Bachelor Thesis
15 credits

Improving Communication between Front-end developer and Client at Company X

- A project about how to align the front-end developer with the expectations of the client

Elif Ali
Abstract

This bachelor thesis work at MAU (Malmö University) was carried out in Sweden at Company X. Company X is a Swedish IT company that provide SaaS (Software as a Service) as e-commerce solutions for small- to medium-sized businesses. The purpose of this project is to analyse the current design process of Company X with the aim of improving the communication between front-end developer and client by providing them with a tangible tool in order to align the front-end developer with the expectations of the clients. The two methods that was used to collect data was individual semi-structured interviews and an online co-creation session which were analysed through grounded theory. The analyzations of the results of this thesis clarified that miscommunication occurs depending on several factors which causes different issues. The conclusions of this thesis are that data that is highly abstract is understood differently by different social worlds, resulting in issues within the communication between front-end developer and client as well as limiting the front-end developments contribution to appearance which causes the organisation to exclude the opportunity of business success. Due to data getting altered when going through several actors before reaching the front-end developer, it was argued that miscommunication occur throughout the design process of Company X. The issues within the occurring communication affects the design projects outcome negatively. Subsequently, it was argued that the current design process of Company X is in need of a portfolio containing visual explanations since a portfolio is a simple tool to use in order to make a viewer understand which would potentially decrease the levels of miscommunication as well as aligning the front-end developers with the expectations of the client.

Keywords

Table of contents

1 Introduction .................................................................................................................. 1
1.1 Background .................................................................................................................. 1
1.2 Purpose ....................................................................................................................... 3
1.3 Question ...................................................................................................................... 3
1.4 Target audience ......................................................................................................... 3

2 Theory .......................................................................................................................... 4
2.1 The perceived role of front-end developers ................................................................. 5
  2.1.1 Putting front-end at the front-end ........................................................................ 6
  2.1.2 Design thinking ..................................................................................................... 6
2.2 Design management ................................................................................................... 9
2.3 Front-end developer client communication ................................................................ 11
  2.3.1 Existing tools supporting front-end developer – client communication .......... 16
  2.3.2 Boundary object .................................................................................................... 20
2.4 The power of prototyping ......................................................................................... 21

3 Method .......................................................................................................................... 22
3.1 Method choice ............................................................................................................ 22
  3.1.1 Participants .......................................................................................................... 23
3.2 Data collection procedure ......................................................................................... 23
  3.2.1 Individual semi-structured interviews ................................................................ 23
  3.2.2 Online co-creation session ............................................................................... 24
3.3 Data analysis procedure ............................................................................................ 26
  3.3.1 Individual semi-structured interview analysis ...................................................... 26
  3.3.2 Online co-creation session analysis ..................................................................... 27
3.4 Method discussion ..................................................................................................... 27
  3.4.1 Chosen methods .................................................................................................. 28
  3.4.2 Reliability and Ethical Considerations ................................................................. 28
  3.4.3 Other research methods ...................................................................................... 29

4 Results .......................................................................................................................... 30
4.1 Current Process of Company X .................................................................................. 30
  4.1.1 Before a project .................................................................................................... 31
  4.1.2 During a project .................................................................................................. 33
  4.1.3 Issues within a project ....................................................................................... 34
  4.1.4 The need of the participants within a project ..................................................... 37
4.2 Online co-creation session ....................................................................................... 37

5 Discussion ...................................................................................................................... 39
5.1 What is the current process of Company X? ............................................................. 39
  5.1.1 Before a project .................................................................................................. 39
  5.1.2 During a project .................................................................................................. 43
  5.1.3 Issues within a project ....................................................................................... 46
  5.1.4 The needs of the participants within a project .................................................. 49
5.2 Features of the tangible tool .................................................................................... 50

6 Conclusion ..................................................................................................................... 55
6.1 Proposals for further development ......................................................................... 56

7 References ..................................................................................................................... 58
1 Introduction

This bachelor thesis work at MAU was carried out in Sweden/Malmö at Company X. Company X is a Swedish IT company that provides SaaS (Software as a Service) as e-commerce solutions for small- to medium-sized businesses. This project analyses the communication between front-end developer and client at Company X.

1.1 Background

Company X provides SaaS to their clients using two different e-commerce platforms, one of them being their own custom-built platform Y and the other one being the open source platform Z. At Company X, there is a number of production processes ongoing when providing e-commerce solutions for their clients, one of them being the production of design. The design department of the company consists of 3 front-end developers and the design production is currently working as a complement of their main purpose, which is to deliver a completed developed e-commerce for their clients.

As a part-time front-end developer of platform Y at Company X, I have come to experience the workflow of the design process. A common routine begins with one of the salesmen at Company X selling a project to a client. At this primary stage in the process, the salesmen have a dialogue with the client about what the client wants and what they are willing to spend. The result of this dialogue is an estimated agreement on the price of the development, deadline and design. The estimated agreement is documented in a brief that is presented later to the project manager. The second step of the design process is where the project manager takes over the project and assigns it to the front-end developer. The assigned project involves information about the design that was agreed upon by the salesman and the client or by the project manager and client. The third step is where the front-end developer starts developing a draft by relying on their own creativity and past experiences founding their design decisions on the information received from the project manager, expected to achieve the clients’ expectations. The forth step of the design process is when the developed design is presented to the client.

The outcome of the project often comes out different to what the client expected and had an estimated agreement upon resulting in a dissatisfied client, a confused front-developer and a time-consuming remake of draft. A visual explanation of the issues within the design process of Company X, are similar to the famous illustration “What the client really wanted” by Hogh (1994) displayed in figure 1.
Including a front-end developer earlier on in a development design process, allows the front-end developer to contribute with exploration that benefit reframing problems to later on create a suitable design (Zimmerman et al. 2007). However, this requires that the front-end developer needs to have a continuous dialogue with the client before and during a project. A challenge of this sort of working flow is that some front-developers might become stressed out which can lead to affecting their project negatively (Tomassetti, 2015). The stress that the front-end developer has on a daily basis is due to the technical challenges that they face (Tomassetti, 2015). If this would be combined with the continuous dialogue with the client, it would suggestively mean that the front-end developer now would become constrained by the reality of technical difficulties, as well as the difficulties in communication with the client (Tomassetti, 2015). In order to avoid forcing the front-end developers into dialogues with clients that are necessary for the end results of a project, this paradox can be solved by providing them with a tangible tool in order to align the front-end developer with the expectations of the clients.

In order to understand how and why the proceedings of the design process at Company X work, this project is about analysing the design process of Company X with the aim of improving the communication between front-end developer and client by providing them with a tangible tool in order to align the front-end developer with the expectations of the clients.
1.2 Purpose

The purpose of this project is to analyse the current design process of Company X with the aim of improving the communication between front-end developer and client by providing them with a tangible tool in order to align the front-end developer with the expectations of the clients. The results of this study could be used as a solution by businesses working similar to Company X in order to align themselves with their clients. The results could also be used by the clients in order to understand the different processes within an e-commerce providing company. In addition, the results of this study could primary be used by front-end developers in order to gain knowledge about their role within an organization as well as aligning themselves with the expectations of the client.

1.3 Question

How can the communication between front-end developer and client in the design process at Company X be improved?

- What is the current design process of Company X?
- What features need to be included of a tangible tool in order to align the front-end developer with the expectations of the client?

1.4 Target audience

The primary target audience is Company X. The secondary target audience of this thesis are e-commerce providing companies similar to Company X that have issues within their business that depend on the communication between developers and clients. The tertiary target audience is researchers or front-end developers that are interested in the further development of this thesis or of the actual tool/prototype development.
2 Theory

The aim of this thesis is to analyse the current design process of Company X with the aim of improving the communication between front-end developer and client by providing them with a tangible tool in order to align the front-end developer with the expectations of the clients. Therefore, the chosen literature review in this thesis is founded based on my role as a front-end developer of company X, where I have come to briefly observe how and why the ongoing design process within the company works at a certain way. Subsequently, the perceived role of front-end developers, design management, front-end developer – client communication and the power of prototyping will be depicted within this chapter of the thesis. I will use the terms front-end developer and designer interchangeably throughout this thesis. Hence, the words front-end developer and designer will be further defined:

A front-end developer/designer in this thesis is a computer programmer that creates the visual front of elements of an e-commerce website by coding. The front-end developer/designer codes computing features that are directly viewable and accessible by the end user or client. A front-end developer/designer designs visual elements by code.

A front-end developer/designer of Company X is different than for example an interaction designer or information architect since the responsibility of a front-end developer rely on everything involved with what the user sees including design adaptation and visual appearance. The job of an interaction designer or information architect is to create a design based on the needs of users, creating and engaging interactive experiences between people and devices. At larger companies’ interaction designers and information architects are often not responsible for the code implementations of their designs which is often the work of a front-end developer as well as the front-end developer not being responsible for the work of an interaction designer or an information architect. The job of a front-end developer is to create a design, interaction and user experience with scripts embedded in a site’s HTML that a user sees, clicks, or uses to input or retrieve information. However, at smaller companies, front-end developers, interaction designers and information architects conclusively might do the same work. Hence, the front-end developer/designer of Company X is a combined overall designer with the responsibility of different designer roles due to Company X being a small company.
2.1 The perceived role of front-end developers

A basic problem in the front-end developers’ world today is that the front-end developer in several circumstances are perceived as stylists or decorators (Muratovski, 2016). The underlying reason why front-end developers are still not generally acknowledged as critical thinkers can be traced from the basis of the profession itself (Muratovski, 2016). The front-end developer profession was primary needed because of their ability to add artistic solutions to the growing requirements on products of the growing industries progress (Muratovski, 2016). Nevertheless, over the years the front-end development and what they can accomplish have started to change. However, the perceptions of the front-end developer in several organizations continue to stay the same as the basis of the profession (Muratovski, 2016). The consequence of these perceptions is that the contribution of the front-end development is limited to appearance.

Whenever the front-end development profession is acknowledged as critical thinking and organizations strive to implement design thinking frequently, early during different processes the results can lead to innovation from the front-end developers that are no longer limited to appearance (Brown, 2008). For instance, it is known that both the appearance of an object and our emotions towards it are what engages us primarily when in a decision-making situation (Brown, 2008). Repeatedly we have experienced objects or products that were not a completely new invention, but a remake of an existing object or product (Brown, 2008). But now with an entirely different appearance that suddenly is the first of its kind to appeal to us due to the connection between our emotions towards it and its functionality that satisfies our desires (Brown, 2008). The re-design of a product suddenly suits us which creates an emotion of satisfaction (Brown, 2008). An example of this is the re-make of the Mp3 player, which suddenly got replaced by the iPod (Brown, 2008). It was not an actual replacement of product, but rather a replacement of an existing invention. The iPod suddenly connected to people’s emotions (Brown, 2008). It was not the first of its kind, but it was the first of its kind to be visually desired due to its new innovative appearance (Brown, 2008).

Since the iPod was a re-designed product of an already existing one, the conclusion of this can be that the front-end development had a great role in the early stage of the process as critical thinkers. The description of a design journey of a product at one of the world’s most known companies; Apple, works as a “long horizontal stripe (…), where design is part of every conversation” according to ammunition Group’s Robert Brunner (Brownlee, 2015). People like to engage in, and buy, visually and aesthetically good-looking products for a cause. Our emotions depend on the appeal of the visuals that we are observing (Norman, 2004). We are
drawn to what attracts us, and this creates an emotion that result in a visual appeal of an object that we want (Norman, 2004). The satisfaction of both our desires and requirements is what front-end developers should have in mind when creating a design (Brown, 2008). Consequently, when acknowledging front-end developers as critical thinkers and including design thinking frequently, early during different processes in order to contribute with innovation in multiple dimensions which may include appearance, the front-end developers will no longer be limited to appearance.

However, it is still common that organizations treat the front-end development as a downstream step in the development process due to the early on perceptions of the front-end development profession (Muratovski, 2016).

2.1.1 Putting front-end at the front-end

Whenever a front-end developer is brought in at a late stage in the process the consequences of this has shown to be frustration (Zimmerman et al. 2007). The frustration for the front-end developer occurs when the suggestions of solutions, that are recognizable and necessary for a product improvement, cannot be developed because of the fact that the front-end developer was brought in at the end of a development process (Zimmerman et al. 2007). The suggestions that the front-end developer bring to the table cannot become implemented since it occasionally requires a reconstruction of the prime idea of the product which often is not appreciated or affordable at the end stage of a process (Zimmerman et al. 2007).

It is not unexpected that some companies begin to ask the front-end development to create ideas from the start of a process (Eleven lessons, 2007). Consequently, including a front-end developer earlier on in a development process, allows the front-end developer to contribute with exploration that benefit reframing problems to later on create suitable designs (Zimmerman et al. 2007), rather than asking the front-end developer to make an already developed interface visually appealing.

2.1.2 Design thinking

The manager of Customer Success for Sage One, Ursey (2014) expresses his feelings towards formal meetings, doubting that anything was truly going to change when leaving the room. Ursey (2014) further explains that there have been all too many formal meetings trying to solve an issue whereas nothing has been accomplished afterwards, which can be found relatable to
many people in different organizations. In order to avoid non-favourable and time-consuming approaches to solving business changing ideas, design thinking can help to address the core issues by improving the innovative performance.

According to Cross (2011) everyone can be able to and already does design. Design is used by human beings all around the world. Design is used in many forms for example when assembling furniture in a room, creating a layout of a web page or writing down a new recipe of an old one (Cross, 2011). The way human beings use design is by design thinking. All matters that surround us has been designed by somebody if it is not a fragment of unaffected nature (Cross, 2011). Consequently, design thinking is seemed to be integral within human cognition (Cross, 2011).

