Design for Innovation in the World of IT

A case study of Dropbox & LinkedIn
by Malin Olsson & Sofia Stenfors

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Abstract

BACKGROUND. Along with globalisation and the rising competition in the world, constant innovation has become a necessity for survival. Design has been shown to foster innovation in many different ways, but the research about design in relation to innovation is fairly new and the relationship between them is not yet clear.

PURPOSE. The purpose of this study is to contribute to the field of business and design by studying the relationship between design and innovation in two IT companies. The objective is to research how these companies define design and innovation, how they work within these disciplines and how they are connected.

METHOD. This thesis collects its empirical data through case studies of the companies Dropbox and LinkedIn. The purpose is fulfilled by comparing the empirical findings with previous literature and theories in the field of design and innovation.

RESULT. The result shows two design conscious IT companies, applying a user-centered approach to innovation rather than a technology-driven, which is more common within the IT sector. Innovation and design are seen as a mindset of creativity integrated in the whole organisation through the culture and workplace design.

KEY WORDS. Design, Innovation & IT company

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1. Introduction

In this chapter we will introduce the research field about the relation between innovation and design, as well as the objective of this thesis. First, the background of the field will be presented, followed by our chosen focus of research and finally purpose, research question and definitions.

1. Introduction

Innovation has rapidly spread over the world during the past decade, and landed on the desks of business managers. It has become a buzzword, and is said to be one of the main business challenges of tomorrow. Recent studies reveal that today's key factor for long-term success is the ability to create new ideas and capture the creativity of the employee's (Brooks, 2013; DDI and The Conference Board, 2014). As the market keeps changing at a high speed, along with the rising competition, constant innovation has become a necessity for survival (Brown, 2008).

Design has been shown to foster innovation in many different ways (Cooper & Press, 1995; Brown, 2008; Verganti, 2009; von Stamm, 2004). It brings creativity into an organisation (Cooper & Press, 1995; Brown, 2008) and makes the products stand out in terms of usability, aesthetics and meaning (Verganti, 2009). Design has also been described as an integrator for innovation within the culture (von Stamm, 2004) and even as a contributor to social innovation (Emilsson, 2010).

Nevertheless, the relationship between design and innovation is not yet clear, as both terms can be defined and applied in several different ways. This thesis takes a new focus on the design and innovation research, but to explain how, we need to go back in history, to the beginning of when design and innovation were related to each other for the first time.

1.1 Background

The research around the relationship between design and innovation is quite new. It was as late as in the eighties, that one of the first articles to mention design in relation to business performance was published. The management scholars Kotler and Rath (1984) wrote about "Design: A powerful but neglected strategic tool", and argued that design should be considered as a strategic tool for companies to increase their competitiveness. Typically, scholars referred the creative contribution of design directly to the research and development (R&D) department, and in particular it was the design methods that were considered valuable (Gorb, 1987). A common view back then and up until today, was that innovation was recognised as new technological solutions for a product or a manufacturing process, restricted to R&D, with the aim to enhance performance as well as usability, and to decrease costs (Gorb, 1987; Rampino, 2011). It was not until the early nineties that the idea about innovation arising from the customer, hence being market-driven was recognised (Rampino, 2011).

In the mid nineties the corporate world was strongly challenged by the increasing globalisation and the importance of sustainable development, and hence competition was getting harder. Innovation was a buzzword in the literature (Jahnke, 2013) and around the millennium there was a "relevance crisis in management research", when companies realised that the advices from consultants and managers trained in business schools had little effects on profit (Boland & Collopy, 2004). Design thinking was introduced as a human-centered approach of innovation to solve the "wicked" problems (Rittel & Weber, 1973) or the complex and open ended problems of today's reality (Brown, 2009). It has been seen as a solution to the management crisis, and as a concept that quickly was picked up in the literature and studied by several scholars (i.e. Edeholt, 2007; Brown, 2008; Martin, 2009; Paton & Dorst, 2011).

After the millennium shift, research concerning the relationship between design and innovation got up to speed and several different roles have been

described since then. The focus on technological innovation and R&D has changed and developed into rather looking at innovation as a mindset integrated in the whole organisation (Stamm, 2004) and design to be at the heart of a company for increased competition and innovation (Gardien & Gilsing; 2013). The role of design in relation to innovation has been described as a knowledge agent (Bertola & Teixeira, 2003), design thinking (eg. Kelley, 2001; Brown, 2008) and design as meaning making (Verganti, 2006; Rampino, 2011; Jahnke, 2013; Gardien & Gilsing, 2013).

In the mid noughties creativity had even found its place in EU contexts, as an important driver for social and economic development. Design as well as design thinking in companies and the public sector were expressed as the key to innovation (Jahnke, 2013). In the beginning of 2013, a project named Cre8tv.eu was kicked off, with the aim of "unveiling creativity for innovation in Europe" (Cre8tv.eu, 2015) . Eleven leading innovation research centres in Europe was gathered to study creativity as "a fundamental transformation mechanism of the European economy" (CORDIS, 2015). One of the research themes was to understand and model creativity and design.[1] The project is still running today, and will be finished by 2016, when the research will be summed up into EU policies. Innovation and design is clearly of great importance in the future development of economy and further in today's society and something we need to gain a deeper understanding of.

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[1] This thesis is part of the project, to contribute to the understanding of design and innovation.

1.2 A gap in the research

The relationship between design and innovation within the IT sector has been poorly explored. What can be found in the literature is Gemser, Jacobs and Cate's (2006) study "Design and Competitive Advantage in Technology-Driven Sectors: The Role of Usability and Aesthetics in Dutch IT Companies", focusing on innovation in the new product development process, and regarding design as important because of its usability and aesthetic aspects. They found that the IT service companies that are not design conscious, may have a weaker competitive advantage on the market, where the competition is increasing as IT technology and functionality is becoming standardised. Therefore, IT service companies have to come up with other ways to differentiate themselves, and are in need for a design dimension (Gemser et al., 2006). Regarding service providing young IT companies, no previous research can be found.

1.3 A new focus

The focus of innovation and design studies has traditionally been on R&D and technological innovation, but more recently design has been shown to contribute in other parts of a company as well (Hobday, Boddington & Grantham, 2012; Gardien & Gilsing, 2013). The diverse roles of design needs to be further explored, particularly in different industries, as well as the role of design in economical contexts (Hobday, Boddington & Grantham, 2012). Furthermore, the main focus of previous research has been on the development of new tangible products, while many researchers (eg. von Stamm, 2003; Candi, 2007) have shown that the importance of services are increasing in the economy. Thus, the spectrum of design and innovation studies needs to be widened; the role of design for innovation in relation to services needs to be further explored and especially the young IT companies in this context needs to be discovered.

1.4 Purpose and research question

The purpose of this study is to contribute to the business and design research field by studying the relationship between innovation and design in two service providing young IT companies. The objective is to research how these companies define design and innovation, how they work within these disciplines and how they are connected. The research questions is therefore:

What is the relationship between design and innovation
in two young IT companies?

