverables</strong></td>
<td><strong>Suggested deliverables</strong></td>
<td><strong>Suggested deliverables</strong></td>
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<tr>
<td>Workflows</td>
<td>Workflows</td>
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<tr>
<td>Personas</td>
<td>User stories/Scenarios</td>
<td>User stories/Scenarios</td>
<td>User stories/Scenarios</td>
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<tr>
<td>User Story Map</td>
<td>Workflows</td>
<td>Wireframes</td>
<td>Workflows</td>
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<tr>
<td>Create the big picture</td>
<td>User stories/Scenarios</td>
<td>Paper prototypes</td>
<td>User stories/Scenarios</td>
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<td>—</td>
<td>Wireframes</td>
<td>Html prototypes</td>
<td>Wireframes</td>
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<tr>
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<td>Paper prototypes</td>
<td>User feedback</td>
<td>Paper prototypes</td>
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<td>Html prototypes</td>
<td>Usability test results</td>
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<tr>
<td>Html prototypes</td>
<td>User feedback</td>
<td>Issue Cards</td>
<td>User feedback</td>
</tr>
<tr>
<td>User feedback</td>
<td>Usability test results</td>
<td>Issue Cards</td>
<td>Usability test results</td>
</tr>
</tbody>
</table>

**Figure 16: Suggestions of usability activities during the development process.**

The methods listed are suggestions and not intended to be used all in the same project. It is important that teams become familiar with the different methods, understand the goal, the realization and possible results of each method. Varying the choice of methods between projects would help teams gain more experience in using different methods and might also promote creativity within teams.

Even though I believe strongly in my suggestion of an integrated process; I do not think the company should start by changing the development process. I have previously pointed out several matters that should be looked at prior to making such changes to the process. I believe that by trying to incorporate the suggested process in an environment that is not ready, it might actually devalue the whole process and eventually move people further away from the idea. First and foremost, the teams must have the time and budget for making user research and design.
Discussion

Integrating usability activities and the Agile development process was the goal of this project. It soon became apparent that I needed to approach the usability aspect on a more general level. The interviews revealed that in many cases there was neither budget nor time reserved for user research and design in projects. The interviews also revealed a lack of usability knowledge and experience amongst a few of my interviewees. However they were all willing and ready to increase the level of usability activities within projects and agreed that projects would benefit from more communication with the end-user. I decided to follow my lead and tried to find the source of the problem. It turned out that usability work was not being presented to the customer as it could. Usability work was priced separately on offers to customers, indicating that it was something that the customer could choose to dismiss. In most cases the concrete business values of good user experience were not being explained nor mentioned to the customer. That is why much of my effort went to raising the awareness of usability and explaining the ROI of good user experience (see Figure 17).

![Figure 17: The shift in focus during my project development.](image)

Then there is the question of whether I should have made different use of my time and focused merely on the development process; without regard to the whole process of selling. It would have meant that I had not taken my users’ working context into the picture. The way projects are sold has very much influence on how they develop. It would also have meant that I would have handed over a tool to use, without any material to work with.

When it comes to choice of methods I approached my project as I would approach any other user research and design project. I started off by reading literature relating to the subject and interviewing real users and stakeholders; which in this case the users were the employees of the company. This was followed up by discussions with many of the employees and a workshop; this done in order to get feedback on my suggestions and to confirm my findings. Furthermore I was on location the whole time in order to get a better understanding of their working context. I believe that being on location strengthened my findings. It allowed me to get direct feedback from the people working for the company. It also allowed me to reach people I did not manage to interview and I started to know which people to turn to for different matters.

From the literature research and the external interview I had gained a good understanding of how Agile and UX could work together, and those suggestions are
included in the thesis. However, I would like to see the company start with my other recommendations. There needs to be a more general understanding for usability activities within the company and an actual budget and time reserved for user research and design in projects. Even though the results are not general, I have come to understand from discussions with other people in the IT business that getting the customer’s buy-in for user research and design is not always that straightforward. Companies in the IT business do hardly ever have the same set of problems to deal with when it comes to integrating UCD and Agile. All the same, I think they still might have use of some of the recommendations and suggestions in order to move in the right direction.