Since it is of nature that everyone uses design thinking in some way (Cross, 2011), it is most likely that a front-end developer is trained by design thinking to create a suitable solution for a circumstance (Brown, 2008). According to Cross (2011) there has been used a variety of research methods in order to understand the design ability of people. Since it is a cognitive ability, it is difficult to approach it directly (Cross, 2011). For instance, when front-end developers are asked how they design, it is common that they have struggles in explaining what they essentially do with words (Cross, 2011). It is more likely that they talk about the result of the projects rather than how they shaped the result (Cross, 2011). Schön (1983) explains the phenomenon of the reflective practitioner, stating that the reflections of the professional practitioners depend on the absence of self-confidence within their profession which decreases their professional self-image which is deep-rooted in a doubting revaluation of the professional contribution to organization's well-being. When practitioners become alert of their surroundings, they also become alert of the ways of surrounding the reality of their practice (Schön, 1983). In addition, to get an insight of what design thinking actually is, four characteristics of design thinking by Brown (2008) will be depicted.

**Empathy:**
Design thinking is a way of having empathy towards the users to better understand the current situation in order to understand why an improvement is needed and how it can be implemented as well as the consequences of the implementation (Brown, 2008). By observing and visualizing the current and potential content of the world from numerous angles and viewpoints in minute detail they use the user as insight and inspiration (Brown, 2008). By using a “individuals first” method, design thinkers can picture a solution that meet the desired need and requirements of a client (Brown, 2008).
Improving Communication between Front-end developer and Client at Company X

**Integrative thinking:**
Design thinkers use integrative thinking when putting trust onto the ability to see different angles of solutions in a problem (Brown, 2008). They are capable of working within a process with several solutions in mind that are of opposing ideas without settling down for only one alternative (Martin, 2007). Instead of settling down for one alternative or panicking because of the fact that they are holding on two opposing ideas, they combine them and create a fusion that is greater of the two primary opposing ideas (Martin, 2007). Consequently, integrative thinking results in innovative solutions that does not rely on analytical processes that depend on making an either and or choice (Brown, 2008).

**Optimism:**
Optimism being one of the main characteristics of design thinking is used by not seeing the difficulties within the possibilities of a process (Brown, 2008). If an alternative solution is better than the other solutions, the better solution will be chosen no matter how many constraints it has (Brown, 2008).

**Experimentalism:**
It is common that the design thinker experiment while developing a solution, and base their next steps on limitations that are discovered during the experimentalism (Brown, 2008). This often leads development to entirely new creative solutions that was not intended to be developed in the first place (Brown, 2008).

Individuals that use design thinking exist within almost each organization (Brown, 2008). Design thinking is useful in organizations whenever acknowledged as critical thinking and included frequently, early during different processes in order to achieve contribution of innovation in multiple dimensions. By including design thinking early during different processes the organizations creates a freedom and nurture for the design thinkers to evolve what they do best (Brown, 2008). Brown (2008) also explains that persons within the organization that spends time on listening and observing clients desires and behaviours are usually the ones using design thinking frequently. These design thinkers are the ones that could help the organization by acting as fuel, creative energy source and raw material (Brown, 2009). Since these types of individuals are used to being side-lined in some organizations, such as treated as a downstream step in the development process due to the early on perceptions of for example the front-end development profession (Muratovski, 2016), they will reply with enthusiasm, passion and eagerness when put in a project at an early stage (Brown, 2009).


2.2 Design management

Having design thinkers within the company might not be enough. Organizations also need to have appropriate development processes to support early utilization of design thinking. Although design-management is easily linked to the value management model, designers still do not become acknowledged as playing a major role within a business (Mozota, 2006). The reasons for this is that designers’ absence a comprehension of management concepts thus have a struggle in applying a value model in their everyday practices. In addition, it is common that organizations do not have a structured design process, due to its subjectivity in matter (Eleven lessons, 2007). The design stages tend to be unique which creates a difficulty in understanding each stage in the process (Eleven lessons, 2007). In order to make changes or improvements of a certain process, the organization needs to understand the different stages of the process in order to understand and solve the challenges in it (Dicander et al., 1998). Consequently, this suggest that organizations need to understand why the persons are involved in a process, why they work at a certain way, what their pressures are, what their challenges and internal connections within design process are (Dicander et al., 1998). This suggests that organizations need know of every minor activity within the process that occurs as well as the effects of every minor activity within the process (Eleven lessons, 2007).

Consequently, if organizations decide to acknowledge the design process as a process, the results of this can lead to business success since there is a link amongst a well-structured design process and business success (Eleven lessons, 2007). According to the professor in management science Mozota (2006) there is a power of generating value within organizations by design management. Mozota (2006) further explains that there are four powers of design. The first one being design as a differentiator which is explained as a source of competitive advantage on the market as for example an implementation of a portfolio which creates competitive rationality by embodying a market value, client value, brand value apparent by the market (Mozota, 2006). Hence, Business success can therefore be defined as growth, profit, innovation and competitive advantage.

On the other hand, it is claimed that organizations that do not have an implemented structured design process, eliminates the potential business success opportunities (Eleven lessons, 2007). When an organization decides to acknowledge the design activities as a process, they will comprehend how to manage the occurring design process (Eleven lessons, 2007). Through implementation of an acknowledged structured design process within a company, the company can reach a level of business success (Eleven lessons, 2007). This is possible because of the fact
that a structured design process, has the opportunity to reach expected results in every managed process that results in reducing time spillage within a project that primary was put to correct the wrongs within a project (Eleven lessons, 2007).

Another way of structuring an effective design process lies on the management of it (Eleven lessons, 2007). Two of the key factors of managing a design process will be depicted.

- Does the design process within the company have a design manager to rely on? A survey made by Dumas and Whitfield (1989) about the difficulties in managing design within a company tell us that the design process will be simpler to cope with the existence of a design manager.

- Does the company have an effective design policy? It is critical for the company to know the different activities that occur within a design process, to better understand the issues occurring, in order to solve these issues. A first step to know the different stages in the process is to map out the different activities within the process (Dicander, et.al., 1998) and later on make improvements of it, such as creating a design policy.

Whilst implementing the two key factors above, it will make it easier for the structured design process to adapt for the speed of change in technology to always be on top of the market with new influences.

To sum up what is expected of an organization in order to benefit of business success is:

- Accepting design activities as a process

- Using design resource as a differentiator for competitive advantage

- Understanding the management of the design process

- Implementing systematized thinking in the design process by implementation of a design manager as well as a design policy

The conclusion can be made that these different best practice examples can benefit various actors within an organization as well as the organizations as an entirety due to taking advantage of the link between design management and business success.

However, in order for an organization to benefit of business success the organization needs to understand how and why different actors are involved within a design process which suggests
that organizations need know of every minor activity within the process that occurs as well as the effects of every minor activity within the process (Eleven lessons, 2007).

2.3 Front-end developer client communication

It is common that front-end developers and clients communicate differently (Buchanan, 2002). The dissimilarity in the two communication types depends on several elements whereas different careers is the main cause of a variation of experiences, characters and lifestyles (Buchanan, 2002). When two personalities interlock in terms of a developer and client relationship, difficulties may occur (Buchanan, 2002).

Within the communication between a front-developer and client, it is usual for the front-end developer to listen to the key words that the client is using (Buchanan, 2002). Habitually latching on to key words used by the client, the developer instantaneously begins to brainstorm ways of designing according the word that was used by the client (Buchanan, 2002). However, the result of the designer’s vision might not be the vision the client had in mind. Frustration and confusion might occur since the client and developer had differences in visions (Buchanan, 2002). This miscommunication might lead to loss of money, time and creativity within an organization (Buchanan, 2002). As suggested, the problem occur when two different personalities think and communicate their thoughts, through highly abstract words without determining that they are on the same page.

However, since each person and each situation is unique and due to reality being more complex, the evaluation of authenticity of a client-developer relationship can become rationalized by the use of client-developer relationship concepts from bioethical literature (D’Anjou, 2011).

Client-developer relationships in professional design practice can be reduced to three models (D’Anjou, 2011). The first model of client-developer relationship is where the designer is viewed as a professional who charges of the design. It is expected of the designer to provide the needs and wants, without including, the client (D’Anjou, 2011). This model presents the designer as an authoritarian character (D’Anjou, 2011). The second relationship model depends more on the client. In this second model, the client is viewed as the character that has full independence in decision making (D’Anjou, 2011). This model depends on the client owing to that the client is the one whom has paid and asked for a service from the designer (D’Anjou, 2011). This model suggests that the character of the designer exists to serve the client (Russel, 2007). The third client-developer relationship involves a mixture of both client and developer
Improving Communication between Front-end developer and Client at Company X

demands throughout the entire project (D’Anjou, 2011). The decision making is made by both parts and both developer and client is correspondingly involved to come up with desirable result (D’Anjou, 2011).

Furthermore, each of the client-relationship concepts presented can be labelled as; Firstly, the paternalistic concept, secondly, the client-autonomy concept, and thirdly, the cooperation concept (D’Anjou, 2011). Nevertheless, D’ Anjou (2011) adds that these models are still not neutral explanations of truths, but rather subjective hypotheses of reality.

The paternalistic client-developer relationship concept

The design practice of the paternalistic client developer concept is based on a model that suggests that the client pursue support from the authoritarian character which in this kind of relation is the designer because of the fact that the client feel like it possess the same kind of knowledge (D’Anjou, 2011). Due to believing that the designer has the professional knowledge that is of value for the ongoing project and by relying on the authoritarian character the client supposes a guarantee of result (D’Anjou, 2011). When putting the decision-making in the designers hands it becomes a duty of the designer to develop in the best interest of the client as well as the client’s requirements (D’Anjou, 2011). The designer is the one making all the design decisions based on personal opinions, knowledge and experience (D’Anjou, 2011).

The drawbacks of this concept displayed in figure 2 is that the qualified knowledge of the needs of a client is not always comparable to the understanding of the interest of the specific client (D’Anjou, 2011). These preferences cannot not be improvised by the designer without knowing the actual interests of the client such as values and wishes of the client (D’Anjou, 2011). The clients vision must be taken into account to fully understand the client’s preferences since every client is a person with a unique history (D’Anjou, 2011).
When designing for a client there is a several decisions being made and an array of design options occur during the process (D’Anjou, 2011). Rules of designing suggests that decisions that are made are not considered correct until referred to the client (D’Anjou, 2011). There is also a belief that the knowledge of a professional designer is set in applicable amounts, or sometimes not at all, if it does not benefit the client (D’Anjou, 2011).

Giving this concept, the results of the design project will become inauthentic since the client becomes unable to use personal freedom by being included in the decision making (D’Anjou, 2011). This concept requires that the client is passive and treated more or less like an object (D’Anjou, 2011).

**The client autonomy client-developer relationship concept**

On the contrary, the client autonomy client-developer relationship concept is based on putting emphasis on the autonomy of the client (D’Anjou, 2011). In this concept, it is established that the client has full control of what is done with their design project needs (D’Anjou, 2011). The decision making is made by the client and the designers role is to entirely provide results of the client’s needs (D’Anjou, 2011). Instead of being the authoritarian figure such as in the *paternalistic client-developer relationship concept*, the designer gets a more distanced role of the project, acting only on the rules of the client (D’Anjou, 2011). The client guides the designer with their wishes, decisions and actions of the designer (D’Anjou, 2011). This concept only takes the client’s role into account, which might seem of value for corporations that works with a strategic way of putting “client satisfaction” at first (D’Anjou, 2011).
Improving Communication between Front-end developer and Client at Company X

involves more than one person (D’Anjou, 2011). Which it always does in a designer-client relationship since it is relation of two parts. Similar to the paternalistic client-developer relationship concept, this concept also has a passive person involved treated more or less like an object, but in this case, it becomes the designer (D’Anjou, 2011). The essential task in the context of design is to achieve a common decision made together by the client and developer (D’Anjou, 2011). By not respecting the involvement, thoughts and roles of each other, it will result in a less interesting process for one of the persons, which will affect the end product (D’Anjou, 2011). Another problem with this concept is that by giving the client the full authority, the client has the opportunity to not accept a certain practice of the designer (D’Anjou, 2011). In order to not accept a certain practice, they need to be informed of the consequences of their choice, which they also can avoid (D’Anjou, 2011). This is seemed more as negative right rather than a positive right of the client (D’Anjou, 2011). Designers need to protect their professional identity by not engaging in performing faulty design due to provide the negative needs of client (D’Anjou, 2011).

The collaboration of client-developer relationship concept

The third collaboration concept considers communication as the central issue in a design process (D’Anjou, 2011). The communication is essential between client and designer and by the communication it is possible to create an objective design through collaboration (D’Anjou, 2011). The possibilities of this concept are that it treats both client and developer as subjective matters with knowledge, which means that none of them is left out in the conversation, and are equally important for the end result (D’Anjou, 2011). The difficulties of this concept are that the designer needs to find a balance between caring presence, support for the client and to not disturb with too much presence (D’Anjou, 2011). The importance of the distance depends on the fact that “space” is essential in an interaction between developer and client (D’Anjou, 2011).
The communication between developer and client in this concept displayed in figure 3 is based on two important purposes; to update and inform the client about issues and possibilities and provide the client with support whenever needed (D’Anjou, 2011). The communication is based on the fact the designer has knowledge about design as in the authoritarian character in the first concept (D’Anjou, 2011), while the client has knowledge about their own needs. Combining these two creates a dialogue that becomes the middle ground of a shared decision (D’Anjou, 2011). The main awareness of this concept is that the communication between developer and client is based on shared trust in decision-making (D’Anjou, 2011).

This concept is similar to the concept of Participatory Design (PD). PD refers to people who are not trained in design working together with people who are trained design (Sanders, 2013). The consequence of this kind of thinking is that the client is no longer seen as a client, but rather an expert in understanding their own way of living (Sanders, 2013).

However, a challenge of this sort of relationship is that the front-end developer might not appreciate working as near with the client as the relationship concept suggest. For some front-developers this relationship might even become a stressful issue in their working flow, that can affect their project negatively (Tomassetti, 2015). The stress that the front-end developer has on a daily basis is due to the technical challenges that they face (Tomassetti, 2015). If this would be combined with the collaboration of client-developer relationship concept, it would suggestively mean that the front-end developer now would become constrained by the reality of technical difficulties, as well as the difficulties in communication with the client. A solution to this could be the implementation of project managers whom are trained in communication that
Improving Communication between Front-end developer and Client at Company X

could ease the relationship, by reducing the burden for the front-end developer. Project managers need to recognize both the client and the developer to act as the translator of the shared information between the two (Schiff, 2017). As communication being the important skill of a project manager, this suggests solving the stressful issue for the front-end developer, that can now focus on the work of the project at stake. However, implementing a third actor that acts as a translator, would require three different personalities to interlock which increases the levels of miscommunication that might result in frustration and confusion due to not having the same vision. As stated earlier, miscommunication can lead to loss of money, time and creativity within an organization (Buchanan, 2002).