The research question can further be divided into the following sub questions, that will help us to answer the main research question:

1. How do the companies *describe* the terms innovation and design?
2. How do the companies *work with* innovation and design within the company? (in terms of *approach, process* and *culture*)
3. How great *strategic importance* does design and innovation play in the companies?

1.5 Delimitations

The study is limited to cover young IT companies providing online services. The common knowledge is that IT companies mainly cover design practices such as graphic design, interaction design and service design, but we have taken a broader approach on design in this thesis, beyond design restricted to only the professional designer. Since our thesis focuses on the relationship between design and innovation, our literature will not cover all innovation and design studies but mainly literature and research that examine when and how the aspects are related to each other. To fully explore the different roles design can possibly have for innovation, we have considered design as something intangible, as a process of working and thinking. For that reason, we have taken a broader approach than just looking at how the professional designers are working in their specific design processes, which many studies already have done. We have instead explored how employees from different departments understand design and innovation, as well as how the company

works overall with design and innovation. The research has not covered the whole company, but a fair amount of departments in both companies to assure a good analysis and overview in the scope of this study.

1.6 Definitions

The main terms covered in this study is innovation, design and IT company. They are well known terms, but can be described and comprehended in many different ways and therefore it is essential to define them.

Innovation can be defined in relation to invention; an invention is an idea for a new service or product, while innovation is the first attempt to carry it out in practice (Fagerberg, Mowery & Nelson, 2005). What the term covers will be further discussed specifically in the theory chapter and also analysed throughout the thesis.

Design in the context of innovation, can be described as three things; a tangible outcome, a creative activity and a process where information is transformed into a tangible outcome (von Stamm, 2004). These definitions will be further discussed throughout the thesis.

IT company is defined as a company whose primary business activity is to deal with information technology, such as computer hardware and software. In our specific case both IT companies provide software solutions. In the context of this thesis IT company refers to service providing young IT companies and specifically the new types of IT companies (similar to Facebook, Airbnb and Spotify.)

1.7 Structure of the thesis

The study consists of six main chapters divided into several subchapters. The introduction chapter explains the subject and purpose of the study by introducing background information relevant to the topic, the research questions as well as delimitations and important definitions. In the following chapter a literature review and a theory part consisting of relevant research

within the field and the topic of the thesis is presented. The third chapter presents the methodological aspects of the thesis by presenting the research approach, the sampling, research- and analysis methods, credibility aspects and finally some ethical concerns that we have taken into consideration. The following chapter consists of the empirical result from the field research, by introducing the two cases separately. In the fifth chapter the empirical data is compared to the theory, and further discussed in chapter six. Finally, in the last chapter the conclusion is presented.

1. Introduction

2. Theory

3. Methodology

4. Empirical result

5. Analysis

6. Discussion

7. Conclusion

FIGURE 1: Structure of the thesis.

2. Theory

In this chapter we start with a literature review of relevant research about the relationship between design and innovation. Thereafter, in the theoretical framework, we will describe design and innovation, different ways of working with both disciplines, how they are connected to an organisational culture, and finally the strategic importance of design in the organisation.

2.1 Literature review

Design in relation to innovation was first mentioned in the design management discourse in the mid nineties. For example, Cooper and Press (1995) described the contribution of design to companies as a strategic tool, and pointed out that *designers* bring in creativity to the organisation, since they are educated to be creative, generate original ideas, solve problems and be *innovative.*

Around the millennium shift, the relationship between design and innovation had been picked up by several scholars (eg. von Stamm, 2003; Bruce & Bessant, 2002). At this point product technology was leveling out, and industrial design was put forward as the new way to differentiate oneself and be innovative in the product field (Gemser & Leenders, 2001). Design practice got more recognition in relation to innovation and new roles of designers were discussed. Designers, traditionally seen as creative tools for idea generation, was now also "facilitators of communication", recognised for adding an extra dimension to verbal communication by also communicating visually (Press and Cooper, 2003; Tomes, Oates & Armstrong, 1998). The discussion about design experienced a shift from being described in relation to products, brands and as styling, to also contributing to social innovation for health care and crime prevention (Emilsson, 2010).

Along with the new context of design, the discussion between the two disciplines became wider and the line between innovation and design started to become blurry. For instance Press and Cooper (2003) expressed the two disciplines as complementary and together "the drivers of any successful business" (Press & Cooper, 2003:43). In the beginning of the millennium two books were published, relating design directly to innovation; "Design in business - strategic innovation through design" (Bruce & Bessant, 2002) and "Managing innovation, design and creativity" (von Stamm, 2003). Both books regarded design mainly as problem-solving, and von Stamm argued that innovation and design are part of the same mindset and should be integrated to the strategic development of companies.

After the millennium, the research about design in relation to innovation increased, and has since then developed into many different categories, or ways, of describing the relationship. Among these descriptions there are: design as knowledge agent, design thinking and design as meaning making. In addition to these descriptions there are also certain barriers between the design and the management field that can be found when relating design to innovation. All these will be discussed in the following sub chapters.

2.1.1 Design as knowledge agent

In the article "Design as a knowledge agent: How design as a knowledge process is embedded into organizations to foster innovation" Bertola and Teixeira (2003) present a new role of design for innovation. Through this perspective design is described as a knowledge agent; accessing the knowledge that companies need in order to structure their business developments, in line with the cultural and social changes going on in the world. The challenges for the managers and designers are hence to implement design in a strategical way to be able to obtain and retrieve the knowledge from users, organisations and networks through an effective process, in order to support and benefit innovation in any given circumstance. In other words, design is applied as a strategic competence to develop both product innovations and business innovations (Bertola & Teixeira, 2003). Also Hobday, Boddington and Grantham (2012) have claimed that design should be viewed as more than just a tool for problem solving and be seen as both a knowledge generator and an integration activity.

2.1.2 Design thinking

Design thinking became popular to a broader audience after the design agency IDEO's[2] new approach to innovation was aired on ABC, in a today wellknown clip of a multidisciplinary team reinventing the shopping cart[3]. Shortly thereafter the CEO of the company, David Kelley, published a best selling book about their multidisciplinary user-centered design approach

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[2] http://www.ideo.com/about/
[3] Several versions of the clip can be found on Youtube.

(Kelley, 2001) and the concept of design thinking was picked up in the literature and studied in relation to innovation by several scholars (eg. Dunne & Martin, 2006; Edeholt, 2007; Brown, 2008; Martin, 2009; Leavy, 2011; Paton & Dorst, 2011; Johansson Sköldberg & Woodilla, 2013). It was the first management fashion to point out a less analytical approach to innovation than previous research (Tonkinwise, 2011) and has been described as an approach to solve the complex and open-ended, or "wicked" problems (Rittel & Weber, 1973) of today's reality.