One might think that a usability champion of such sort is needed to integrate UCD and Agile for a company. I agree to a certain extent. I believe that the first step is to analyze subjectively the current situation at a company. How far has a company come in usability activities and how is the attitude towards user research and design? That analysis should be in the hands of a usability champion or expert. When the results have been delivered and recommendations made, it is in the hands of management to support it and pass it on to the employees, with or without the help of the usability expert. If management does not understand the value of good usability and does not promote it; I believe there is very little chance of it gaining a firm spot in the development process.

Since my project concludes on recommended actions for the company, it would be very interesting to follow through with my recommendations and see how or if things change for the better in the usability aspect. Changing a software development process is not something that happens overnight. It would also be very interesting to watch the company’s process develop into an integrated process of usability activities and Agile. The work could be evaluated and done with respect to the levels of usability maturity.

My hopes with my project and this thesis are that I have managed to promote usability within the company and helped clearing the way for an integrated process of usability activities and Agile to develop.
References


Appendix A - Interview Guides

Management
1. How would you describe usability?
2. What is the return on investment (ROI) of usability?
3. How many clients mention usability when discussing projects?
4. When clients ask for usability in their product,
5. Are they aware that real users have to take part in the development?
6. Are they willing to have internal/external users take part in development?
7. What is their measurement of usability?
8. If clients don’t mention it, do you mention usability activities?
   a. If yes, how?
   b. If no, why not?
9. Do you feel you have to convince customers to spend time for user research and design?
   a. If yes, how do you do it?
10. How many developers are there vs. UX persons?
11. Is there anyone on the company 100% committed to usability activities?
12. Does the company have a published user experience strategy?
13. How many team members does the smallest and biggest team have? (1 – 7)
14. How much effect can a consult have on the development process/usability activities when he/she is on customer location, and part of customer team?
15. Do you measure and manage improvement? (before and after implementation)
16. Do you feel that there is a need for improving the quality of use/usability in the systems you develop?
17. I will be having a presentation on usability soon, would you be interested in listening?
   a. If yes, which topic would you like to hear about?
18. I will also be conducting a workshop on how to integrate Agile and usability, would you be interested in joining?

Sales
1. How would you describe usability?
2. What is the return on investment (ROI) of usability?
3. How many clients mention usability when discussing projects?
4. When clients ask for usability in their product,
5. Are they aware that real users have to take part in the development?
6. Are they willing to have internal/external users take part in development?
7. What is their measurement of usability?
8. If they don’t mention it, do you try to sell usability work to clients?
a. If yes, how?
b. If no, why not?
9. Do you feel you have to convince customers to spend time for user research and design?
   a. If yes, how do you do it?
10. Do you get management support for doing user research and design?
11. I will be having a presentation on usability soon, would you be interested in listening?
    a. If yes, which topic would you like to hear about?
12. I will also be conducting a workshop on how to integrate Agile and usability, would you be interested in joining?

**PM’s and Scrum masters**

1. How would you describe usability?
2. If you want to make sure a system is usable, how do you do it?
3. Do you feel you have to convince customers to spend time for user research and design?
   a. If yes, how do you do it?
4. When working on a project, does the team have the big picture of the whole project at every time?
   a. If yes, how do you do it? Is it good?
   b. If no, is it affecting your work?
5. Do you have a vision document?
6. Is the process of the project visible? There are no visible project rooms or scrum boards.
7. How do you prioritize stories today?
8. Who prioritizes the stories?
9. Do you allocate time for user research and design? (Is there a sprint 0?)
10. Do you get management support for doing user research and design?
11. How supportive/understanding is the team for user research and design efforts?
12. Describe the development process
13. In a team of one – four, how is the process different from teams of five – seven?
14. How much effect can a consult have on the development process/usability activities when he/she is on customer location, and part of customer team?
15. Is the end-user involved in the process, how and at what stages?
16. Is the customer representative sometimes working on-site with the team?
   a. If yes, how is it working out?
   b. If no, why not?
17. Do you think projects would benefit from more communication with end-users?
   a. If yes, why is it not done?
   b. If no, why not?
18. What UX documents/deliverables have you been using?
19. Are UX documents/deliverables being read and revisited during the development process?
20. Could any of the deliverables be made better/different in some way?
21. Which methods have you used when working with users? Why?
22. Which methods would you like to use, but haven’t gotten the chance to? Why not?
23. Which methods would you absolutely not use? Why not?
24. Is there any method you used to use, but have stopped using now? Why?
25. Are there any methods of working with users that you are interested in but haven’t tried, and would like to know more about?
26. In which way are changes, additions or wrong behaviour of system reported?
27. If a user has a problem using the system, who helps him out?
28. Do you measure and manage improvement?
29. When a task is signed off/”done”, is there a usability requirement the task must fulfil?
30. Do you feel that there is a need for improving the quality of use/usability in the systems you develop?
31. Do you sometimes need the assistance of a UX person concerning an on-going project, and there is no-one available?
   a. If yes, what do you do then? Who do you ask for advice?
   b. If no, do you ever need assistance from UX people?
32. I will be having a presentation on usability soon, would you be interested in listening?
   a. If yes, which topic would you like to hear about?
33. I will also be conducting a workshop on how to integrate Agile and usability, would you be interested in joining?