These procedures however, are theories of conceptual realities (Buchanan, 2002). Cross (2011) explains that criticism has been made against problems solving models imported from theories. Since every front-end developers’ way of working is unique, an implementation of a model imported from theory, might encounter challenges to the actual ways of the front-end developers’ way of working in reality (Cross, 2011). Consequently, if implementing a certain client-developer model to a real-life situation, would require the front-end developer to work in a certain way that they would not be comfortable with, which eventually would lead negative results of their projects outcome.

2.3.1 Existing tools supporting front-end developer – client communication

How come that there is not a simple way of improving front-end developer and client communication, with positive results, at the first go? This depends on several factors, whereas one of them being the issue of clients and front-end developers not sharing the same language. This is a problem that might not be solved right away, and issues like this are certainly always going to occur when to different personalities with different backgrounds interlock. Especially between front-end developers and clients where one of them comes from an IT background with technical based communication which often might seem as code for clients that are unfamiliar with the business work in general. A way of preventing these sorts of issues, there needs to be a translator between the two in order to make it easier to understand each other better (Buchanan, 2002).

“If the designer can get the client to clearly articulate what their communication goals and design objectives are - in other words; define the problem - the designers job is half done. Now we just need to bring the solution to life so the client can see it”
In order to get the client to articulate clearly as the quotation states, different tools can be used. The common tool that can be used as a translator between a front-end developer and a client is a classic questionnaire (Buchanan, 2002). This can be designed as a survey with the purpose of gathering information from the client that the front-end developer needs in order to better understand the desired outcome for the project (Buchanan, 2002).

The art director of HOW Design Books, Lisa Buchanan explains in her literature, Grafically speaking – A visual A-Z guide for better designer-client communication, that when doing research in fifty design organizations’ asking them about: “What questions do you typically discuss with a client?” the results was used to create a survey that could be used for organizations designing SaaS to their clients (Buchanan, 2002). (Buchanan (2002) summarizes the research as a classic questionnaire.

Buchanan (2002) suggest that the survey displayed in the Appendix – 1 can be used as a guideline to gather useful information of the client in order to align oneself with the expectations of the client. Asking the right kinds of questions often determines the success of a new product or service (Brown, 2009). However, the survey contains assumptions about the client that could lead to drawbacks. The first questions in the survey assumes that the client has a problem that needs to be defined. If this is not the case, the clients might believe that it is not necessary to design or re-design their e-commerce, since they do not have a problem that can be defined, this would eventually lead to a loss of a client for the organization. The target group of this survey seems to be an already establish client, rather than targeting new clients that for instance are not owners of an e-commerce yet. The questions in survey targets large clients, which could result in drawbacks for the new, unestablished client. Since the questions in the survey are not formed to gain new clients, the questions could easily fright, or make the small and new client feel like the company is in charge, and not the client. The clients vision must be taken into account to fully understand the client’s preferences since every client is a person with a unique history (D’Anjou, 2011) that might not be fully acknowledged when the organizations expects that they will gain a full view of the clients’ visions by asking them questions that might be too complex for a smaller client. The drawbacks of this survey are similar to the issues within the paternalistic client-developer relationship concept. The problem of this concept is that the qualified knowledge of the needs of a client is not always comparable to the understanding of the interest of the specific client (D’Anjou, 2011). These preferences cannot be improvised by the designer without knowing the actual interests of the client such as values and
wishes of the client (D’Anjou, 2011). Therefore, the results of this survey would not gain new customers for the organizations, as well as the design project becoming inauthentic since the client becomes unable to use personal freedom by being included in the decision making (D’Anjou, 2011).

However, since it is of importance to that ask the right kind of questions because it often determines the success of a new product or service (Brown, 2009), some of the questions within the survey could be formed to target a larger scale of clients. For example the first question within the survey could be edited saying “Define your project”, instead of saying “Define your problem”. This can be done because of the fact that the organization is now assuming that the client has a project in mind in order to target a larger scale of client, instead of excluding client that are not having a problem.

In order to avoid the drawbacks within the survey, it needs to be modified in order to align the front-end developer with the expectations of the client. However, presenting a survey to the client in order to improve the communication might not be enough difficulties may still occur due to not understanding each other fully (Buchanan, 2002). Therefore, a further investigation in the words used between front-end developers are of interest to depict in order to understand the difficulties within the communication.

Buchanan (2002) further explains the commonly used words within the communication between front-end developers and clients by presenting two charts (see appendix 2 – design feelings) on design feelings with the aim of helping the front-end developer understand the way clients are thinking when describing what they want. Buchanan (2002) also explains that the charts might resolve difficulties such as not understanding each other, being unsure about what the other person means as well as the chart being a time-saver for the designer that would spend less time trying to work out a communication difference in order to spend more time on creating, developing new ideas, thoughts and designs.

The drawbacks within this chart is that the assumptions that is being made is that everyone feels the same way about a certain verb. In the previous chapter Buchanan (2002) explains that it is common that front-end developers and clients communicate differently (Buchanan, 2002). The dissimilarity in the two communication types depends on several elements whereas different careers is the main cause of varying experiences, characters and lifestyles (Buchanan, 2002). Which is a paradox to what she is displaying in the charts assuming that everybody would feel the same way about a certain verb. The word Artistic for instance that is described in the design feeling chart (see appendix 2 – design feelings), might not be the same for the front-end
Improving Communication between Front-end developer and Client at Company X

developer as for the client. Therefore, the front-end developer still would need a further explanation from the client about the verbs used within the dialogue in order to assure oneself of being on the same page with the client. If this chart were purposed to be a time-saver for the front-end developer, it would require that the clients understanding of the word artistic is exactly the same as the front-end developers.

However, the chart could be useful if it was presented to the client before the communication between the front-end developer and client occur. The chart could be used in a way of nudging the client. To nudge is a way of pushing gently or prod slightly in the ribs with the elbow (Thaler et al., 2007). In other words, the power of nudge can be used in situations where the purpose is to influence on a person’s decision or by slightly nudging the person into a specific direction (Thaler et al., 2007). A nudge in design can alter a person’s behaviour in a predictable way without forbidding any other options (Thaler et al., 2007). A simple example of nudge is for instance when school cafeterias put fruit on eye-level for kids (Thaler et al., 2007). Banning junk food does not count as nudge since it forbids an option for the viewer (Thaler et al., 2007). Private organizations that strive for expanding economically can benefit from using nudges within the corporations internally and externally (Thaler et al., 2007).

Minor and seemingly irrelevant features can have major effects on people’s behaviour (Thaler et al., 2007). This is shown in several cases where a small design-decision has been made (Thaler et al., 2007). This suggests that “everything matters” and that one of many theories come from small detailing in design such as concentrating the client in a precise direction (Thaler et al., 2007). Therefore, the possibilities of précising the clients’ way of thinking when communicating with the front-end developer, could be done by presenting the chart to the client before the communication with the front-end developer occur. In a perfect world, this would mean that they both think of the verbs in the same way. However, expecting every client to agree with the descriptions of the verbs as objective facts, or even to have read them all, seem to be impossible. Therefore, the communication between the two might still contain difficulties.

Consequently, the understanding that “everything matters” can be equally empowering as paralyzing (Thaler et al., 2007). This empowerment can be used in different ways whereas to “nudge” is one of the ways. The way of using the theory of nudge are similar to the paternalistic client-developer relationship concept whereas the organizations uses nudging in order to push the client into a direction that would gain the front-end developer. However, if the client uses the chart without knowing that it is a strategic way of nudge by the organization, the client might feel in control of the project similar to the client autonomy client-developer relationship.
concept whereas the client guides the designer with their wishes, decisions and actions of the
designer, which might seem of value for organizations that works with a strategic way of
putting “client satisfaction” at first (D’Anjou, 2011).

However, using the theory of nudge in order to align the client with the front-end developer in
their communication would require a guarantee that the theory works. In today’s society people
are often busy trying to cope in a complex world where decisions are constantly indirectly being
made (Thaler et al., 2007). This excludes the opportunity to think deeply in every choice a
person has to make each day (Thaler et al., 2007). When excluding the opportunity of thinking
deeply in every made choice, people accept nudges since they have limited attention (Thaler et
al., 2007). This suggest that people are somewhat nudge-able (Thaler et al., 2007).

On the other hand, it is claimed that if people are resistance, it is difficult and sometimes
impossible under different circumstances to get them to change their earlier perceptions (Brown,
2009). However, brown (2009) explains that people would likely try something new if it was
built on something, for instance a tool, that is based on simple and familiar behaviours. The one
thing front-end developers have in common is that they tend to think in pictures (Buchanan,
2002). They use visuals to prompt their mind-sets, ideas and concepts which works a simple and
familiar complement to make the viewer, which in this case would be the client, understand the
concepts that the front-end developer has in mind (Brown, 2009).

### 2.3.2 Boundary object

Star and Griesemer (1989) wrote a study about Translations and Boundary objects investigating
in how different actors with different viewpoints requires cooperation and is in need of
generalizable results. The word boundary object is explained as a concept investigating
interaction between different worlds, as well as nourishing the requirements of them (Star et al.,
1989). Consequently, boundary objects are intangible or tangible, due to having different
meanings in diverse social worlds (Star et al., 1989). By managing the boundary object, it is
achievable to provide logic to different persons of different social worlds (Star et al., 1989). By
first developing, educating and implementing methods to control the information that is
collected by different persons, it is achievable to control the information that the different
persons collect of boundary objects (Star et al., 1989). It is also achievable to manage the
information collected by generating a series of boundary objects which would increase both the
autonomy and communication between different persons (Star et al., 1989).
An example of a boundary object is libraries which are designed to assist the different purposes of different social worlds (Star et al., 1989). One of the social worlds could either borrow a book while another can sit down and read the book in the library. Therefore, this example of boundary object has it advantage in modularity (Star et al., 1989).

Boundary objects can be adapted too different opinions while still being forceful enough to maintain distinctiveness across them (Star et al., 1989). Star and Griesemer (1998) state that because of the diversity in different social worlds such as persons with different needs and their requirement for collaboration, a simple solution is not enough. Due to the fact that design communication happens through highly abstract stereotypical terms, as for instance the charts of design feelings (See appendix 2) by Buchanan (2002) a tangible tool is needed. In order to build a tool containing different features that would align the front-end developer with the expectations of the client, the tool would be required to work as a shared language in the communication between the two.

2.4 The power of prototyping

While prototyping, the persons involved connect to the doings in a close way because of the fact that prototyping is usually a physical way of interacting with ideas by hand (Brown, 2009). A way of unlocking imaginations from psychical forms to abstract form, back and forth, is essential for opening up for new potential opportunities (Brown, 2009). For some companies, prototyping is a childish way of exploring ideas, which have resulted in exploring ideas by writing descriptions or filling out forms (Brown, 2009). However, research tell us that there is a liberty and openness that supports fantasizing and creativity which is of value when prototyping (Valentine, 2013).

As Star and Griesemer (1998) state that because of the diversity in different social worlds such as persons with different needs and their requirement for collaboration, a simple solution is not enough as well as the already existing tools displayed in chapter 3.2.1 containing several drawbacks that also results in not being enough to improve the communication between front-end developer and client. Therefore, a tangible tool is needed in order create a shared understanding between front-end developer and client.


3 Method

The following chapter will contain a description as well as an analysis of the method choices that was used in this thesis. Furthermore, method discussion will take place in the various sections of the method chapter. However, the method chapter will close with a method discussion where alternative method approaches are portrayed as well as an analyzation of the chosen methods.

3.1 Method choice

In order to choose a method, the potential data collected should become of value for the primary purpose of this thesis. The key resource of the collected data procedure was empathy. Empathy was used in order to understand the lives of others and to recognize their behaviour in which they live in (Brown, 2008). When observing a particular process within a company, the observer needs to be connected with it (Thomas, 2016). The issues when analyzation is made from only one perspective, the evidence might become anecdotal. According to Thomas (2016) social science research describes that anecdotal evidence is unverified by evidence from different experiences. In order to go beyond anecdotal evidence, there is a need to look through different and varied angles of the situation to understand how and why something is happening within a process.

By doing this, the thesis will be built upon a three-dimensional view that is fuller, richer and a more balanced picture of the subject at stake. Consequently, the analyzations will be made on several actors within the design process at Company X such as front-end developers, project managers, and salespersons in order to gain a three-dimensional understanding of the situation.

The first method that was used in this thesis was individual semi-structured interviews. The semi-structured interviews were chosen to gather further understanding of the current situation of company X in varied angles. Semi-structured interviews are structured to create a discussion between interviewer and the person who gets interviewed. The requirements of the interviewer are to be keen and responsive during the interview in order to ask followed up questions whenever needed (Alvehus, 2013).

In order to provide a tangible tool that align the front-end developer with the expectations of the client within the analysed process the second chosen method was an online co-creation session with some of the available interviewed participants. The online co-creation session was developed with an online tool available at realtimeboard.com. An online co-creation session
Improving Communication between Front-end developer and Client at Company X

gathers the collective thinking that is used to design, help and address the challenges that the design process within Company X are facing today. This is where integrative thinking was used by putting trust onto the ability to see different angles of solutions in a problem (Brown, 2008). Instead of settling down for one alternative or panicking because of the fact that they are holding on two opposing ideas, the participants combined solutions (Martin, 2007). Consequently, the use of integrative thinking resulted in innovative solution that did not rely on an analytical process that depended on making an either and or choice (Brown, 2008).

To summarize, qualitative method as individual semi-structured interviews and online co-creation session was used in this thesis.

3.1.1 Participants

The participants of this thesis were chosen due to being the key persons involved within the design process of Company X. The key persons that were interviewed are two front-end developers, two project managers and two salespersons. As a front-end developer of company X, I have come to experience the ongoing design process within the company. Subsequently, the chosen participants for this thesis is based on the insight gained from working at the company for over two years. Some of the key actors that were interviewed were also the ones engaging in the online co-creation session. My role in the online co-creation session were as a researcher observing and engaging participant.