2.1.3 Design as meaning making

Along with design thinking, another intersection of design and innovation has also been growing; design as making sense of objects and the concept of meaning innovation (Verganti, 2006; Rampino, 2011; Jahnke, 2013; Gardien & Gilsing, 2013). Gardien and Gilsing underlines the importance of creating meaning for people, by creating networks and not just products that highlight the importance of technological improvements. According to them, design is the key to creating this meaning for people. Innovation scholars also shine light on the emotional and symbolic aspects of products, and that the meaning of the product, as well as other aspects of design, needs to be continuously "reborn" (Jevnaker, 2005; Rampino, 2011). External designers were recognised to boost this continuous innovation by bringing in a "freshness" to the organisations (Jevnaker, 2005).

The concept of Design-driven innovation was introduced by Verganti (2006), showing how design companies could change old products and introduce them with a completely new experience of meaning to the market. To create this meaning innovation, design was the driver, (instead of the norm of "technology push" or "market pull") and the role, identity and meaning of a product was carefully explored before the form of the object would be considered.

Around the tensies scholars were also exploring aesthetic innovations and how the outer form of a technological innovation influences the customer and her perception of the product's value (Rindova & Petkova, 2007; Eisenman, 2013). Product design is seen as the tool to manage these

perceptions (Rindova & Petkova, 2007), and Eisenman (2013) refers to aesthetic innovations as the change of meaning to the product, by touching the emotions and sensations of the customers.

2.1.4 Design and management barriers

Several scholars have noticed the barriers between design and management when trying to integrate design into the new product development (NPD) process (Berends, Reymen, Stultiens & Peutz, 2010; Acklin, 2010; Goffin & Micheli, 2010; Micheli, Jaina, Goffin, Lemke & Verganti, 2012). Companies with no or little design knowledge have been observed to be "goal oriented and favored a decision-making attitude with a strong focus on effectiveness and efficiency. In these companies, design appeared to be a 'nice-to-have' rather than a 'must-have' factor in the development process." (Acklin, 2010:51). The perception of the importance of design also differs between designers and managers in the new product development process (Goffin & Micheli, 2010) and there is a miscommunication between managers and designers, causing unnecessary conflicts and frustration (Micheli et al., 2012). For example Radon, Sjöman, and Svengren Holm (2013) did a case study on Swedish design companies, and found a gap between the departments of product development, design and marketing. The synchronisation between the different departments was poor and caused frustration to the marketers in charge of the brand platform. The marketing team felt like they could not deliver in time and do a good job, due to the lack of providing them with the right information at the right point of time. Radon et al. further point out that frustration grows as the company grow, when the communication gets less immediate and more formal.

2.1.5 Previous research in the IT sector

The relationship between design and innovation within the IT sector has been poorly researched. However, Gemser, Jacobs and Cate (2006) wanted to explore if the role of design in technology-driven sectors would gain more importance in the near future. Therefore they studied software selling IT companies and how they are working with usability, aesthetics and functionality in the NPD process. According to them the IT sector is often characterised as being technology-driven, which means that companies focus

on client-specific services and that the NPD process is usually dominated by technical and functional requirements. Nevertheless, design conscious companies can be found in the IT sector as well. In contrast to technology-driven companies, design-conscious companies tend to have a more user-driven culture, where the goal is to develop products that are user-centred through the aspects of aesthetics and usability.

Gemser, Jacobs and Cate (2006) found that even though design is becoming more common in technology-driven industries, design has still not found its way of being an important strategic tool there. For the companies providing IT products, the sector is becoming standardised and therefore in need for integrating aesthetics and usability dimensions in the NPD process as well as integrating professional designers throughout the process.

2.2 Theoretical framework

What is actually design and innovation? How do companies work with design and innovation, and why is that important? In this subchapter we will look further into these topics as well as explain how the culture and the work environment fits in.

2.2.1 What is innovation and design?

There are countless definitions of innovation presented in the literature within different disciplines and countless ways to categorise it (Cooper, 1998; Norman and Verganti, 2014) and the same goes with design; there is a confusion around how to describe it (i.e. Buchanan, 2001; Edeholt, 2007; D'Ippolito, 2014). The way innovation is defined within the design field is even more diverse and controversial (Cruickshank, 2010). The definitions are often overlapping, for example change is seen as the core of both innovation and design (Edeholt, 2007). In this chapter innovation and design will be explained from the most relevant standpoints in this context.

Innovation

Innovation is often treated as an all-inclusive term by scholars, though it might refer to different kinds of innovation (Cooper, 1998). In the narrowest definitions, the two terms innovation and invention are treated as synonyms or as any new idea, practice, process or product that is new to the organisation (Cooper, 1998). However, when defining innovation it is often found important to make a distinction between invention and innovation (Fagerberg, Mowery & Nelson, 2005; Cruickshank, 2010). For example, "Invention is the first occurrence of an idea for a new product or service while innovation is the first attempt to carry it out in practice." (Fagerberg, Mowery & Nelson, 2005:4).

The definition of innovation can be traced back to the origin of Schumpeter's works in the 1930's, who focused on innovation in terms of economic and social change, and defined innovation as the construction of a new production function (Schumpeter, 1934). His definition focused on five

specific cases leading to a new production function which includes: new types of activity, new products, new methods of production, new sources of supply, the exploitation of new markets and new ways to organise business.

Von Stamm (2004) criticises innovation as being commonly defined as "the commercially successful exploitation of ideas" (von Stamm, 2004:13) and argues that a definition of innovation associated with a tangible outcome is not correct in the fast-changing environment of today. Innovation is not a tangible product, nor a new technology, but a mindset of constant change. Von Stamm further argues that "successful innovation is first and foremost about creating value" (von Stamm, 2004:13) and what all the different types of innovation has in common, is that they all are about challenging the status quo, having an understanding of customer needs and developing novel solutions. Innovation is also generally associated with taking risks, accepting uncertainty and ambiguity as well as thinking outside of the box. Furthermore, it is about having a passion to fulfill an idea to implementation and finally, the ability to spread inspiration.

A common way of categorising innovation is to divide it into incremental and radical innovation (McDermott & O'Connor, 2002). Incremental innovation is "improvements within a given frame of solutions", for example, doing something we already do in a better way, and radical innovation is doing something we did not do before, or "a change of frame" (Norman & Verganti, 2014:82).

The innovation process

According to Cooper (1998), innovation is not a one-time event, but an ongoing process and companies need to innovate constantly. Baregheh, Rowley and Sambrook (2009) did a literature review of all definitions of innovation in the literatures of economics, innovation, entrepreneurship, business, management, technology, science and engineering and also came to the result that innovation is a process: "Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace." (Baregheh et al. 2006:1334).

There are a lot of different innovation processes described in the literature, derived from different fields and viewpoints (Acklin, 2010). For example Acklin (2010) developed a design driven innovation process including six phases; impulse, research, development, strategy, implementation and evolution. According to Acklin the innovation process could even be "the iterative process of designing a company to meet customer and market needs" (Acklin, 2010:58).