**UX**

1. How would you describe usability?
2. If you want to make sure a system is usable, how do you do it? How much can you do?
3. When working on a project, does the team have the big picture of the whole project at every time?
   a. If yes, how do you do it? Is it good?
   b. If no, is it affecting your work?
4. Is the process of the project visible? There are no visible project rooms or scrum boards.
5. Do you have a vision document?
6. How do you prioritize stories today?
7. Who prioritizes the stories?
8. Do you allocate time for user research and design? (Is there a sprint?)
9. Do you get management support for doing user research and design?
10. How supportive/understanding is the team for user research and design efforts?
11. Does the company have a published user experience strategy?
12. Describe the development process
13. How much effect can a consult have on the development process/usability activities when he/she is on customer location, and part of customer team?
14. Is the end-user involved in the process, how and at what stages?
15. Is the customer representative sometimes working on-site with the team?
   a. If yes, how is it working out?
   b. If no, why not?
16. Do you think projects would benefit from more communication with end-users?
   a. If yes, why is it not done?
   b. If no, why not?
17. What UX documents/deliverables have you been using?
18. Are UX documents/deliverables being read and revisited during the development process?
19. Could any of the deliverables be made better/different in some way?
20. Do you perform usability tests?
   a. If yes, how is the process, what is tested, are end-users involved, how are the results?
   b. If no, why not?
21. Do you sketch (wireframes, workflow etc.) with users/customers?
   a. If yes, what does it deliver?
   b. If no, why not? Would you like to do it?
22. Do you create prototypes of a proposed system?
   a. If yes, are they mainly lo-fi (paper) or hi-fi (html)? Why?
   b. If no, why not?
23. Which methods have you used when working with users? Why?
24. Which methods would you like to use, but haven’t gotten the chance to? Why not?
25. Which methods would you absolutely not use? Why not?
26. Is there any method you used to use, but have stopped using now? Why?
27. Are there any methods of working with users that you are interested in but haven’t tried, and would like to know more about?
28. Have you seen users use your system in real context?
29. In which way are changes, additions or wrong behaviour of system reported?
30. If a user has a problem using the system, who helps him out?
31. Do you measure and manage improvement?
32. When you start writing code, what information do you have at hand?
33. Is there any information that you believe is missing and would like to have?
34. When a task is signed off/“done”, is there a usability requirement the task must fulfill?
35. Do you feel that there is a need for improving the quality of use/usability in the systems you develop?
36. When in doubt of how a requirement should be solved, what do you do? Who do you ask?
37. I will be having a presentation on usability soon, would you be interested in listening?
   a. If yes, which topic would you like to hear about?
38. I will also be conducting a workshop on how to integrate Agile and usability, would you be interested in joining?
Developers