3.2 Data collection procedure

The two chosen data collection procedures are individual semi-structured interviews followed up with online co-creation session in group.

3.2.1 Individual semi-structured interviews

The individual semi-structured interview was used to gain a broader picture of the current situation at the company as well as gaining soft data information from the participants within their role of the process. The interview topic focused on the design process within Company X, in order to identify the primary stages of which design communication occurred from sales to launch. The interviews were audio recorded, transcribed and translated.

The participants were well informed of the purpose of the interview as well as the subject in mind to be fully aware of their rights as participants (Bell, 2016). It is of importance to have
issues in mind such as avoiding questions that may cause physical discomfort during and after the interview (Thomas, 2016). Therefore, before the interview took place the participants were informed that they would be anonymous and could at any time choose to not answer a certain question if they thought of it as discomforting. The open questions asked to each participant were designed to gain a broad picture of the actual situation of their role within the current process by discussion rather than close ended questions. The questions asked during the interviews were designed differently depending on the role of the participant. The two front-end developers answered the same type of questions, while the project managers were asked the same type of questions as well as the salesman answered the same type of questions. Consequently, different questions were asked dependent on the role of the participants.

The key to construct gainful questions in an interview is to have the purpose of the thesis in mind (Boolsen, 2007). This strategy was used when designing the different questions for each role of the participants in order the gain valuable data for the purpose of this thesis.

3.2.2 Online co-creation session

The structure of a co-creation session makes room for creativeness and communication to individuals that will be or are assisted through or involved in design (Brown, 2009). Participation of different people with different disciplines are necessary in order to use the different mind-sets of others when creating (Brown, 2009). If being provided with the right kinds of tools, all individuals can be creative when participating in a co-creation session (Maketools, 2014).

Sanders (2014) explains that co-creation practises creativity and communication though collective intelligence and performance in order to use design to address the issues that are faced on a daily basis. Subsequently, participatory prototyping was used during the online co-creation session with the aim of developing ideas of features for the tangible tool in order align the front-end developer with the expectations of the clients to improve the communication between front-end developer and client at Company X. The online co-creation session was constructed based on the gained information from the individual semi-structured interviews as well as from the literature review. The co-creation session was constructed to be online because of the fact that the participants had no time engaging in a second meeting without interrupting their ongoing work. In addition, the online co-creation session solved the issue of every participants requirement to engage at a specific time, due to having the session online, the participants were now able to engage in the session whenever they were available. The online
co-creation session tool was available for the participants during working days, which gave them the opportunity to edit, remove or add ideas when they felt like it.

I started of the online co-creation session by introducing it to the participants individually through slack that is the chat used by Company X. Since two of the participants resigned before the co-creation session, they were not able to participate. Therefore 4 of the participants were included in the co-creation session whereas my role as researcher was as a fifth observing and involved participant. I constructed the online co-creation session in order for it to look like a real board to create a sense of a physical meeting where online post-it notes were used (see figure 5 – Online co-creation session).

Figure 5 – Online co-creation session By E. Ali (2017)
The top section of the board contains a description of what is expected from the participants as well as an explanation of why a tangible tool is needed. I briefly brought up the common challenges that are faced within the design process of company X that the participants had brought up during the interviews (See Appendix 4 - Online Co-creation introduction). Using an online board to visually explain the current situation, the participants gained insight through online communication and visual explanation. Moreover, I explained what theory suggest and the paradoxes in relation to the participants ideal design process that some of them explained during the interviews. By making sure that all details were outlined within the online description of the task, Norman (2004) suggest that designers are more creative and willing to overlook and cope with minor issues if the project is fun to work with. Combining the strategy of Normans (2004) with of the main characteristics of design thinking; optimism, was used by not seeing the difficulties within the possibilities of a process (Brown, 2008).

Furthermore, I continued the session by placing content within some of the post-it notes containing different features that were brought up during the interviews of what the potential prototype could contain. This was done in order to make it easier for the participants to understand what they were going to do with the empty post-it notes left on the online board as well as using of the characteristics of design thinking; experimentalism. Since it is common that the design thinker experiment while developing a solution and base their next steps on limitations that are discovered during the experimentalism (Brown, 2008), this often leads development to entirely new creative solutions that was not intended to be developed in the first place (Brown, 2008). The features that I included, were mainly based on the dream scenarios of the participants and as some of the features were founded on best practice solutions gathered from the literature review.

3.3 Data analysis procedure

Open coding by grounded theory was used to analyse the collected data and participatory prototyping was used in the online co-creation session.

3.3.1 Individual semi-structured interview analysis

To process and analyse the collected data from the Individual semi-structured interviews, open coding by the inductive methodology; grounded theory was used (Glaser et al., 1967). According to Gibbs (2007) grounded theory is used to code data in order to create a new theory. In order to use and present the general method open coding as an analytical method, the
collected data was processed by dividing the data in a three-step process. Firstly, the collected data was transcribed and translated. Secondly, the collected data was read with the aim of gaining a sense of the fuller picture. Thirdly, the material was broken down into paragraph units in order to sort the data into different themes by coding. The analysed material was then presented according to themes. Lastly, with the aim of creating a valuable presentation of the material that was chosen, data that was not fundamental got reduced.

When using the analytical method open coding I deviate from the open coding methodology, with the aim of analysing differences and similarities of the respondents' paragraph units and perspectives. The open coding themes constructed for this thesis contain an added column which tell us what paragraph unit belong to whom in order to locate similarities and differences in the participants responses. I also deviate from the grounded theory methodology by not including the final step of the methodology which is to verify data in the field.

### 3.3.2 Online co-creation session analysis

To evaluate the online co-creation session, the results of the online co-creation session are presented as features of the tool with the aim of analysing the implementation of the tangible tool within the potential design process.

### 3.4 Method discussion

There are several ways of approaching a problem and collecting data. The commonly used methods are qualitative research and quantitative research. Qualitative research observes how people experience things. It captures individuals’ views, approaches, or understandings of different meanings and processes (Muratovski, 2016).

On the contrary, quantitative research is preferred when one needs to generalize, simplify or portray a certain subject. The quantitative method can be used when one needs to draw conclusions about, for example, a target group or whenever testing various design features (Muratovski, 2016). Dissimilar to the qualitative method, the quantitative method is used when testing an already existing theory and is about rating precise variables, while qualitative method is designed to be used for evolving a new concept (Muratovski, 2016). The qualitative research often distinguishes that the problem in subject has many levels. Muratovski (2016) also explains that it is a method usually used when one needs to gain new or a deep understanding of a subject or issue as well as appearing most gainful when dealing with an unfamiliar issue.
3.4.1 Chosen methods

The construction of my qualitative interview questions aims to get inside the heads of people to tell things from their point of view. The issue with this is that it is hardly easy to attach a single meaning to their experience that represent the actual situation (Silverman, 2013). It is also of importance to be aware that the answers from the interviews are not objective truths but rather constructed narratives of the participants understanding of themselves (Gillham, 2008).

However, one can convince the reader that the collected data are with rational possibility definite, by the executed action of response validation. This is a way of controlling the accuracy and confirming the rationality (Denscombe, 2016). This sort of action is when the researcher goes back to the participants with the findings which was done when the online co-creation session took place.

The online co-creation session was based on participatory prototyping. Sanders (2012) explains that when people meet in a collective creativity meeting, brainstorming and collective imagination takes place. Depending on the different roles of the persons involved in the meeting, they are each contributing to the meeting with their own individual creativity based on their own experiences. When collective creativity takes place, views from one person can trigger opinions for another person and so on. This results in a meeting filled with creative opinions and concepts. However, Sanders (2012) also adds that this sort of meeting commonly does not have a combined abstract model of what was just created. This is why the result of the online co-creation session will be a definition of ideas of features of a tangible tool.

3.4.2 Reliability and Ethical Considerations

There is no well-organized way of finding out whether another researcher would generate the same conclusions creating the same situation due to collecting subjective data (Denscombe, 2016). However, the researcher should depict the approaches, analyzes and results in detail in order for the reader to fully recognize the procedure and what the process was dependent on during the method procedures (Denscombe, 2016). If this is followed through during the method description it is more likely achievable that an alternative researcher would have come up with similar outcome (Denscombe, 2016).

Regarding ethical considerations this project was carried out at Company X, where interviews for this thesis took place. It can be considered as sensitive for the employees of the company to share information about their own work of the Company, which is why they and the name of the organization remain anonymous throughout this project (Halkier, 2010).
3.4.3 Other research methods

The quantitative method could be used in this thesis in order to gain an insight of how many clients find issues within the communication between front-end developers and themselves. However, the hard data collected from this method would only state the fact that there is an issue, rather than tell us what the issue is.

Quantitative method could also be useful when in need to draw conclusions about for example the expectations of the clients of Company X. But since it is a sensitive matter to involve a large scale of actual clients of the company, doing this would require an ethical research, and an approval of authorization of the ethical research and then could I be able to continue with the quantitative research. And also, due to the lack of time surrounding this paper, the quantitative research will not be used in the process of this thesis.

Since a part of this thesis is to align the front-end developer with the expectations of the client it would be interesting to explore the expectations of the client. However, due to every client having unique expectations as well as reality being complex, gathering data of a few clients would only benefit the clients that were included. In order to explore how to align front-end developers with the expectations of the client, this study will only regard the front-end developers view in order to result in data that could fit several clients with unique expectations.
4 Results

The following chapter regards the findings of the collected data of the qualitative semi-structured interviews and the results of the co-creation session. The results of the interviews were analysed through grounded theory in order to identify the different stages of the design process within Company X. The results of the analysed content of the interviews were used in order to construct a map presented as figure 7 this chapter. The results of the co-creations session are presented in their raw form followed up with an explanation of the content.

4.1 Current Process of Company X

The different identified stages within the design process of Company X are presented in subthemes categorized as; Before a project, During a project, Issues within a project and the needs of the participants within a project. In order to further depict the data presented in the different subthemes, a map of the current design process of Company X will be presented displayed in figure 6.
4.1.1 Before a project

The front-end developer 2 (2017) explained that the dialogue with the client occur through email after the client has had a primary design dialogue with the salesperson and project manager.

“The project manager is in touch with the client. I have little contact with the client through email where I can comment on clients request and give status updates of what I’m doing, if needed. The deep communication and relationship is between the client and project manager.”

Front-end developer 2 (2017)

Both of the front-end developers (Front-end developer et al., 2017) explain that the back and forth email contains suggestions that the front-end developers have created in order to get feedback from the client. Furthermore, it is explained that the first draft of design that they develop is based on the information received from the seller or/and project manager since they do not contact the client until they have developed a first draft (Front-end developer et al., 2017).

Consequently, Salesman 1 (2017) explained the design dialogue with the client occur before the beginning of the project. Both salesman explain that design is a phase 2 dialogue during the interview (Salesman et al., 2017).

“It usually begins with dialogue with the client regarding the foundations (...). So, when we talk about functionality and release that topic, we proceed with design. It therefore feels like a phase 2 discussion (...)

Salesman 1 (2017)

Salesman 1 (2017) further explained that the design dialogue often regards the client describing what they want in design attempting to show their vision to the salesman by referring to e-commerce websites that they prefer to shop on. Salesman 1 (2017) also explains that he asks the client what they like about that page that they shop on and why. However, Salesman 1 (2017) further on explains that the client usually tells him that they like everything about that page that they shop on. In the interview with salesman 2 (2017) he explains that the projects where the clients focus on functions, usually always turn out as good projects due to the client understanding what is required to achieve their wishes. He further adds that the clients that start the dialogue with design are the hazy clients (Salesman 2, 2017). Salesman 1 (2017) also explains that he always tries to pride the companies finished design projects to clients.
Improving Communication between Front-end developer and Client at Company X

In the dialogue with my customers, I always try to pride ourselves on what we have done before by mentioning what we have done in design so far. There, I always try to remember which branch I present to the customer to get as close to their branch as possible in the hope of reaching out to the customer's own ideas. (…)

Salesman 1 (2017)

By trying to remember a finished design project that is an e-commerce site that sells similar articles as the client’s e-commerce does or is in the same branch at least, Salesman 1 (2017) presents an option that he hopes reaches the clients’ needs.

Salesman 2 (2017) explains that when talking to the client about design after already stating their budget that is; what the client is willing to spend on design, Salesman 2 (2017) sometimes need to downplay the clients vision since their budget is not enough.

When I talk to the customer about their budget and they express their design ideas, I can sometimes, recognize that their budget is not enough for such a development. I will tell this to the customer because the customer usually does not know what their budget really is enough for.

Salesman 2 (2017)

The salesman slightly pushes the clients described vision into another direction that suits the clients budget by displaying finished design projects of company X.

In the interviews with the project managers they both explain that they are brought in at the start of a project after having a dialogue with the salesman whom has already sold in a project to a client (Project manager et al., 2017). The dialogue contains information that the salesman received from the client regarding what the client wanted in design. One of the project managers describe that regardless of what the client ordered, that might not even be a clean design task, most of the orders that are visible in the client’s e-commerce are dependent on design (Project manager 1, 2017).

(…) Even though it is not a clean design task, that is, a development on a function, for example, this function is also dependent on a design (…).

Project manager 1 (2017)

Project manager 2 (2017) adds that if the client is not aware of the importance of the design of the function that they want, the question needs to be raised with the client. She further explains that this dialogue can be done by the project managers or the salespersons since adding design
Improving Communication between Front-end developer and Client at Company X

to a project is equal to raising the cost on the already estimated agreement of the project from start (Project manager 2, 2017).

4.1.2 During a project

Both of the front-end developers (2017) are speaking to the project-manager before starting a project in order to get a fuller picture of what is to be done within the project and what the clients expectations of the project is. Later on, they both start their projects by coming up with visual suggestions which they present to the clients´ through email (Front-end developer et al., 2017).

"I usually come up with a suggestion that the customer can see visually and see what they think about it or say about the proposal. (...) so I can make it as comprehensible as possible. (...) I email them back and forth and say here comes this suggestion and then they usually provide feedback that I implement. Then I show it to the project manager and then the project manager goes to the customer."