Design

The etymology of design goes back to the latin word "designare" that means "making something, distinguishing it by a sign, giving it significance, designating its relation to other things, owners, users or gods." (Krippendorff, 1989:9). Based on this original meaning of the word the definition of design as making sense (of things) or as the creation of meaning (Jahnke, 2013) has been shaped. Verganti (2009) has developed it even further, saying that design is the creation of meaning and emotional and symbolic value. Design has also been described as a "reflective practice" (Schön, 1983) and as a problem-solving activity (von Stamm, 2003). Simon (1969) argued that design is always associated with an improved future and his definition of design has in many ways shaped the design practice.

According to von Stamm (2004), design can be interpreted in the context of innovation in three ways. The first one is that design is a tangible outcome, or in other words, the end product of a process that leads to items such as a computer or a table. The second definition of design in relation to innovation is "design as a creative activity" and the last one is "design is the process by which information is transformed into a tangible outcome" (von Stamm, 2004:11). In the context of innovation, design is commonly referred to as a process, and von Stamm describes it as a "conscious decision-making process" (von Stamm, 2004:11), by which an idea develops into an outcome, either tangible (a product) or intangible (a service).

Usability and aesthetics

Usability and aesthetics are fundamental parts of design and can easily explain the contribution of design in the example of a product (Lorenz, 1986; Kristensen & Lojacono, 2002). Aesthetics is the appearance of a product and

something that gives it a specific image (Lorenz, 1986; Kristensen & Lojacono, 2002). According to Gemser (2006) the appearance of the product can be articulated by its color, size, shape, material and texture among other aspects. Usability can be defined as to what degree a product can be utilised by certain users to achieve certain goals with efficiency and fulfillment in a given context of use (Jokela, Iivari, Matero & Karukka, 2003). Usability and aesthetics often support each other in different ways. For example, the appearance of a product is a way of showing how to use the product (Kristensen & Lojacono, 2002) and aesthetic products has shown to work better and are easier to understand how to use (Norman, 2002). Finally, "aesthetic design looks easier to use and also have a higher probability of being used, whether or not they actually are easier to use" (Lidwell, Holden & Butler 2010:18).

2.2.2 Working with design and innovation

Design and innovation often go hand in hand, and some scholars even state that innovation and design need each other in order to gain the full potential of both disciplines (Cruickshank, 2010). In this chapter we are going to describe *the design process* and *creativity* that is often connected with both design and innovation. Thereafter, the two different approaches of working with design and innovation will be presented; *design-driven innovation* and *user-driven design and innovation*.

The design process

The design process can be seen as useful in many ways. For example, design disciplines have been able to help business and management communities when tackling strategies for open ended and complex problems in organisations, due to their experience of working within these kind of processes for a long time (Dorst, 2011; Stacey, Griffin & Shaw, 2000). The iterative process of design has also been expressed as a possible foundation for innovation (Berends et al., 2010). Verganti (2009) and Jahnke (2012) further argue that the design process creates meaning to both design and innovation, which provides them with new perspectives.

A key characteristics of the design process is that it is seen as an iterative and open ended process (Brown, 2008; Roozenburg & Cross, 1991; Dorst & Cross, 2001). The process can be described by how the designer works (Dorst, 2011). The designer is looking at the broader picture (issues around the core problem) and for a theme or a meaning, which is the starting point of the whole process. By gathering clues the designer comes up with themes that are the underlying phenomena they are trying to understand and before the theme is found they do not work towards a solution. A word that is often used when describing this iterative process is framing, also seen as a key creative step within the design context (Paton and Dorst, 2011). Framing means digging deeper into the problem and seeing "the problem behind the problem" which allows for a different perspective.

According to many researchers (Van de Ven, Polley, Garud, & Venkataraman, 1999; Cross, 1994), the iterative design process requires different people, with different types of skills, in the different phases of the process. The design process is often seen as chaotic and messy for people not used to it, since it differs from the linear processes in, for example, traditional business activities. Nevertheless, this way of working is a deliberate strategy that designers use (Dorst, 2011; Brown 2009).

Creativity

According to many researchers creativity is a fundamental part of design and innovation (Dorst & Cross, 2001; von Stamm, 2003). Creativity can be defined as "the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others." (Franken, 1993:396). Weisberg (1993) defines creativity in the terms of creative. Creative refers to both new products that carry a value as well as tothe person who creates the work. Creativity is characterised by a high degree of subjectivity and tacitness and hence a reason for why it is often hard to measure its actual contribution (Dorst and Cross, 2001).

Design-driven innovation

Verganti (2008) has developed the strategy "design-driven innovation" that seeks to generate new meanings and product languages. Design-driven innovation derives from the idea that every product has a particular meaning for the consumer and style is only one way of communicating it to the customer (Dell'Era, Marchesi & Verganti, 2010). The driver of innovation is seen as the competence to interpret, foresee and influence the occurrence of new product meanings (Dell'Era, Marchesi & Verganti., 2010). Consumers are looking beyond consumption and are searching for new ways of psychological satisfaction, which challenges firms to create new product meanings alongside new technologies and functionalities (Dell'Era & Verganti, 2009). The driver of innovation is therefore different than in user-driven or technology-driven innovation processes, but activities such as user-need analysis, observations, and exploration of new technology can still be part of the design-driven innovation process (Verganti, 2008). Hence, design-driven innovation "aims at radically changing the emotional and symbolic content of products through a deep understanding of broader changes in society, culture, and technology" (Verganti, 2008:436). Design-driven innovation in its definition is always a radical innovation, because it requires a reinterpretation of meaning (Verganti, 2008).

User-driven design and innovation

Today many companies develop successful ideas by using design to innovate in order to create value, which is inspired by a human-centered approach and the principles of design (Brown, 2009). The term, or concept, human-centredness has been described with different words such as user-centredness and user-focused but they all refer to the same thing; an approach of putting the needs and desires of the people first. Previous research has shown that, by putting people first, consumer's needs and wishes are met in a better way (Bogers, Afuah & Bastian, 2010). It means asking the consumers to create ideas rather than asking the designers to create the ideas for them (Brown, 2009). User-driven design takes into consideration both usability and the user when developing new products (Gemser, 2006). When putting people first, it is essential to deeply connect with them by using empathy (Brown, 2009).

Empathy is the ability to look and understand the world from another person's viewpoint and feel it through their emotions (Brown, 2009).

Design thinking

Design thinking is an approach to innovation that is based upon the human centered approach (Brown, 2009). A common view of design thinking is, that it is a key factor for innovation and a possible source for sustainable competitive advantage (Leavy, 2011). Brown (2009) argues that because the process of design thinking is iterative and open to changes, it allows innovation to flourish in the best way. Johansson Sköldberg and Woodilla (2013) also claim that design thinking should be viewed from an innovation perspective, because it is where the framework can best be captured. Within the innovation perspective, design thinking can be used in different ways: as a way of thinking (also used by non designers), as a source of inspiration and as a way to capture the design practice and the way they work (Johansson Sköldberg & Woodilla, 2013). They further claim, that in the management field design thinking has been described as the best way of being creative and innovative.