1. How would you describe usability?
2. If you want to make sure a system is usable, how do you do it?
3. When working on a project, does the team have the big picture of the whole project at every time?
   a. If yes, how do you do it? Is it good?
   b. If no, is it affecting your work?
4. Is the process of the project visible? There are no visible project rooms or scrum boards.
5. How do you prioritize stories today?
6. Who prioritizes the stories?
7. Do you allocate time for user research and design? (Is there a sprint 0?)
8. Do you get management support for doing user research and design?
9. Describe the development process
10. In a team of one – four, how is the process different from teams of five – seven?
11. How much effect can a consult have on the development process/usability activities when he/she is on customer location, and part of customer team?
12. Is the end-user involved in the process, how and at what stages?
13. Are you in contact with the end-user?
   a. If yes, in which way? (go through methods part)
14. Is the customer representative sometimes working on-site with the team?
   a. If yes, how is it working out?
   b. If no, why not?
15. Do you think projects would benefit from more communication with end-users?
   a. If yes, why is it not done?
   b. If no, why not?
16. What UX documents/deliverables have you been using?
17. Are UX documents/deliverables being read and revisited during the development process?
18. Could any of the deliverables be made better/different in some way?
19. Do you perform usability tests?
   a. If yes, how is the process, what is tested, are end-users involved, how are the results?
   b. If no, why not?
20. **Which methods have you used when working with users? Why?**
21. **Which methods would you like to use, but haven’t gotten the chance to? Why not?**
22. **Which methods would you absolutely not use? Why not?**
23. **Is there any method you used to use, but have stopped using now? Why?**
24. **Are there any methods of working with users that you are interested in but haven’t tried, and would like to know more about?**
25. Have you seen users use your system in real context?
26. When you start writing code, what information do you have at hand?
27. Is there any information that you believe is missing and would like to have?
28. Do you have a vision document?
29. When a task is signed off/"done", is there a usability requirement the task must fulfil?
30. Do you feel that there is a need for improving the quality of use/usability in the systems you develop?
31. Do you sometimes need the assistance of a UX person concerning an on-going project, and there is no-one available?
   a. If yes, what do you do then? Who do you ask for advice?
   b. If no, do you ever need assistance from UX people?
32. When in doubt of how a requirement should be solved, what do you do? Who do you ask?
33. I will be having a presentation on usability soon, would you be interested in listening?
   a. If yes, which topic would you like to hear about?
34. I will also be conducting a workshop on how to integrate Agile and usability, would you be interested in joining?

External (in Swedish)
1. Vad gör ni som IXD hos XXX?
2. Hur länge har ni jobbat som IXD hos XXX?
3. Hur många UX-are finns vs. utvecklare i ett projekt?
4. Är UX-are delade i projekt, eller är det ett team för varje UX-are?
5. När kommer UX in i projektet?
6. Vilka användbarhets aktiviteter använder ni? (Har ni slutat använda några?
   Varför?)
7. Vilka tycker ni är bästa aktivitetera? Vilka ger mest resultat? Varför?
8. Har ni lyckats att integrera UCD med Agila processen?
9. Hur har ni gjort det? Hur ser processen ut?
10. Hur har det utvecklas? Har ni ändrat något över tiden?
11. Vilka metoder använder ni?
12. Är det något som ni vil/tänker ändra i processen?
13. Hur får ni användare att delta i tester? Hur många/ofta testar ni?
14. Vad skulle ni säga till andra företag som inte har integrerat Agil och UCD?
Appendix B - Internal Interviews

Below is a list of my interviewees along with their role within the company.

<table>
<thead>
<tr>
<th>Interview</th>
<th>Sales</th>
<th>Management</th>
<th>Project Mgmt</th>
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<th>Developer</th>
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<td>2</td>
<td>2</td>
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<td>5</td>
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</tbody>
</table>

M=Male; F=Female
Appendix C – Presentation

Usability at

"The company"

Ingibjörg Kristinsdóttir
2012-04-12

My Background

Problem solving People Architecture Design Languages
Designing systems for users is nothing new, what has changed? Why the focus on usability now?

What is the ROI of UX?

Where do usability activities fit within a project?

How do Agile and UCD fit together?

What methods are available for user research and design?

How do you deliver usability findings to the development team?

My experience

How is the Company doing when it comes to usability?

At first, only experts bought computers
Promoting Usability in an Agile Environment

Ingibjörg Kristinsdóttir

Now, there are all kinds of experts

Usability design
Co-operative IT Design
User Centered Design (UCD)
User Centered Systems Design (UCSD)
User experience design (UX)
Interaction design (IXD)
What is the ROI of good UX?