Front-end developer 2 (2017)

Front-end developer 2 (2017) base his visual suggestions on the dialogue with the project manager by using an already existing theme that he thinks suits the projects managers description of the needs of the client. Than he sends his visual suggestions to the client through email in order to get feedback until the client feels satisfied with the visual suggestions (Front-end developer 2, 2017).

"I usually do it in a sketch, which will be a first draft that they can check out. This I do in a live sketch that is a static html sketch without any backend link at all, or Photoshop. A live sketch usually takes more time in the beginning, but it will be easier to get started with the work later because I have already developed a skeleton. (...) I prefer to work in static live sketch."

Front-end developer 1 (2017)

Front-end developer 1 (2017) explains that he prefers to work with code although it takes more time in the beginning due to being easier at the end if the client is satisfied with the coded draft as well as feeling the tool Photoshop being old-school. He adds that if there is not enough time on the already estimated project, he uses Photoshop in order to make a quicker draft (Front-end developer, 2017)
During a project both project manager divides everything that is going to be done within a project in various activities distributed to the developers describing what is going to be done in every activity (Project manager et al., 2017). One of the project managers explain that when he has a design dialogue with the client he listens to the needs of the client that the client describes, in order to proceed with the information to the front-end developer who will perform the task (Project manager 2, 2017). Project manager 1 (2017) adds that whenever questions surrounding a project occur, she usually does not have a direct answer.

(…) we go through the project briefly and then open up the opportunity for the developers to come up with questions. Most often, I cannot answer these questions directly, especially if I have not been involved in the sales process (…).

Project manager 1 (2017)

She further explains that not having a direct answer most likely depends on the fact that she was not involved in the sales process of the project (Project manager 1, 2017).

Both of the salesmen are not engaging any further during a project (Salesman et al., 2017).

4.1.3 Issues within a project

The front-end developer both had issues regarding meeting the clients’ expectations (Front-end developer et al., 2017). Front-end developer 1 (2017) explains that the issues occur due to the client not being aware of the technical terms that are being used within a project.

Most often, technical concepts are not used. (…) Here at company X I would not say I've been with any customer who really knows what they want in the technical terms we use. (…).

Front-end developer 1 (2017)

Front-end developer 1 (2017) also describes that these issues result in on-going re-makes of drafts due to not understanding each other. Front-end developer 2 (2017) explains a similar issue within his projects.

Many projects do not always go as planned, sometimes it takes more time to complete than the project was estimated to from the beginning. It depends on difficulties in communication between customer and developer I would like to claim. That they have difficulty explaining what they want (…) or that the customer does not know much about design. This may result in presenting a
Improving Communication between Front-end developer and Client at Company X

suggestion that the customer may think "no, this was not so good" so you have to redo it. Sometimes without the customer actually saying what they want instead, but telling developers that they want something else that needs to be guessed.

Front-end developer 2 (2017)

Front-end developer 2 (2017) also describes that clients sometimes expects the front-end developer to create a re-make of draft, knowing exactly what needs to be done, by telling the front-end developer that the first draft was not good enough, without a further explanation of what they want instead of the first draft due to the difficulties within the communication. Front-end developer 2 (2017) further explains that a dialogue with the client during the project are somewhat of a balancing issue of work for the front-end developer and prefers that the project manager has that dialogue instead. The front-end developer 1 (2017) explains the similar issue saying:

Personally, I'm not so good at explaining my ideas through dialogues, but I prefer to communicate with something I can show up. (...) I prefer not to have telephone contact with customers because it is time consuming and I do not think it gives so much for me.

Front-end developer 1 (2017)

Front-end developer 1 (2017) feels like the dialogue between himself and the client is time-consuming as well as not gainful for the rest of the project. He also describes that he prefers to talk through visuals and not by a dialogue due to not being good at explaining ideas through dialogues (Front-end developer 1, 2017). Another issue that was brought up by the front-end developer 2 was that he preferred not to have dialogues with the client since he was not able to stop the needs of the client due to the time-limitations within a project.

It is also a problem that, I do not know where the defects in the process really are, the customer's understanding of what they are promised does not match what they paid for. Usually they expect to get completely different things than they have delivered to them.

Front-end developer 2 (2017)

The front-end developer 2 (2017) further explains that the client usually is promised to get completely different things than what they paid for which is work that takes allot more time to develop than the time the client has paid for which ends up making both the client and the front-end developer frustrated.
Both of the salesmen (Salesman et al., 2017) explains that the issues within the process depends on design being extremely difficult to sell due to being abstract and subjective. Salesman 1 (2017) explains that Company X is poor on marketing their earlier design work, although having a lot of data that could be used for marketing purpose. He adds that it is difficult to sell in a design to a client, when Company X does not tense their muscles and show of what they are capable of developing in design (Salesman 1, 2017).

(...) This was very difficult for me when I started at this company, to sell in design, as it was a very subjective fluffy subject without any structure that could not really be touched. Today, the design process is so un-structured that it almost always has to go through someone else internally, which also takes time from someone else.

Salesman 1 (2017)

Salesman 1 (2017) explains that before making an estimated agreement with the client, he needs to interrupt someone internally that can determine whether the time-estimation of the design is accurate.

Both of project managers (Project manager et al., 2017) describe that the difficulties that occur in the process depend on design being a heavily subjective subject which is difficult to sell. Project-manager 2 (2017) explains that it is difficult to determine where the limit goes for what should be done in a design and align one-self with the client’s vision.

If they do not speak to us about their vision from the first place, this might cause that our first design draft that we developed, do not match that picture they had in mind. Therefore, it is incredibly important to try to extract such information from the customer at the starting phase to avoid unnecessary costly and time-consuming re-makes. (...)

Project manager 2 (2017)

He adds that it depends on the lack of communicated information from the beginning of the project (Project manager 2, 2017). Project manager 1 (2017) further explains the difficulties within the design process saying:

A design project itself is extremely difficult because it is subjective, and very difficult to estimate design, and also difficult to provide a delivery date on design. And it's hard to have something to follow on design. This is because what is said is a process, everything that is going to be done on the design depends on what we can do, what does the customer want to achieve, how
Project manager 2 (2017) describes the design flow as a process that is hard to sell, estimate, deliver on specific date due to being hard to have somewhat of a structure to follow in design.

4.1.4 The need of the participants within a project

Front-end developer 1 (2017) explains that a dream scenario project for him would be if he were given the opportunity to make all the design decisions himself such as colours, layout etc. He adds that it would require a client who has no ideas at all (Front-end developer 1, 2017). On the other hand, front-end developer 2 (2017) describes a dream scenario project as a project where the client knows exactly what they want in order to present an exact design that the front-end developer can implement. He adds that it would require a deep dialogue in the beginning of the project so that the client and the front-end developer is on the same path at the very beginning of the project (front-end developer 2, 2017).

Salesman 1 (2017) describes his dream scenario project as a project where he is given a list or a category tree on a page containing references from Company X’s earlier design projects. He also explains that it should contain features making it possible to use filtering through different industries and making the customer aware of different design price ranges (Salesman 1, 2017). He refers to the page as a portfolio of Company X and adds that it would ease his design selling and be used by the clients as a tool that show off different design projects that would preferably lead to wider dialogue about design with the client (Salesman 1, 2017). Salesman 2 (2017) explains that a portfolio could be useful where the client could build their vision by referring to our earlier design projects which would be easier for him to estimate since they are projects that has already been estimated. He adds that if a portfolio were to be developed it would give him the opportunity to have a preparation before a wider dialogue about the possibilities or drawback within the clients’ needs in design (Salesman 1, 2017).

4.2 Online co-creation session

The following section will display the different ideas of features that can be included of the tangible tool of Company X in order to improve the communication between front-end developer and client as well as aligning the front-end developer with the expectations of the
client by the clients being presented of tool that acts as a shared language between front-end developer and client.

The results of the online co-creation session were ideas of features that the tangible tool would contain in order to align the front-end developer with the expectations of the clients. The ideas of features that were included formed the concept of a design portfolio of Company X.
Improving Communication between Front-end developer and Client at Company X

5 Discussion

In order to make changes or improvements of a certain process, one needs to understand the different stages of the process in order to recognise and solve the challenges in it (Dicander et al., 1998). Why the persons are involved in a process, why they work at a certain way, what their pressures are, what their challenges and internal connections within design process are (Dicander et al., 1998), needs to be understood in order to know of every minor activity within the process that occurs as well as the effects of every minor activity within the process (Eleven lessons, 2007). Therefore, in order to improve the design process at Company X, the sub-questions of this thesis will be discussed in the following chapter containing a discussion as well as an analysis of the results compared to the literature review.

5.1 What is the current process of Company X?

The map of the design process of Company X displayed as figure 6 tell us that front-end developers are brought in at a late stage in the process. The consequences of this has shown to be frustration (Zimmerman et al. 2007). The frustration for the front-end developer (Front-end developer et al., 2017) at Company X occurs when the suggestions of solutions, are not aligned with the expectations of the client because of the fact that the front-end developer was brought in at the end of a development process (Zimmerman et al. 2007) and also because the front-end developer is provided with altered information about the project due to the data going through several actors before reaching the front-end developer. To sum up the theme; Current process of Company X, it can be argued that the front-end developer and client communication happens at a late stage of the design process which causes different issues depending on several causes.

5.1.1 Before a project

The front-end developer 1 (2017) explained that the deep relationship and communication is between the client and project manager and not with himself, since he is only involved when feedback of the suggestions that he developed is needed. It can be argued that the explanation of the front-end developer prompts the paternalistic client-developer relationship since the front-end developer gets a distanced role of the project, acting only on the rules of the client and project manager. According to D’Anjou (2011) the consequences of this sort of relationship only takes the client’s role into account, which might seem of value for corporations that works with a strategic way of putting “client satisfaction” at first, however, treating the front-end
Improving Communication between Front-end developer and Client at Company X

developer as a passive person involved more or less like an object, not respecting the thoughts and role of the front-end developer will result in a less interesting process for one of the persons, which will affect the end product (D’Anjou, 2011).

Another issue with the statement of the front-end developer 1 (2017) is when the client or project manager is given full authority of the project, the client or the project manager is given the opportunity to not accept a practice of the front-end developer which can lead to making a choice that has negative effect on the project (D’Anjou, 2011). The consequence of this can lead to the front-end developer performing a faulty design due to performing the needs of the client that is in charge of the project (D’Anjou, 2011).

Consequently, salesmen (Salesman 1 et al., 2017) explain that the design dialogue with the client occur before the beginning of the project. It can be argued that valuable primary design information occurs at this stage between the salesmen and clients since the salesmen (Salesman 1 et al., 2017) explains that it is at this stage an estimated agreement is provided for the clients. Since the front-end developers (Front-end developer et al., 2017) are not involved at this stage in the process nor the project managers (Project manager et al, 2017), it is required of the salesmen to use design thinking combined with his own expertise of selling in order to avoid non-favourable and time-consuming approaches to solving business ideas and to address the core issues (Ursey, 2014). However, this would not be enough to solve the main issue since it is not the salesman that is actually going to provide the client with a development that was agreed upon. The exact detailed information that is occurring in the primary dialogue between the client and the salesman needs to be transferred to the front-end developer in order to provide the client with an agreed upon solution in order to avoid miscommunication.

However, the issue of this strategy is that the qualified knowledge of the needs of a client is not always comparable to the understanding of the interest of the client (D’Anjou, 2011). These preferences can not be improvised by the front-end developer without knowing the actual interests of the client such as values and wishes of the client (D’Anjou, 2011). As a front-end developer, it is usual to listen to the key words that the client is using, for instance the usage of the word “innovative” (Buchanan, 2002). Habitually latching on to key words used by the client, the developer instantaneously begins to brainstorm ways of designing this type of “innovative” solution (Buchanan, 2002). Even if the front-end developer engaged within the primary dialogue the results of the front-end developer’s vision might not be the vision the client had in mind, therefore, when the exact detailed information is transferred to the front-end developer it is highly likely that some of the words that the salesman transferred to the front-end
Improving Communication between Front-end developer and Client at Company X

developer, might not be what the client actually wanted and comparable to the understanding of the interest of the client. Consequently, this might lead to frustration and confusion since the client, salesman and front-end developer had difference in visions and understanding (Buchanan, 2002). If communication between two parts can lead to miscommunication that leads to loss of money, time and creativity within an organization (Buchanan, 2002) depending on two different personalities thinking and communicating differently, it is highly likely that miscommunication will occur if the communication depends on three or more people.

In order to avoid miscommunication, it is required that the salesman and client both are on the same page in the beginning of the process in order to further on provide the front-end developer with information so that the front-end developer also is on the same page as the salesman and the client was when estimating the agreement of the project. However, since this also might lead to a relationship similar to the paternalistic client-developer relationship, this would only solve the occurring issues of aligning the salesman and front-end developer with the client and not the fact that the front-end developer now might end up performing a faulty design due to providing the needs of the client that was agreed upon with salesman.

In addition, the salesmen of Company X are not the only persons that primary valuable design information need to go through before reaching a front-end developer. As it is stated in figure 7 in the map of the design process of Company X, it shows that the information also goes through a project manager before reaching a front-end developer which is explained during the interviews with the project managers (Project manager et al., 2017) stating that they are brought in at the start of a project after having a dialogue with salesmen whom has sold in a project to a client. The dialogue contains information that the salesmen receive from the client. Project manager 1 (2017) describe that regardless of what the client ordered, that might not even be a clean design task, most of the orders that are visible in the client’s e-commerce are dependent on design. Project manager 1 (2017) further adds that if the client is not aware of the importance of the design of the function that they want, the question needs to be raised with the client. She further explains that this dialogue can be done by the salesperson since adding design to a project is equal to raising the cost on an already estimated agreement of a project (Project manager 1, 2017).