There are different theoretical perspectives on design thinking as well as many different definitions of it (Johansson-Sköldberg, Woodilla & Çetinkaya, 2013). Brown (2008) defines design thinking as "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Brown, 2008:86). Design thinking is often described as a process, departing from the essence of design and how designers work; "a project-based work flow around wicked problems" (Dunne & Martin, 2006:517; Brown, 2009). Design thinking is then a useful way to both deal with the open-ended and creative design process and to solve or reframe complex situations or wicked problems (Hobday, Boddington & Grantham, 2011).

According to Brown (2009) design thinking has its own process that can be described in three steps: inspiration, ideation and implementation. In the inspiration phase, the opportunity or problem is defined. It is followed by the ideation phase, when the process of generating, developing and testing ideas

starts. Finally, the idea is implemented in the implementation phase. Brown further argues that the process does not follow a certain path with clear steps but that it is rather iterative and open to changes.

Design thinking forces you to stay in the question and hinders you from jumping to the solution straight away, which according to Liedtka (2014) results in producing a much better comprehension of the problem you are trying to solve. Design thinking has also been claimed to create a more creative and social environment in the organisation, instead of a decision-making dominant attitude (Hobday, Boddington & Grantham, 2012). According to Brown (2008) a typical design thinker is empathic, optimistic, collaborative and uses integrative thinking and experimenting in the way of working.

Design thinking has been criticised for diminishing the knowledge of the design practice and for leaving out the material and aesthetic knowledge of the designer in the concept (Edeholt, 2007; Tonkinwise, 2011; Johansson Sköldberg & Woodilla, 2013). Edeholt (2007) argues that the designer acts in between the rational, commercial engineer and the intuitive, cultural artist. However, the artistic knowledge of the designer is often left out in the concept of design thinking, and design can then easily get mistaken for engineering. Johansson Sköldberg and Woodilla (2013) describe two ways of looking at design thinking: *designerly* thinking and design thinking. Designerly thinking ties theory with practice from a design perspective and is derived from the academic field of design. This approach focuses on how to recognise and understand the designer's nonverbal competencies and practical skills. Design thinking is seen as a simplified version of designerly thinking, often used within the management field, by people without an education in design.

2.2.3 Innovation and design in the culture

According to many scholars, innovation is at the bottom line all about the people and the culture of the organisation (Woodman, Sawyer & Griffin, 1993; Amabile, Conti, Lazenby & Herron, 1996). Von Stamm (2004) claims that innovation will not happen in a small group within the company, or in a separate division. It should be in the mind of everyone, and integrated in the whole company and into the culture with design as a key facilitator.

According to von Stamm (2004), many managers struggle to improve the innovative performance in their organisation due to a strategy and culture that is promoting efficiency, profitability, incremental change and a day-to-day focus. That kind of culture does not foster innovation, but focuses on hiring and training effective and efficient managers, without taking into account their willingness to take (calculated) risks or experiment. According to Liedtka (2011) innovation means allowing uncertainty, to step away from the familiar, and to allow the fact that failure will be more common than success when truly innovating and learning something new. De Guerre et al. (2012) claims that there is a need for a new organisational culture that allows the employees to try out new ideas that might not work out. The employees should even be encouraged to fail, in order to learn from it and move on.

The work environment plays an important role in facilitating an innovative atmosphere, and in supporting the people to generate new and useful ideas (Woodman, Sawyer & Griffin, 1993; Amabile et al., 1996). It has been noted that "creative employees who are placed in traditional productivity driven organisations with formal structures, time constraints, strict regulations, daily similar tasks, standardised workplaces, etc. may not be stimulated to show the desired creative behaviour." (Dul & Ceylan, 2011:2). The work environment is important for all employees in the organisation, not only in design, R&D and marketing, because creative ideas might be generated by people in any job and at any level of the company (Shalley, Zhou & Oldham, 2004). Dul and Ceylan (2011) also point out that the creative performance of the employees is higher, the more support the employees get from the work environment. To innovate, successfully companies needs to have a flexible

culture and a particular way of organising creative problem solving of complex issues (De Guerre, Séguin, Pace and Burk, 2012). Organisations need to create more flexible departments that support project based work and multidisciplinary teams, which further allows the company to respond and adapt to new and rising opportunities (Martin, 2009).

2.2.4 The strategic importance of design

Many researchers today highlight the importance of involving the designer already in the beginning of the development process and further incorporate design in the whole company on all strategic levels in order to enable the full potential of the discipline (Tonkinwise, 2011; Brown, 2008; Gardien & Gilsing; 2013).

Along with the rise of design thinking, the power of the designers has increased and moved them higher up in the consultancy hierarchy as the value of design is being more recognised (Tonkinwise, 2011). Traditionally, designers have been brought in at the end of development processes and used as "stylists" to an otherwise already developed product, but designers should be brought in from the start to contribute with valuable user insights and help to examine new ideas more quickly (Brown, 2008).

Gardien and Gilsing (2013) have shown design on high strategic levels in the organisation, claiming that design needs to be core to the business in an integrated way, and thereby create cultural innovation that allows for social transformation.

The Design Ladder

According to the Danish Design Centre (DDC) design-driven companies are far more likely to develop new products compared to companies that are not. In their opinion the extent to which design may improve competitiveness, creativity and innovation depends on a company's use of design. Therefore in 2003 a survey was carried out by the DDC concerning "The Economic Effects of Design in Danish companies". The result showed a very clear correlation between the enrollment of design and the economic success of the company, and that companies that work with design consistently have bigger profits and higher exports than companies that do not work with design. (The Economic Effects of Design, 2003)

STEP 4
Design as
strategy

STEP 3
Design as
process

STEP 2
Design as
styling

STEP 1
No
design
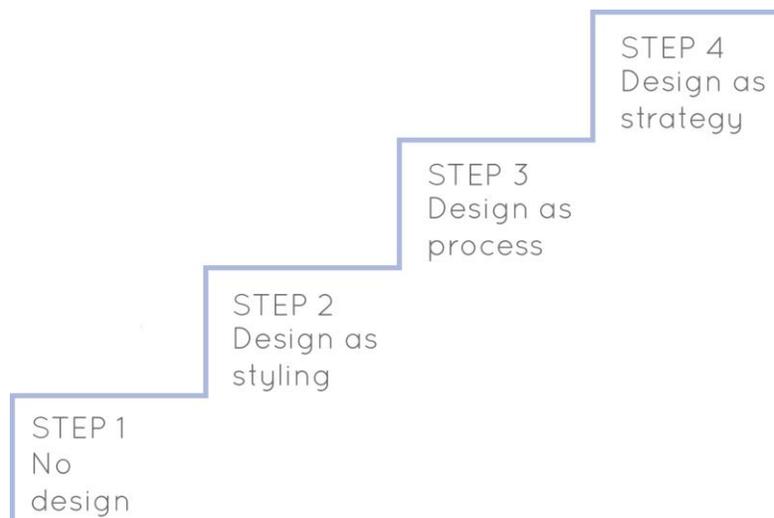
FIGURE 2: The Design Ladder (Sharing Experience Europe, 2011)

As a framework and communicative tool for the survey, DDC developed "The Design Ladder" to estimate the level of design activity in Danish businesses. The Design Ladder consists of four steps (figure 1).