...a few ideas

- Fewer abandon
- Register fewer calls
- More use
- Save dev time
- Reduce errors
- Convert
- Measurement

Our philosophy

Ten things we know to be true

"The perfect search engine," says co-founder Larry Page, "would understand exactly what you were asking for and return results in a way that made sense to you."

But technology has come a long way since then, and the needs of users have changed. We continue to push the limits of existing technology to provide a fast, accurate and relevant search experience.

As we keep looking towards the future, these core principles guide our actions.

1. Focus on the user and all else will follow.
Where do usability activities fit within a project?

“The only way to a high-quality user experience is to start user testing early in the design process and to keep testing every step of the way”.

Jakob Nielsen

“If you only have one chance to do usability tests, don’t wait until the end when rarely anything can be changed or is too expensive to correct”.

Steve Krug – Don’t make me think!

Agile + UX

“To create a real UX vision in the agile projects, UX people need to use simpler tools and techniques, focusing more on understanding than documenting, and supporting rapid input and change”.

Craig Larman
Which methods can be used? 

... to name a few

Research
Contextual inquiry
Observation
Interview

Sketching
Workshop
Usability Testing

Delivering the results?

Storytelling
Use cases
Scenarios
Personas

Workflows
Wireframes
Sketches
Prototypes
Story mapping

Test results
User feedback
Issue cards
My experience – an example

The MiFID directive

Research
Focus on the end user and his context
Active user involvement from start
Paper prototyping
Regular user testing on prototypes
On-location during release

My experience

Users can be hesitant to report any problems they have with IT systems, they don’t want to appear stupid to the IT people.

When talking to users, leave the technical jargon at your desk.

Interviews or casual discussions can often reveal valuable information.

Many problems I discovered in that way had been going on for a long time, just because no-one asked them and they had gotten used to the work-around.

Talking to people face-to-face is better than e-mail or telephone, sketch together to reach a shared understanding.

If management or the customer paying is not aware of the value of user research and design, then there is little hope for usability activities.

There are no stupid questions, only stupid answers!
Interest and will for more and steadier usability work

Very different levels of usability activities within projects

Few usability people

Clients not always aware of the benefits of user research and design

On offers to clients; project management, usability and development are split up and priced separately

What is needed?

Empathy for the user

The will to create good user experience

A few tools of the trade

Start measuring improvements!

Explain to the customer the value of user research and design!
What am I working on now

Visualizing a development process integrated with usability activities

Creating a "usability toolbox" for the company

Preparing a workshop

Be curious, not judgmental

Walt Whitman 1819-1892
Appendix D - Workshop Guide

Participants
2 Management, Sales, Project Management

2 UX designers

2 developers

Split up in two teams where each team represents the process from front to back.

Aim
The aim with the workshop is to come up with suggestions for an integrated Agile/UX development process and suggestions for best practices of Agile/UX within the company.

Setup
Limited time and number of people; I will use the lunch hour in order to take as less time as possible.

I will work with the suggestions, lists of stakeholders, needs etc. after the workshop.

Before the workshop, everyone will have gotten different articles to read. Everyone will be asked to tell the others what is was about during the workshop, max 3 minutes.

Create a slideshow with aim and schedules (visualize Needs -> Best practices and needs -> Process)

No laptops or tablets needed; only paper and markers.

Input
Prior to the workshop I sent out reading material concerning best practices and principles of Agile/UX from other companies.

- Google principles [55]
- SCRUX from Kungliga Biblioteket
- IBM Best practices [56]
- Windows UX Guidelines [57]
- Key principles of UCSD [5]
- Agile Manifesto [7]

After the introduction, everyone will explain what their article was about, 3 minutes max per person.
Output

- Suggestions for an integrated Agile and UCD Development Process
- Suggestions for best practices for Agile/UX

Schedule

11.00   Explain the aim with the workshop
11.05   Present articles
11.25   Discuss the different stakeholders of the whole process (contact -> completed)
11.40   In two groups discuss each stakeholder’s needs from the process.
12.00   Team A presents their result
12.05   Team B presents their result
12.10   Break
12.25   All participants discuss what best practices needs to be followed and what the development process needs to include in order to meet stakeholders’ needs.
12.45   Conclusions from discussions.
13.00   Wrap up & The End
Appendix E – Workshop presentation

Workshop on Agile/UX
Ingibjörg Kristinsdottir 2012/05/08

What are we aiming for?