The consequences of this action retell Hoghs (1993) illustration “What the client really wanted” displayed in figure 1. Consequently, when the communication happens at different stages and valuable information goes through several people, miscommunication will occur depending on the usage of abstract explanations or words within design that are greatly subjective.
Salesman 1 (2017) explains that the design dialogue often regards the client describing what they want in design attempting to show their vision to the salesman by referring to e-commerce websites that they prefer to shop on. This statement suggests that the clients use visuals attempting to explain their vision similar to what front-end developers have in common, that is that they tend to think in pictures (Buchanan, 2002). They use visuals to prompt their mind-sets, ideas and concepts which works a simple and familiar complement to make the viewer understand the concepts that the front-end developer has in mind (Brown, 2009). Since visuals are a simple tool to use in order to make someone understand, it can be argued that visuals would decrease the levels of misunderstanding each other since it is a straightforward way of explaining what the person has in mind. However, this would require having the persons involved looking at the exact same thing in order to understand each other in order to have a further discussion about the visuals.

On the other hand, salesman 2 (2017) explains that when talking to the client about design after already stating their budget that is; what the client is willing to spend on design, the salesman sometimes need to downplay the clients vision since their budget is not enough by preferably present some design references of Company X. Similar to Salesman 1 (2017) explaining that he always tries to pride the companies finished design projects to clients. It can be argued that both of the salesmen are more secure with the references of Company X which is expected since the salesmen are aware of the costs and developments of these earlier design projects which naturally would make the communication between the two, easier for the salesman to deal with.

Both salesmen (Salesman et al., 2017) explain that design is a phase 2 dialogue during the interview as well as salesman 2 (2017) explaining that the projects where the clients focus on functions, usually always turn out as good projects. He further adds that the clients that start the dialogue with design are the hazy clients (Salesman 2, 2017). This statement suggests that both of the salesmen think of design as a phase two dialogue which is linked to the literature review stating that a basic problem in the front-end developers’ world today is that the front-end developer in several circumstances are perceived as stylist or decorators (Muratovski, 2016), therefore, the statement retell that the perception within the company is that design is not as important as functionality regarding e-commerce websites. As one of the salesman adds that projects containing clients that do not focus on design turn out better than the clients that focus on design, it can be argued that the perceptions of the front-end development profession remain the same as the trace basis of the profession (Muratovski, 2016), which leads to limiting the front-end developments contribution to simply appearance. By not acknowledging the design process and the contribution of front-end developers, the company excludes the opportunity of
Improving Communication between Front-end developer and Client at Company X

business success (Eleven lessons, 2007). The challenges of this sort of perceptions that still remain within the company, can also result severely negative due to the salesmen being the ones having the valuable primary dialogue with the clients.

5.1.2 During a project

Both of the front-end developers (Front-end developer et al., 2017) are speaking to the project-managers before starting a project in order to align themselves with the clients’ expectations. The issue here is that the front-end developers imagines a vision based on the project managers vision which is described to the front-end developer. The project manager imagines a vision based on the salesmen’s vision that is described to the project manager combined with added visions from the client since the project manager has a continues communication with the client throughout the project. As mentioned, if communication between two parts can lead to miscommunication (Buchanan, 2002), it increases the probability that miscommunication will occur if the communication depends on three or more people.

Later on, they both start their projects by developing visual suggestions which they present to the clients through email. Front-end developer 2 base his visual suggestions on the dialogue with the project manager by using an existing layout template that he thinks suits the project managers description of the needs of the client. Than he sends his visual suggestions to the client through email in order to get feedback until the client feels satisfied with the visual suggestions. The first contact with the client happens at this stage where the front-end developer sends an email to the client containing the visual suggestion that the front-end developer has developed. When front-end developers are asked how they design, it is common that they have struggles in explaining what they essentially do with words (Cross, 2011). It is more likely that they talk about the result of the projects rather than how they shaped the result (Cross, 2011). This is what is happening at the first contact with the client since the front-end developer present the outcome of the development rather than an explanation of what they actually developed and why they developed it. When designing for a client there is a several decisions being made and an array of design options occur during the process (D’Anjou, 2011). Rules of designing suggests that decisions that are made are not considered correct until referred to the client (D’Anjou, 2011). There is also a belief that the knowledge of a professional designer is set in applicable amounts, or sometimes not at all, if it does not benefit the client (D’Anjou,
Improving Communication between Front-end developer and Client at Company X

2011). And therefore it is incorrect to believe that informing clients when making design decisions is irrelevant.

The consequence of not discussing every decision with the client during the development but after the development within the first contact with the client, according to Schön (1983) is that it prompts idea of the phenomenon of the reflective practitioner, stating that the reflections of the professional practitioners depend on the absence of self-confidence within their profession which decreases their professional self-image which limits their contribution to the project's outcome. The outcome of the first draft will become inauthentic since the client becomes unable to use personal freedom by being included in the decision making (D’Anjou, 2011). This means that the client at this stage is passive and treated more or less like an object (D’Anjou, 2011). This might be the cause of the occurring feedback from the client after the first developed draft since they felt like they were not part of the decision making within the first draft which did not meet their vision and expectations, therefore, feedback needs to be implemented in order for the client to feel that they contributed to the outcome. The client might feel the need of no longer being seen as a client, but rather an expert in understanding their own way of living (Sanders, 2013).

However, if the front-end developers were to continue with the ongoing process of Company X, it is highly likely that the client respond with feedback until meeting the client’s expectations. If the front-end developer would be able to explain every design decision throughout their first development the consequence of this according to D’Anjou (2011) would be similar to the collaboration concept which considers communication as the central issue in a design process (D’Anjou, 2011). According to the collaboration concept the communication is essential between client and designer and by the communication it is possible to create an objective design through collaboration (D’Anjou, 2011). The possibilities of this concept are that it treats both client and developer as subjective matters with knowledge, which means that none of them is left out in the conversation, and are equally important for the end result (D’Anjou, 2011). The difficulties of this concept are that the designer needs to find a balance between caring presence, support for the client and to not disturb with too much presence (D’Anjou, 2011). The importance of the distance depends on the fact that “space” is essential in an interaction between developer and client (D’Anjou, 2011).

On the other hand, while the front-end developers start their projects by developing visual suggestions which they present to the clients’ through email the process becomes somewhat similar to the design practice of the paternalistic client developer concept that is based on a
model that suggests that the client pursue support from the authoritarian front-end developer because of the fact that the client and the organization feel like the front-end developer possess the professional knowledge that is of value for the ongoing project and by relying on the authoritarian character the client supposes a guarantee of result (D’Anjou, 2011). When putting the decision-making in the designers hands it becomes a duty of the designer to develop in the best interest of the client and fitting it to the client’s requirements (D’Anjou, 2011). The front-end developer is the one making all the design decisions based on personal opinions, knowledge perceived from two different actors which is the salesman and project manager and experience (D’Anjou, 2011). However, the problem of this concept is that the qualified knowledge of the needs of a client is not always comparable to the understanding of the interest of the client (D’Anjou, 2011). These preferences cannot not be improvised by the designer without knowing the actual interests of the client such as values and wishes of the client (D’Anjou, 2011). The clients vision must be taken into account to fully understand the client’s preferences since every client is a person with a unique history (D’Anjou, 2011). Therefore, the issues of having different people in different stages trying to understand the preferences of the client makes it harder for the actual preferences, values and wishes reaching the front-end developer since he perceives modified information at a late stage.

Front-end developer 1 explains that he prefers to work with code although it takes more time in the beginning. This is where one of the main characteristics of design thinking is being used by the front-end developer by being optimistic and not seeing the difficulties within the possibilities of a process (Brown, 2008). If an alternative solution is better than the other solutions, the better solution will be chosen no matter how many constraints it has (Brown, 2008). The consequence of this action is that the outcome of the project would be easier for the front-end developer to implement later since he then has a skeleton as well as refining his own expertise in html coding. But the primary result of using design thinking is that it creates a freedom and nurture for the design thinker to evolve what they do best (Brown, 2008) that is to create an innovative solution.

During a project both project manager divides everything that is going to be done within a project in various activities distributed to the developers describing what is going to be done in every activity. This means that the information that the front-end developers get is based on the vision of the project-manager that depends on their understanding on the vision of the client. This means that every person involved create their own understanding on a project that might not necessarily meet the expectations of the client.
One of the project managers explain that when he has a design dialogue with the client he listens to the needs of the client, in order to proceed with the information to the front-end developer who will perform the task. Project manager 1 adds that whenever questions surrounding a project occur from the front-end developers, she usually does not have a direct answer (Project manager 1, 2017). This statement suggests that the front-end developers have different questions that they need an answer on in order to provide a developed solution for the client. This suggest that the information received from the project manager, salesman and client is not enough in the beginning in order for the front-end developer to start on the project. This is an issue that depends on the different interests within the communication that occurs with the client on different stages. Since it is of importance to that ask the right kind of questions because it often determines the success of a new product or service (Brown, 2009), the questions of the front-end developers need to be brought at the primary stage of a project in order to start the project right away and not delay the project by waiting for an answer of the client at a late stage.

She further explains that not having a direct answer most likely depends on the fact that she was not involved in the sales process of the project. As mentioned above, the project manager acknowledges the issue of not being involved within the primary stage of the project, which is also applicable to the front-end developers’ situation since they are brought in at the end stage of a process.

Both of the salesmen are not engaging any further during a project which becomes an issue since the salesmen are the ones possessing the primary information that was agreed upon with the client which the project manager and front-end developer are simultaneously trying to understand while in the development phase of the process.

5.1.3 Issues within a project

The front-end developer (Front-end developer et.al., 2017) both had issues regarding meeting the clients’ expectations. Front-end developer 1 (2017) explains that the issues occur due to the client not being aware of the technical terms that are being used within a project. It is common that front-end developers and clients communicate differently (Buchanan, 2002). This is a problem that might not be solved right away, and issues like this are certainly always going to occur when to different personalities with different backgrounds interlock (Buchanan, 2002). Especially between front-end developers and clients where one of them comes from an IT background with technical based communication which often might seem as code for clients
that are unfamiliar with the business work in general (Buchanan, 2002). A way of preventing these sorts of issues, there needs to be a translator between the two in order to make it easier to understand each other better (Buchanan, 2002). In order to solve these issues there needs to be a translator between persons with dissimilarity within their communication (Buchanan, 2002).

Front-end developer 1 (2017) describes that these issues result in on-going re-makes of drafts due to not understanding each other. Front-end developer 2 explains a similar issue within his projects. Literature review tell us that there needs to be a further investigation in the words used between front-end developers and clients in order to understand the difficulties within their communication. By doing this, Buchanan, (2002) suggests that this might resolve difficulties such as not understanding each other, being unsure about what the other person means. According to Buchanan (2002) the consequence of this would be a time-saver for the front-end developer that now has the opportunity to spend less time trying to work out a communication difference in order to spend more time on creating, developing new ideas, thoughts and designs. However, since investigating the words used within the communication might not be enough to avoid re-makes of drafts within a project, there needs to be a complement that aligns the front-end developer with the expectations of the client before starting the project.

Front-end developer 2 (2017) describes that clients sometimes expects the front-end developer to create a re-make of draft, knowing exactly what needs to be done, by telling the front-end developer that the first draft was not good enough, without a further explanation of what they want instead of the first draft due to the difficulties within the communication. These preferences can not be improvised by the front-end developer without knowing the actual interests of the client such as values and wishes of the client (D’Anjou, 2011). The problematic views of this concept occur whenever design involves interaction (D’Anjou, 2011). Therefore, the issues that occur during this stage in the process, are that the client is treating the front-end developer as if they did something wrong in the first place, therefore, they are obligated to correct their mistakes, according to the wishes of the client, without telling the front-end developer what they prefer instead. This might be caused of the fact the client might have told their preferences to the salesman or the project manager earlier within the process, therefore, does not feel like they need to repeat themselves again. On the other hand, the cause of the clients’ behaviour could also depend on believing that the designer has the professional knowledge that is of value for the ongoing project and by relying on the authoritarian character the client supposes a guarantee of result (D’Anjou, 2011). Either way, it is a situation that might end up affecting the outcome of the project highly negative.
Front-end developer 2 (2017) further explains that a dialogue with the client during the project are somewhat of a balancing issue of work for the front-end developer and prefers that the project manager has that dialogue instead. Front-end developer 1 (2017) feels like the dialogue between himself and the client is time-consuming as well as not gainful for the rest of the project. Another issue that was brought up by the front-end developer 2 was that he preferred not to have dialogues with the client since he was not able to stop the needs of the client due to the time-limitations within a project. According to Tomassetti (2015) for some front-developers’ a near relationship with the client might become a stressful issue in their working flow, that can affect their project negatively. The stress that the front-end developer has on a daily basis is due to the technical challenges that they face (Tomassetti, 2015). If this would be combined with the collaboration of client-developer relationship concept stated in the literature review, it would suggestively mean that the front-end developer now would become constrained by the reality of technical difficulties, as well as the difficulties in communication with the client. Since a solution to this could be the implementation of project managers whom are trained in communication that could ease the relationship, this would reduce the burden for the front-end developer. As communication being the important skill of a project manager, this suggests solving the stressful issue for the front-end developer, that can now focus on the work of the project at stake. However, implementing a third actor that acts as a translator, would require three different personalities to interlock which increases the levels of miscommunication that might result in frustration and confusion due to not having the same vision (Buchanan, 2002).

The front-end developer 2 (2017) explains that the client usually is promised to get completely different things than what they paid for which is work that takes allot more time to develop than the time the client has paid for which ends up making both the client and the front-end developer frustrated. Project-manager 2 (2017) explains that it is difficult to determine where the limit goes for what should be done in a design and align one-self with the clients’ vision. He adds that it depends on the lack of communicated information from the beginning of the project. This suggestively depend on the fact that the primary estimated agreement it stated in the beginning of the process regarding only the salesman and the client where neither the project-manager nor the front-end developer is involved in. This results in frustration for the front-end developer stating that the project is wrongly estimated since it takes more time to develop than what was agreed upon. This would suggestively be solved if the project-manager and front-end developer was brought in at the sales process of a project.
Both of the salesmen (Salesman 1 et al., 2017) explains that the issues within the process depends on design being extremely difficult to sell due to being abstract and subjective. In addition, both of the project managers (Project manager 1 et al., 2017) describe that the difficulties that occur in the process depend on design being a heavily subjective subject which is difficult to sell. Due to the fact that design communication happens through highly abstract stereotypical terms, a tangible tool is needed in order to work as a boundary object with the purpose of containing a shared language. Consequently, by managing the boundary object, it is possible to maintain logic between different persons. By creating boundary objects the result of this would be that both the autonomy and communication between different social worlds would maximize (Star et al., 1989).