STEP 1: NON-DESIGN. Design is not a visible part of product development i.e. and there are no professional designers working with the tasks. The user does not play an important role in the process and the solution is driven by the involved participants that only have an idea about good function and aesthetics.

STEP 2: DESIGN AS STYLING. Design is only important in the final form-giving stage of either graphic design or product development. This process can be described with the term "styling". The work might include professional designers but usually it includes people with other professional backgrounds.

STEP 3: DESIGN AS PROCESS. Design is seen as an approach and not as a result and is early integrated in the development process. The approach is driven by solving problems and the users, who require many different abilities and skills.

STEP 4: DESIGN AS STRATEGY. The designers have a high strategic role in the company and work close together with the management team and the CEO. At this step design is core to the business, meaning the design process correlates with the company vision, desired business areas and the future role in the value chain. (Sharing Experience Europe, 2011)

3. Methodology

This thesis takes an explorative approach on two case studies. The research has taken place in Dublin, where both interviews and observations have been conducted. This chapter presents the methodology in detail, presenting research approach, research process, sampling, research method and analysis method. The last two chapters discuss the quality of the research as well as the ethical aspects taken into consideration.

3.1 Research approach

The research approach of this thesis derives from a constructionists view, which sees knowledge as something socially constructed that might change depending on the circumstances, and data can therefore not be taken out of the context, but needs to be studied in its true environment (Denzin, 2005). We have conducted case studies inspired by ethnographic research, hence gathered different kinds of data through interviews, field observations, and other data such as audio-visual material and information from web pages (Silverman, 2011). Through this approach we can gain a deeper understanding of our chosen case studies rather than just looking at surface features (Eisenhardt, 1989; Yin, 2003).
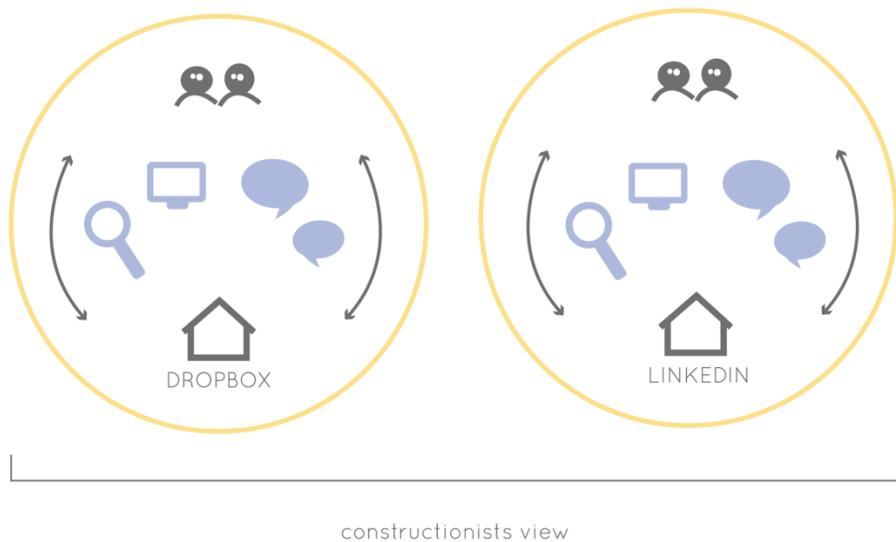
DROPBOX

LINKEDIN

constructionists view

FIGURE 3: Research approach

3.1.1 Case studies

Case studies is a suitable method in this study, since we want to answer questions like "how" and "what", explore the field and gain new understanding (Eisenhardt, 1989; Yin, 2003). Another reason for choosing a case study approach is that the content in this study can not be separated from its context (Yin, 2003).

According to many researchers, (Benhabib 1990; Mitchell & Charmaz, 1996) case studies often contain a narrative approach. Good narratives often explain very well contradictions and complicated situations in real life, which is also the case in our study. A problem with these narratives is that they can be hard to summarise into general propositions and theories, therefor case studies can often be quite extensive. Moreover its is often not desirable to summarise case studies, because the strength in case studies often lies in the narrative style that they carry from the reality studied (Flyvbjerg, 2006).

In this study we have implemented a multiple-case study, hence conducted research within two cases instead of only one. Further we have selected a "literal replication" which means that we have chosen two similar cases in sense of industry and service offering, and predicted similar results from them. Multiple-case studies have both advantages and disadvantages compared to single-case studies. The advantages of multiple-case studies are that the evidence is regarded as more robust and therefore is the overall study also more convincing. On the contrary, in single case studies you can usually dig deeper into the particular case studied and therefore get a deeper understanding and analysis of it. We preferred a multiple case design, because it gave us the possibility of direct replication and to prove contrasting situations when doing a comparison between the cases (Yin, 2014). A risk with single case studies is also that there might be a uniqueness in the case studied (different aspects that are specific to the case). Since the field of research is new in our case, we tried to avoid this by using a multiple-case design.

3.1.2 Ethnographically inspired

Typical for ethnographic research is that data is gathered during a long period of time, which is not the case in our studies, and the reason for why we can only claim that we adapt an ethnographically inspired approach (Silverman, 2011). As ethnographic researchers we have conducted data by physically being at the place of the setting, using all our senses to capture data from how people socially behave as well as from the atmosphere and the physical elements around (Silverman, 2011). The gathering of data has taken place in the company's work environment and not in a set up environment by the researcher (Hammersley & Atkinson, 2007). The analysis of data has involved understanding of meanings, functions and human actions and the outcome is documented in verbal descriptions, theories and explanations rather than quantification or statistical analysis.

3.2 Research process

Due to the complexity of the subject, the approach needed to be explorative and open-ended. The process was therefore iterative and did not follow a strict design, which is typical for case studies, as well as for ethnographic research (Hammersley & Atkinson, 2007; Yin, 2003; Silverman, 2011).

Our process is very similar to the steps Eisenhardt (1989) describes as typical for the cases study: getting started, selecting cases, crafting instruments and protocols, entering the field, analysing data, shaping hypotheses, enfolding literature and reaching closure. Before entering the field, a literature review of the previous research within the field of innovation and design was made to create a so called "literature lens" when conducting research, to prevent getting biased from the findings (Eisenhardt, 1989). As soon as data was collected, the iterative process of analysing started and the literature was then again reviewed to compare the findings.

3.3 Sampling

To answer the research question, we wanted to explore how companies within the IT field, seen as successful and innovative, are working with innovation and design. The companies contacted were selected by using the following criterias: market leading, providing digital services, associated to innovation, and design focused (as evidenced by reputation and websites). After several turns and negotiations the companies selected for this study were the file hosting service providing company Dropbox and the social networking service providing company LinkedIn.