Suggestions for Agile/UX Best Practices

Suggestions for an integrated Agile/UX development process
How?

Process

Best practices

Needs

11.00 Introduction
11.05 Present articles
11.25 Discuss the different stakeholders of the whole process (from first contact -> completed)
11.40 In two groups discuss each stakeholder’s needs from the process Prioritize stakeholder needs
12.00 Team A presents their result
12.05 Team B presents their result
12.10 “Very Fast Food”
12.25 Discuss what you can do in order to meet stakeholders’ needs
12.45 Conclusion
13.00 Wrap up & The End
## Appendix F – Workshop results, stakeholders and their needs

<table>
<thead>
<tr>
<th>Role</th>
<th>Needs</th>
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<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>Understand the customer’s goal.</td>
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<tr>
<td></td>
<td>To be able to see customer’s further needs.</td>
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<td></td>
<td>Understand the ROI of the proposition.</td>
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<td></td>
<td>A good sales pitch.</td>
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<td>Access to specialists within the company in order to be able to put together a realistic quote as quickly as possible.</td>
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<tr>
<td></td>
<td>Stay ahead of competition.</td>
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<tr>
<td><strong>Management</strong></td>
<td>Knowledge of which combination of competence is needed for the project.</td>
</tr>
<tr>
<td><strong>Customer</strong></td>
<td>Understand the goal of the project.</td>
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<tr>
<td></td>
<td>Know which resources are needed from the customer’s side (product owner, reference group, end-users, test group etc.).</td>
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<tr>
<td></td>
<td>Know how much time the project will take and how much it will cost.</td>
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<tr>
<td><strong>Control Group</strong></td>
<td>Understand the contract (a very important document!).</td>
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<tr>
<td><strong>Product Owner</strong></td>
<td>Keep track of Quality Time and Cost (QTC).</td>
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<tr>
<td></td>
<td>Feedback from the development team.</td>
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<td></td>
<td>Understand the users’ need.</td>
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<tr>
<td></td>
<td>Correct information at all times.</td>
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<tr>
<td></td>
<td>Updated holistic view of the project at all times.</td>
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<tr>
<td><strong>Project Leader</strong></td>
<td>Team</td>
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<tr>
<td><strong>Scrum Master</strong></td>
<td>Specification of the project.</td>
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<td></td>
<td>Product Back Log</td>
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<td></td>
<td>Knowledge about the resource need and availability.</td>
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<tr>
<td></td>
<td>The scope of the project.</td>
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<td>Know whether the project is developing in the right direction.</td>
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<td>Holistic view of the project.</td>
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<tr>
<td><strong>UX</strong></td>
<td>Goal with the project.</td>
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<td>Access to users.</td>
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<td>Access to a group of testers.</td>
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<td></td>
<td>To be able to influence (prioritize) the product back log.</td>
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<td></td>
<td>Holistic view of the project.</td>
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<td>Good contact with the business side.</td>
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<td>Requirements</td>
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<td>Tools</td>
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<tr>
<td><strong>Graphic Designer</strong></td>
<td>Knowledge about the customer’s profile</td>
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<td>Prototypes</td>
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<td><strong>Developer</strong></td>
<td>User stories which are detailed and accurate.</td>
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<td>Understand the goal with the project, want to know whether</td>
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</tbody>
</table>
what they are developing contributes to something and fulfills a need.
Knowledge about the customer’s IT environment.
Knowledge about the customer’s preferred platforms.
Tools
Specification
Methodology on how to develop the solution.
Steering

| Tester          | Test environment
|                 | Specification
|                 | Requirements
|                 | Tools
|                 | Understand the goal with the project.

| User (Target Group) | A system to use.
|                    | Has a specific problem and needs to know whether the system will solve it.
|                    | Regular confirmation that the system is developing in the right direction.
|                    | Understand the system.
|                    | Training on how to use the system.

| Maintenance        | Long-term relation with the customer.
| Customer Support   | Understanding of the system.
|                    | Knowledge about the system requirements.
|                    | Service Level Agreement (SLA)