Salesman 2 (2017) explains that Company X is poor on marketing our earlier design work, although having a lot of data that could be used for marketing purpose. He adds that it is difficult to sell in a design to a client, when Company X does not tense their muscles and show of what they are capable of developing in design (Salesman 2, 2017). Since there are traces of Company X not acknowledging the design process as a process the consequence of this is that companies that do not have an implemented structured design process, eliminates the potential business success opportunities (Eleven lessons, 2007). Through implementation of an acknowledged structured design process within a company, the company can reach a level of business success (Eleven lessons, 2007). This is possible because of the fact that a structured design process, has the opportunity to reach expected results in every managed process that results in reducing time spillage within a project that primary was put to correct the wrongs within a project (Eleven lessons, 2007).

5.1.4 The needs of the participants within a project

Front-end developer 1 (2017) explains that a dream scenario project for him would be if he were given the opportunity to make all the design-decisions himself such as colours, layout etc. He adds that it would require a client who has no ideas at all. On the other hand, front-end developer 2 (2017) describes a dream scenario project as a project where the client knows exactly what they want in order to present an exact design that the front-end developer can implement. He adds that it would require a deep dialogue in the beginning of the project so that the client and the front-end developer is on the same path at the very beginning of the project. The needs of front-end developer 1 (2017) are similar to the paternalistic client-developer relationship concept, while the needs of front-end developer 2 are similar to the client autonomy client-developer relationship concept. This suggests that none of the front-end developers prefer
to work as theory suggest which is according to the collaboration of client-developer relationship concept. This can be caused of the fact that both of the front-end stated that they do not prefer to work as near with the client which is the opposite of what literature review suggests in order to maximize the results of a project. However, since every front-end developers’ way of working is unique, an implementation of a model imported from theory, might encounter challenges to the actual ways of the front-end developers’ way of working in reality (Cross, 2011). Consequently, if implementing a certain client-developer model to a real-life situation, would require the front-end developer to work in a certain way that they would not be comfortable with, which eventually would lead negative results of their projects outcome.

Salesman 1 (2017) describes his dream scenario project as a project where he is given a list or a category tree on a page containing references from Company X’s earlier design projects. He refers to the page as a portfolio of Company X and adds that it would ease his design selling and be used by the clients as a tool that show off different design projects that would preferably lead to wider dialogue about design with the client. Salesman 2 explains that a portfolio could be useful where the client could build their vision by referring to our earlier design projects which would be easier for him to estimate since they are projects that has already been estimated. Similar to the statement of Mozota (2006) there is a link between a differentiator which is explained as a source of competitive advantage on the market as for example an implementation of a portfolio, which creates competitive rationality by embodying a market value, client value, brand value (Mozota, 2006). In addition, the usage of a portfolio that would additionally act as a shared language, would maintain logic across intersections between different people since the portfolio would contain visuals that are easier to comprehend than abstract words used in design dialogues. Via storing a complex range of all concerned world and letting each world participate in abstract needs in an object that suits them, this would eventually improve the communication between different actors within a process such as within the design process of Company X.

5.2 Features of the tangible tool

The results of the online co-creation session were ideas of features displayed in figure 9 that the tangible tool would contain in order to align the front-end developer with the expectations of the clients. The ideas of features that were included formed the concept of design portfolio of Company X. These features are what needs to be included of a tangible tool in order to align the front-end developer with the expectations of the client.
According to the professor in management science Mozota (2006) there is a power of creating value within companies by design management. When explaining the four powers of design she mentions the first one being design as a differentiator which is explained as a source of
competitive advantage on the market as for example an implementation of a portfolio which creates competitive rationality by expressing a market value, client value, brand value viewed by the market (Mozota, 2006). Since the ideas of features were developed by the different actors within the design process, it can be argued that the choices that they made during the co-creation session were based on their own needs and requirements of a tool similar to a boundary object. The word boundary object is explained as an analytical exploring several intersecting social worlds, as well as satisfying the requirements of them (Star et al., 1089 which was done during the co-creation session.

Due to the fact that design communication happens through highly abstract stereotypical terms, the portfolio will act as a shared language in the communication between front-end developers and client throughout the potential design-process of Company X in order to create a shared understanding between front-end developer and client. The portfolio is also needed because of the fact that it improves innovative performance through design thinking since the design thinkers are now involved in a project that is to evolve ideas of a portfolio at an early stage where they have the freedom and nurture to be creative.

As stated in the previous section there a several factors of why a tangible tool is needed. In order to improve the communication between front-end developers and clients at Company X and to align the expectations of the client the tangible tool will work as a complement solution within the potential design process of Company X. However, in order to do so, a discussion about the implementation of the design portfolio in the current design process of Company X, is required.
A further description of Figure 8 as a potential map on the design process of Company X if a portfolio were to be implemented is presented below.

Before the client contacts Company X the portfolio can be visited or presented by the salesman if the client is unaware of the portfolio. The portfolio at this stage is intended to act as a shared language in forms of visuals between front-end developers and the client/viewer.

The next stage within the design process is before a project where the communication between client and salesman occur. At this stage in the design process the portfolio is intended to improve the communication between salesman and client due to both of them now being able to refer to visuals that are not as abstract as the highly abstract terms that are being used today. The portfolio is therefore used in order to make a non-abstract estimated agreement based on visuals design features.

The third stage within the design process is where the project manager uses the portfolio in order to understand the estimated agreement to further on define what is to be done in activities. The portfolio at this stage is intended to improve the descriptions of the activities that the front-end developer receives that are now aligned with the expectations of the client due to the estimated agreement was based on visuals in the beginning.
The fourth step within the design-process is where the portfolio is used by the front-end developer as a guideline during development in order to align oneself with the expectations of the client due to basing design decisions on visuals agreed upon in the beginning of a process.

The potential map on the design process of Company X shows that the portfolio will reach the client before the client contacts Company X. Since the features of the potential portfolio is developed by design thinkers, the client will potentially use the portfolio in order to create a design vision based on the information presented in the portfolio. Therefore, the usage of the portfolio at this primary stage is intended to act as shared language between front-end developers and clients. By making the client aware of technical terms, highly abstract design words, surveys colours and more features presented within the portfolio, the organization will use the portfolio to nudge the client in order to think in a certain way. Organizations that strive for expanding economically can benefit from using nudges within the corporations internally and externally (Thaler et al., 2007). Therefore, the theory of nudging could be a possibility of précising the clients’ way of thinking in order improve the communication between client and front-end developer to further on align the front-end developer with the expectation of the client. The results of the interviews suggested that the clients use visuals attempting to explain their vision similar to what front-end developers prefer to do. Front-end developers use visuals to prompt their mind-sets, ideas and concepts which works as a simple and familiar complement to making the client or any viewer understand the concepts that the front-end developer has in mind (Brown, 2009). Therefore, it is highly likely that the portfolio will be usable by different actors within the design process and most likely improve the communication between front-end developer and clients at Company X. Primary sketch of the portfolio is presented in Appendix 5 as portfolio sketch which is based on the results of the co-creation session, the results of the interviews as well as on the discussion in this thesis.
6 Conclusion

How can the communication between front-end developer and client in the design process at Company X be improved? In order to improve the communication within the design process at Company X an analysis of it was made which resulted in insight of the design process of Company X. The map of the design process of Company X displayed as figure 6 in the previous chapter showed that front-end developers are brought in at a late stage in the process. The consequences of this has shown to be frustration (Zimmerman et al. 2007). The frustration for the front-end developer (Front-end developer et al., 2017) at Company X occurs when the suggestions of solutions, are not aligned with the expectations of the client because of the fact that the front-end developer was brought in at the end of a development process (Zimmerman et al. 2007) and also because the front-end developer is provided with altered information about the project due to the data going through several actors before reaching the front-end developer.

To sum up the theme: Current process of Company X, it can be argued that the front-end developer and client communication happens at a late stage of the design process which causes different issues depending on several causes.

The current process of Company X also limits the contribution of front-end developers to simply appearance since they are brought in at a late stage within the process. By limiting the front-end developers, the organisation limits the use of design thinking. Since design thinking is limited and not acknowledged as critical thinking and included frequently, early during different processes in order to achieve contribution of innovation, the organisation excludes the opportunity of innovation in multiple dimensions.

According to the analyzes of the current process of Company X, it can be argued that the design process of Company X lacks a structured design process which affects the design management of Company X poorly. By not having a structured design process within the organisation, Company X excludes the opportunity of benefitting from business success according to literature review. In order for Company X to benefit from business success they need to accept design activities as a process, start using design resource as a differentiator for competitive advantage, understanding the management of the design process and implementing systematized thinking in the design process by implementation of a design manger as well as a design policy. By implementing a tool such as the portfolio, Company X will be on the path of benefitting from business success since a portfolio is an example of a design resource as a differentiator for competitive advantage in the market. By using the method co-creation session
when coming up with different features for the prototype of the portfolio tool, this allowed the participants to use design thinking in order to come up with innovation in multiple dimensions.

While prototyping during the online co-creation session the participants involved were given the opportunity of unlocking imaginations to abstract form, back and forth, which is essential for opening up for new potential opportunities (Brown, 2009). The features that they included formed the concept of a portfolio which tell us that the communication between front-end developers and client depend on the tool both of them could use in order to act as a shared language between the two. Since a portfolio is a way of presenting earlier work by visuals, the shared language between front-end developer and client would become visuals. By doing this it is achievable to provide logic to different persons of different social worlds (Star et al., 1989). The results of the interviews suggested that the clients use visuals attempting to explain their vision similar to what front-end developers prefer to do. Front-end developers use visuals to prompt their mind-sets, ideas and concepts which works as a simple and familiar complement to making the client or any viewer understand the concepts that the front-end developer has in mind (Brown, 2009). Therefore, it is highly likely that the portfolio will be usable by different actors within the design process and most likely improve the communication between front-end developer and clients at Company X.

The issues within the occurring communication affects the different actors within the design process of Company X as well as affecting the design projects outcome negatively. Subsequently, it can be argued that the current design process of Company X is in need of a portfolio containing visuals explanations since visuals are a simple tool to use in order to make a viewer understand which would potentially decrease the levels of misunderstanding one another since it is a straight forward way of explaining ideas and mind-sets in order to improve the communication between clients and front-end developers as well as aligning the front-end developers with the expectations of the client.

It can also be argued that the features of the portfolio need to be used in different stages within the design process in order to act as a shared language in forms of visuals between different actors within the design process of Company X.

### 6.1 Proposals for further development

The proposals of further development for this tool would be to actually develop a portfolio containing the different features in order to test the tool and gain data about the results to further
investigate if a tool based on the needs of the participants would suit Company X. This would be a way of verifying data in the field which is the final step of the grounded theory methodology.
7 References

Agrawal, A. (2017). How to make sure your e-commerce site is getting conversions
Retrieved October 2, 2017, from
https://www.forbes.com/sites/ajagrawal/2017/07/04/how-to-make-sure-your-
ecommerce-site-is-getting-conversions/#fa3372f64770


Retrieved September 8, 2017, from
https://www.fastcodesign.com/3042524/22-things-you-need-to-know-about-apples-jony-ive

Bell, J. (2016). Introduktion till forskningsmetodik. 5(2). Lund, Studentlitteratur AB.


http://www.books.mec.biz/downloads/Harvard_Business_Review_(How_To_Del-
iver_on_a_great_Plan)_N%C2%B0_juin_2008/MzA4NTcxOTM3%20brown%20design%20thinking%20pdf%202008

Retrieved November 15, 2017, from
https://designpracticesandparadigms.files.wordpress.com/2013/01/wk1_c-
ross_designthinking.pdf


Retrieved September 7, 2017, from


Retrieved September 9, 2017 from https://uppkopplat.se/2015/09/18/e-handelsplattformar

Improving Communication between Front-end developer and Client at Company X


Schiff, J. (2017) 7 must-have project management skills. Retrieved november 8, 2017, from https://www.cio.com/article/2389129/project-management/project-management-7-must-have-project-management-skills-for-it-pros.html


Appendix 1 – Survey

SURVEY

1. Define the problem?
2. What is your budget?
3. Who is your target audience?
   - Define and characterize them as clearly as possible.
4. What is your company’s mission and short term and long term marketing strategies?
   - What is the market opportunity?
5. Who is the ultimate decision maker and what is the internal approval process of this design project?
6. What is the key message that you want to communicate to the viewer? (in three sentences or less).
7. What response or call-to-action is needed?
8. How do you define success for this project?
9. What is your time frame?
10. What are people's current opinions of the company/product?
    - Where are its strengths and weaknesses?
11. Who is your competition?
    - Do you need to work with them or in opposition to them?
12. Can you reference any previous successful design solutions or campaigns?
13. Is there a particular approach you would like the designer to explore and why?
14. If you could say only one word about your product or service, what would it be?
15. What differentiates you from your competition?
    - What are some key selling points?
16. What do you not want and why?
17. Do you have any available market research
18. Are there any mandatory requirements for this project that we need to know of?
19. What is the life expectancy of this project?
    - How long is it expected to be effective?
20. Why did you choose our firm?
    - How did you hear about us?
Appendix 2 – Design feelings

DESIGN FEELINGS 1.

Alluring – The design adjective alluring is categorized as a design that acts like a magnet. The magnetism of the design, makes a person not wanting to take their eye off the alluring product, and want to buy it. This is called a magnetic description design. Alluring designs has a way of making the viewer attached as if the object is needed in their lives. Synonyms for alluring are captivating, appealing, charming, enthralling, pur, magnetic, tempting.

Artistic – A way of understanding the adjective artistic is by definition, aesthetically pleasing. The synonyms for artistic are aesthetic, creative, cultured, fine, harmonious, imaginative, refined. Similar segments of the adjective are; alluring, elegant, messy.

Bright - The feeling of the word bright in design is often used whenever wanting something that grabs your attention with light. Synonyms for bright is fixed, colorful, psychedelic, rich, shiny, intense.