In line with our explorative approach and with the aim of getting a holistic overview, employees from different parts of the organisation were interviewed. We traveled to the companies' european headquarters in Dublin where we mainly interviewed employees from the sales departments, but also an engineer and a workplace manager at LinkedIn. To further answer our questions, we turned to both companies' headquarters in San Francisco as well as Dropbox's sales office in Sydney.

TABLE 1: Dropbox and LinkedIn info (Dropbox, 2015; LinkedIn, 2015).

COMPANY	DESCRIPTION OF SERVICE/ COMPANY BACKGROUND	INTERVIEWEES	TOTAL
Dropbox	A File hosting service offering cloud storage, file synchronisation, personal cloud and client software. / Founded in June 2007 and officially launched in September, 2008.	4 Sales (D) 1 Design (SF) 1 Workplace (S)	6
LinkedIn	A business oriented social networking service, mainly used for professional networking. / Founded in December 2002 and launched in May, 2003.	3 Sales (D) 1 Design (SF) 1 Workplace (D)	6

D=Dublin, SF=San Francisco, S=Sydney

3.4 Research Method

In this research primary data has been gathered through interviewing employees from both companies and by making observations in their work environment. Further we have collected secondary data through different online sources. In this subchapter we will describe these methods in more detail.

3.4.1 Interviews

We have conducted semi-structured interviews, meaning that we in most cases have followed a prepared interview guide, but also moved to other topics and used other questions that have been generated spontaneously during the interviews. The interviews were planned to take an hour, but varied from twenty minutes to over one hour. The interviews have been done both face to face and by making video conference calls. The short informal spontaneous interviews have been conducted in the field, and long formal interviews have been set up beforehand within a limited time schedule.

An interview guide[4] was created to guide the interviewers and in most cases it was sent to the interviewees beforehand. The interview guide was divided into four parts, starting with the questions about the interviewee, followed by the company and culture, and finally ending with questions about innovation and design and how they are working with it. We used open questions, meaning no leading or value implying questions. In the questionnaire the terms such as 'design thinking' were not defined beforehand or during the interview. Since the process was iterative, the questions have been adapted and changed as the research has carried on. The questions have been adapted to the interviewed person, to better suit the particular interview. As interviewers we have not followed the guide strictly, but stayed open to follow new interesting leads during the interviews that might open up new interesting insights.

We also needed to do some bigger adjustments to the interview guide in order to adapt it to interviewees that did not have time for the planned one

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[4] The interview guide can be found in the appendix.

hour interview. We did this by randomly selecting questions from the guide and aimed for a conversation rather than a monologue, to get the most out of the interviewees with a busy schedule.

When interviewing it is important to remember to be critical to all the information that is being said by the interviewee, since not all knowledge, experience and meaning is being told and it can be interpreted in many ways. People that are being put in the spotlight can be stressed, may not reveal sensitive facts and tend to "paint the pretty picture" (Alvesson, 2011). It is important to be critical and read between the lines to get the complete truth. Therefore, the data has been triangulated with other data such as field observations and information from company websites.

3.4.2 Observations

We spent two days at each company, conducting ethnographically inspired observations. Observations were made during the whole visit at the companies; before, after and during the interviews. Both researchers were always present during the interviews. One researcher was leading the interview, and the other was making observations and taking notes. We went for a tour in both offices, and spend half a day sitting in the cafés, observing people interacting and passing by. We joined lunch one time at each company and also one breakfast at Dropbox. Additionally at Dropbox we were invited to a shadow a design-thinking workshop.

When conducting our ethnographic research we beared some questions in mind, in order to get as much information out of the research site as possible. The following questions were taken from Emerson (1995) where he suggests five questions, to consider when making field notes:
1) What are people doing? What are they trying to accomplish?
2) How exactly do they do this?
3) How do people characterize and understand what is going on?
4) What assumptions do they make?
5) Analytic questions: What do I see going on here? What did I learn from these notes? Why did I include them? (Emerson et al. 1995:146)

3.4.3 Other data

We also collected data through online sources, such as the company's web pages, company presentations, journals, articles, blogs and material handed out for us by the employee's. We also gathered information through emails that were sent along the whole research period.

3.5 Analysis Method

Deriving from the grounded theory approach in our research, we have analysed our findings grounded in the gathered data instead of beginning with a prior hypothesis (Silverman, 2011). According to a grounded theory approach you work inductively and there is no standard form of how to analyse your data but usually you go by: creating analyses that are rooted in the research situation, continue by gathering further data and go back to check the earlier analyses until you can not find any deviant cases (Eriksson & Wiedersheim-Paul, 2014).

When analysing our case studies we started by writing down everything we could remember right after each interview or other field observation. We did this in order to analyse the overall impression we got straight after each session that would be more difficult to remember later on, such as emotions and body language that were expressed by the interviewees. The following step was to transcribe the interviews and make a table with all the interviewees; their name, position and at what office they worked at. After having transcribed the interviews we read through them all, starting with one company and continuing with the other. While reading, we made notes and highlighted findings that we found important in order to be able to answer the research questions of our study. The next step was to discuss the findings from the interviews with each other, by going through one case at a time. We did this by sticking post-its to a big white paper and tried to find common themes. This way we got a better picture of the interviewees responses by finding patterns and variations in the gathered data and could easily write down everything in a document. When having collected all the field research to the document, we could start comparing it to the background data we had collected before meeting the companies. We compared the field data with

information we had collected through the other sources. We also read through all the field notes and compared and complemented these notes with the other data. After this we built up the structure of our result chapter by comparing it to our theory chapter and found common themes that helped us to turn all the empirical findings into a comprehensive text.

3.6 Quality of the research

According to the conventional view, case studies are often criticized in terms of issues in theory, reliability, and validity (Flyvbjerg, 2006). One criticism is for example that case studies are often seen as subjective, because they give too much room for the researchers own interpretations. Another criticism that have been discussed is that case studies are only suitable for pilot studies and not for established research schemes. On the contrary we agree with Flyvbjerg (2006), who argues that the case study is a necessary and sufficient method for certain important research tasks in the social sciences, and it is a good method compared to other methods in the field of social science research methodology. In this chapter we will further discuss the quality of our study and why it can be seen as credible, by explaining its reliability and validity aspects.

3.6.1 Reliability

In quantitative research, mainly based on forms and statistics, reliability refers to replicability, which is whether or not the study could be repeated by other researchers who would end up with the same results, analysis and claims. When it comes to qualitative research, it is more complicated since the data, that is gained from people, is more or less impossible to repeat and the reliability instead comes down to how well documented the research is. Hence reliability in this case means that researchers repeating the same procedure should come to the same findings and conclusions (Yin, 2003).