Corporate – Corporate means designing for the conservative, but still bringing something new to the table, since everybody likes to see something that isn't out there already. But while doing this, the front-end developer needs to be sure about what the clients audience are, to assure that the “new” corporate design isn't overlapping boundaries. Synonyms for corporate is conventional, moderate, mod, conservative, traditional, classic.

Dark - The word dark should act as a mystery, since darkness is often related to some sort of forbidding realism behind it. Dark design should be experienced as a strong and saint emotion. Synonyms for dark is morbid, ominous, somber, evil, black, drear, gloomy, hidden, mysterious and the related words for dark is messy, obscure, unusual.

Elegant – Elegant is a word that is described as a refined beauty of what society thinks elegance is. The word often relates to describing feelings of an upper-class society where serif fonts are appreciated and wealth is expected. Which the target audience of the client often wants to be a part of. The design style reveals a sense of tasteful perfectionism that is desired. The synonyms for the word elegant is beautiful, classic, delicate, fancy, graceful, majestic, refined, stylish.

FlaHy - The flashy design is described as a “center of attention” style that is bright, loud, powerful. This design is a design that should definitely be noticed by the viewer since it often is “seen as unusual, loud, colorful and extravagant. The design is also a style that the viewer quickly can be tired of, thereby it is suggested to be used only some projects that are time limited, that is expected to not be out in the market for too long. But it is also a style that doesn’t get forgotten quickly which is why it useful for some projects. The synonym for flashy is flamboyant, ostentatious, dusky, gitty, jazzy, showy, shoddy, sawdy.

Gender - In today’s society a gender-specific design can be quickly drawn to an unfortunate disaster specific since it is built upon stereotypes. This is where the front-end designer needs to explain for the client that the design should be built upon stereotypical clichés since the specific gender-aware design should be excluded in a design. It is the front-end developers job to educate another way of communicating a certain feeling of their message by showing them options that they might not have thought of before.

Historical - A historical style is interesting to be an antique legendary design which want to explain that the product at stake has been around for decades with allot of experience from the past. This does not mean that the design is that developed shouldn't be something new with a touch of history in it. Synonyms for historical is archival, classical, factual, old, antique, memorable, nostalgic.

Humorous – This type of design is explained as lighthearted that doesn’t take everything too seriously which is cherished, operative and trendy in today’s society. To make a target audience laugh and feel entertained a way of making them remember your product and often tell others about it which is a bonus. Synonyms for humorous is amusing, comic, hilarious, lighthearted, laughable, whimsical, witty.
Improving Communication between Front-end developer and Client at Company X

DESIGN FEELINGS 2.

Innovative - A innovative design is style that strives to be something new that isn’t out in the market yet. The design rules are often broken when designing something innovative, and the client should be warned that the innovation often costs more to be developed. In a innovative design the pressure is on the front-end developer to understand what the client means to say instead of what they’re actually saying, since an innovative design will still be judged by the client, that needs to be happy with the innovation. Synonyms for innovative is avant-garde, contemporary, cutting edge, modern, inventive, new, revolutionary.

Juvenile - A juvenile design is likely to be a childlike inspiration design. The usage of bright colors, bold lines that draw attention is common in this sort of design. The synonyms for juvenile is childlike, adolescent, fresh, infantile, naive and undeveloped. Loud – The intention of a loud design is to be noisy, important and forceful. The synonyms for loud is boisterous, brazen, emphatic, heavy, bold, intense, resonant, strong.

Messy - The messy design is cluttered, chaotic style that should only be used if the product is clear, or else it wouldn’t be easy to understand the messy design of it since it should feel messy, only look messy with a really clear message of product. Synonyms for messy is cluttered, dirty, chaotic, disordered, sloppy, unkempt.

Minimal – A way of explaining minimal is with the cliche sentence; Less is more. The basics of this sort of design is to use minimalist ways of displaying elements by keeping it simple. Synonyms for minimal is basic, essential, fundamental, clean, small, nominal, basal.

Natural – A natural design is often used whenever trying to reach a raw, organic outdoor feeling with the colors of mother nature. The decision of nature should be discussed with the client, to reach a certain type of colorscheme depending on which nature the client wants to use. Earthy pigments are commonly being used when developing a natural design. However it is the front-end designers job to explain for the client that this sort of design can often be displayed as unpolished. Synonyms for natural is agrarian, native, organic, plain, pure, raw, unadorned, unpolished, wild.

Ornate - The opposite of minimal is an ornate design whereby every empty spot is decorated or embellished. This is a major warning sign to the front-end developer to always contain balance within this sort of design for a rich result. Synonyms for ornate is elaborate, flamboyant, gaudy, lavish, ostentatious, rich.

Powerful - The word powerful is often intended to be of an authoritative character with a large amount of force within every displayed element in the design. Synonyms for powerful is impressive, persuasive, authoritative, compelling, convincing, dynamic.

Quick - A quick design is a design that takes the quick decisionmaker in account. A buyer that base their decision quickly don’t have time for nonsense, which requires for the design to be a brief that the consumer is satisfied with. Synonyms for quick is active, brief, fast, fleeting, immediate, instantaneous, swift.

Soft – A way of explaining a soft design is by thinking of something that is quiet, pleasing and calm. Synonyms for soft is delicate, faint, light, melodious, muted, passed, quiet, soothing, whisper.

Retro – A combination of the past with a innovative spin of the feature is a way of explaining a retro design. Synonyms for retro is past, nostalgic, reminiscence, retro adventure, old, dated.

Warm/cool – By using the words warm or cool u want the design to make the viewer feel a certain way. The way of designing a warm or cool style is mainly by using warm colors such as red-based colors or cool colors such as blue-based colors. Synonyms for warm is emotional, excited, happy, intense, passionate, pleasant. Synonyms for cool is arctic, frigid, refreshing, calm, quiet, placid, relaxed, serene.

Extreme – This design is based on the extremes of thrillseekers, it is also common to find these types of design in the athlete section. The synonyms for extreme is intense, maximum, ultimate, extraordinary, action-oriented, athletic.
Appendix 2 - Interview

Questions asked to front-end developer 1

- What does a normal working day look like for you?
- Do you judge which projects are prioritised?
- How many projects are you involved with?
- Are you involved in 5 different projects in one day?
- How do you receive a project?
- These projects you’re currently working on, do you come up with your own ideas or are
  the sketches that you follow?
- How do you create your own idea for the client?
- What do you prefer to work with, photoshop or static HTML sketch?
- How would a dream scenario project look like for you?
- What had been required for it to happen?
- How would you like to persuade the client to do the design in your way?
- Have you ever a dialogue directly with the client?
- How does the mail dialog look like with the client?
- Is this dialogue today mainly through the project manager?
- When you get “feedback” from the project manager, how can this feedback look like?
- What terms are used in the feedback?
- So the terms used in “feedback” are not like the regular terms we use on the company
  among us?
- Have you encountered any problems regarding ideas you have developed?
- What does this depend on?
- Is time a constraint within a project for you? Do these affect you?
- How can this development of a “serious” design look like?
- So In that project did the client trust you?
- Have you experienced something tough within the design development process?
- Okay, so that client knew exactly what it wanted?
- How do you explain this to the client?

Questions asked to front-end developer 2

- What does a regular working day look like for you?
- How do you know when a project is complete if you do not go to the project manager?
- What does a very ordinary project look like for you?
- Is it common that a dialogue between you and the client takes place in a larger project?
- Has it happened that you have made a proposal for a client that you present?
- How did you come up with a proposal, what did you base your proposal on?
- What does a responsive project look like?
- What information do you usually get from the project manager and the seller on such
  projects?
- What information can it be for example?
- Have you encountered problems in any of your projects?
- Why would say that these problems occur?
- You say that communication is flawed, but does a communication between developer
  and client occur?
- Do you think we could have avoided these problems in any way?
- How would a dream scenario project look like for you?
- How many dialogues have occurred between you and your clients?
- What are the terms used in such dialogues?
- For what reason?
- What’s the hardest way to work as a front-end developer in the design process?
- What is the hardest thing to work with as a front-end developer in relation to a client?
- Has it happened that you have been on a project in which everything depends on
  the communication between you and the client, in order to proceed with a project?
- Could we have simplified that process in any way?
- Reminds a bit about the series with the swing. Do you know what I mean?
- What do you think if a designer / front-end developer had been in the conversation with
  the client that the seller is already in the beginning. Do you think it had given a different
  result?
- Would you say that we front-end developers speak visually better than via words?
Improving Communication between Front-end developer and Client at Company X

Questions asked to project manager 1

- What does a standard project look like for you?
- How long can such dialogue with the developers last?
- What kind of questions are the developers mostly asking?
- Have you ever known to disturb front-end developers when you reach them and have that dialogue with them?
- How do you think you could solve this problem?
- Let's move on with the design process. When would you say that the design process appears for you in a project?
- What design information do you usually get from the seller of the project or project manager boss?
- Do you think you could have visualised something that is "carved in stone" from the beginning as you show to a client?
- Would you say that the sketch where the client shows something visually carved in stone, must be done even earlier than the project management phase? maybe even before the sales process, so that the seller can then estimate something new?
- What are you limited to in the design dialogue between you and the client?
- Let's say you get a design project, how do you divide that project into the resources available at the company?
- So, you do not base your projects on the design expertise your resources possess?
- What are your thoughts about the idea that the norm in the company becomes to work out a transparency between front-end developers and project managers where it is ok to speak in open spaces about the "qualities" of the various front-end developers?
- Do you see it as something positive, could you have been involved in a similar process?
- If transparency in the design process would occur, what would it mean for the project leaders role?

Questions asked to project manager 2

- What does a standard project look like to you as a project manager?
- Has it been difficult for you to get the information required from the seller or the client, to then pass on the information to front-end developers?
- Has it been difficult for you to get the information required from the seller or the client, to then pass on the information to front-end developers?
- What do you think about this sort of design information being determined from the client before reaching sale?
- How do you respond to the client in these situations?
- When you choose which resources to do what in a design project, what depends on that decision?
- Would you say that transparency exists today at the company between for example front-end developers and project managers?
- What did you think about a design project had been divided into different parts, where front-end developers would work in teams instead of working alone?
- Have you ever felt that you are disturbing front-end developers when you reach them to have a dialogue about a new project?
- What are you thinking about making transparency a norm of the company, where it is common for you to raise a front-end developers excellence so that it might even reach the clients knowledge?
Questions asked to the salesman 1

- What does a standard project look like to you as a seller?
- Would you say that clients are less interested in the design bit on their e-commerce?
- Are they more willing to spend money in case of functionality?
- When you enter phase 2, that is the design dialogue, what is the most common dialogue with the client?
- Has it ever happened that clients use inspiration pages from our own references at the company where we have developed a design to any of our clients before?
- What do you usually show to the client of our own references?
- What would facilitate your work to reduce these occurring problems?
- Do you think it would have made it easier for the client to choose design if we had presented the price too? Or would it only be helpful for you to know how many hours a certain design project has taken internally for us to create earlier?
- How do you estimate design time?
- How would you experience a set price list on different designs we’ve developed?
- How would a wish scenario dialogue with the client be set for you?
- How would it facilitate your work as a salesman to nudge the client’s decision?

Questions asked to the salesman 2

- During which phase would you say that design appear in the dialogue you have with your client?
- What does the dialoq look like with one of your “hazy clients”?
- How do you estimate a project?
- Is there any way of making the current dialogue easier for you if implementing for example a portfolio?
- What do you think of a portfolio that shows different elements of an e-commerce instead of displaying entire pages at a time, would such a portfolio facilitate your work with the client or complicate your work with an overly complex tool?
- How does the client explain what it wants in design?
- What would be a dream scenario for you?
Appendix 4 – Online Co-creation introduction

Online CO-CREATION Session - Bachelor Thesis

Hey participants! Feeling confused? It is expected, HOWEVER confused human beings only generate cooler ideas. This session is not too serious, grab yourselves a warm cup of coffee and let me explain what is expected of you during this session that will take a maximum of 10-15 minutes for each one you.

This is a online co-creation session where we together as a group of participants input with our wildest and craziest of ideas in order to create a tangible tool. The aim of this session is to reach the child in you that goes bananas with innovative ideas, BUT WHY? Well, primarily because this is a part of my bachelor thesis which YOU participated in. During the interviews problematic views within the design process of the company were explored, which YOU now have the opportunity to solve. By generating ideas that could be used as features in the tangible tool that are CRAY, FUN, INNOVATIVE or “WHATEVER YOU FEEL LIKE” we will develop a first stage prototype together by this co-creation session. Did I hear someone think ‘BUT WHY ON EARTH DO WE NEED A TANGIBLE TOOL?’ Sit back, and enjoy the show while letting me demonstrate the occurring issues within the paradoxes between real life and theory.

The problematic paradox:

“Real life observation tell us that front-end developers prefer not to talk to clients before and during projects since it interrupts their work. On the other hand, theory tell us front-end developers should be included at the start of a project and have a dialogue to level up the end-results. However, since this becomes a paradox, we need another way to solve this issue. Since we cannot force the front-end developer to have a dialogue with the client as well as not avoiding the dialogue between the client and the developer; A tangible tool is needed in order to act as a shared language between the front-end developer and the client, presented at an early stage within the design-process.

The tangible tool is a way for the front-end developer to talk to the client visually by explaining their design capabilities of Company X without interrupting their work. The tangible tools usage by clients aims to become a replacement of the first design dialogue, and hopefully the tool will reach the client before the client contacts the salesman of Company X. Furthermore, the purpose is also to make the client familiar of the design-process at Company X in order to avoid misunderstandings during the projects as well as attempting to align the front-end developer with the expectations of the client.

Lot of info? don’t worry. I only need YOU to focus on ONE thing from now on. See these post its down below? Some of them contain features and some of them are empty. YOUR job from now on is to come up with even crazier ideas of features that could be implemented in a portfolio for eValent. There are no rules, therefor it is possible for YOU to add ideas to an already existing one and so on. Good Luck and GO BANANAS!

What features need to be included in a tool in order to align the front-end developer with the expectations of the client?
Appendix 5 – Portfolio primary sketch