To assure reliability we kept a journal during the whole process, where we wrote down concerns and ideas that arose from time to time. We also wrote down interpretations before and during the field observation and more detailed notes and analyses right after each session. This way we can explain

why certain decisions were made and why some inferences happened during our way. It also helped us being more self-aware of how the research was done, when writing the report, keeping everything in mind and when ensuring the truthfulness of the result. (Silverman, 2011)

By categorising our research data in a standardised way we can assure a reliable analysis of our texts. This is even strengthened by having two people analysing the same data. This way we have discussed possible differences in our analysis and been able to exclude them. (Silverman, 2011)

In order to further assure the reliability of our interviews we taped all the conducted interviews and, when possible, also relevant conversations. By recording the interviews, transcribing them and presenting extracts of data in the report we have used a low interference description of data, which means that we can avoid our own personal perspectives to influence the reporting and that we can present what has occurred with more accuracy (Silverman, 2011). Follow-up questions was asked if additional information was needed and all collected data from the interviews has been confirmed by the interviewees to ensure credibility (Eisenhardt, 1989).

3.6.2 Validity

Qualitative data can only be exploratory or descriptive and there are many different approaches to assure the validity of a qualitative research, but most of them are common sense and does not have to be discussed in detail (Silverman, 2011). Some of the approaches that we have taken into account when conducting our study is the "observer effect" and how our values as researchers affect the analysis. The "observer effect" is when people change some aspect of their behaviour because they are aware of being observed. Another approach we have taken into account when ensuring validity, is analysing what people say according to how they say it, this means how they use their body language and stress certain words, among other things. (Silverman, 2011)

A strength in our study was that one of the researchers is close friends with one of the employees from Dropbox who lives with an employee at

LinkedIn. This relationship enabled a deeper access to both companies, which also allowed us to give a better and more trustworthy description of both case studies. The information that we got from them was more reliable, since we could trust them in a different way than we could trust the other interviewees that we did not know. We stayed at their home for almost a week during the field research, which allowed us to follow the daily lives of two employees from both companies. This arrangement enabled us to chat with them after work hours about things that we could not have gotten access to otherwise. It also made it possible for us to have breakfast and lunch at both companies as well as to keep in contact whenever during our research, to get confirmation on things that were unclear i.e.

Besides these approaches we will go deeper into describing "triangulation" which will further increase the validity of our research.

Triangulation

One important way of validating qualitative data, can be to compare different kinds of data and methods, also known as triangulation (Eisenhardt, 1989). Triangulation is for example to combine multiple theories, observers, methods and empirical materials. This way the result can better avoid the weakness that can come from research made by only one observer, method i.e. (Silverman, 2011). In our research we have gathered different sources of information, such as interviews, field observations and information from online sources. To validate our research, we have compared these different kinds of data collecting methods and analysed our data through them. In order to do this correctly, we have both chosen methods of gathering the data and further gathered the kind of data that would give us the right meaning and structure within our subject. The validity of our research is further strengthened by being not only one but two researchers, both conducting and analysing the data (Eisenhardt, 1989). By having done this, we can present a more valid and convincing picture of the research object. We believe triangulation is one way of approving validity by adding accuracy, depth, broadness and richness to an analysis.

3.7 Ethics

Ethics when doing research is a very important aspect that we have taken into consideration in this study. Hammersley & Atkinson (2007) claims that the ultimate goal of research should be to produce true knowledge, but it should not be seeked at all costs. There are several ethical aspects that need to be considered, such as: informed consent, privacy, harm, exploitation and consequences for future research. In this section we will discuss these issues and how we have dealt with them while conducting our research.

INFORMED CONSENT. One often argued ethical aspect is that the people who are included in the research, should be accurately informed and free to withdraw at any time (Hammersley & Atkinson, 2007). In our case, we have been clear and transparent about information to the people we have been in contact with, although when doing observations it is not always possible to inform everyone in the setting you are observing (Hammersley & Atkinson, 2007). Sometimes it might even be contradictory to the ultimate goal of truth, since it could affect the behaviour of the people being observed. It is impossible to inform everyone about everything.

PRIVACY. A way to tackle the issue of privacy, is to consider the interviewee as the owner of the data. That is the solution we have chosen in this study. All data that has been used in this report has been reviewed by the particular person before publishing.

HARM. In our case the harm we could do to the attendants of our study is causing them stress and anxiety, or hurt the companies or the individuals brands through publishing sensitive information. We have worked against adding any extra stress or anxiety to our interviewees, making sure to find a time and place that suits them, tried to create a relaxed and informal environment to get away from the "investigation room" feeling, that would cause any person stress (Hammersley & Atkinson, 2007). About sensitive information, as mentioned above, we have shared all collected data with the attendances before publishing.

EXPLOITATION. It can be argued that the people being studied get exploited because they do not get anything in return. When doing this study, we found that the companies taking part in the research see this contribution as helping something bigger, they want to participate in order to help the development of academic knowledge.

CONSEQUENCE FOR FURTHER RESEARCH. The future of research rely on the opportunity to get access to companies, so ethically speaking regarding possible research colleagues, the researchers should aim to ensure this, or at least not prevent it (Hammersley & Atkinson, 2007). It may not always be possible to meet this aspect though, since the researcher's opinion of the research is often different from the opinion of the company being studied. In our case we have rather opened doors for further research, then closed them.

4. Empirical result

In this section the result of our research will be presented, beginning with Dropbox and then LinkedIn. Both subchapters will have the same structure, starting with describing general information about the company, presenting how they describe innovation and design and how they work with both disciplines. The following sections present the company culture, their workspace and how important strategically design and innovation are in the company.

Company info

Describing D&I

Working with D&I

Culture

Workspace

Strategic importance

4.1 Welcome to Dublin

We started our research of Dropbox and LinkedIn in Dublin, Ireland, where both of the companies' headquarters for Europe, Middle East and Africa (EMEA) are situated. Dublin is a city of growing importance, where many European headquarters are situated due to the low corporate tax rates compared to other European cities (Flynn and Mullen, 2013). Here you can find the European headquarters of IT giants such as Google, Yahoo and Facebook among many others. We spent three days at Dropbox and two days at LinkedIn, observing workshops and the office environment, having lunch and interviewing the employees at the office. After we finished our research in Dublin, the research took the natural direction towards the companies' headquarters in California to get in touch with employees from the design team and to gain a deeper insight into the whole organisations. Due to restricted time and money, the interviews outside of Dublin were conducted through Skype calls.

DUBLIN, SPRING 2015.

4.2 Case 1

11:45 AM, 31.3.2015, DUBLIN, IRELAND.

At 11:45 we arrive at a big house where the only sign we can see is "Aviva". There are no signs showing that this would be the office of Dropbox and we are wondering if the cab driver took us to the wrong place. We walk into the reception and tell the two older guys in suits what we are looking for, and they confirm that we are in the right building. One of the receptionists asks us to fill in our information on the screen in front of us, our names and our host, before we receive our entrance badges and are asked to wait in the big entrance lobby. It is a very modern new house with a high ceiling and orange couches. The atmosphere is a bit cold and sterile. There are a lot of different people going inside and out, young and old, wearing everything from suits to hoodies and sneakers. Then Amanda comes to pick us up. She gives the guards a sign to open the gates, which we follow her through, and she shows us to the elevators. She tells us that Aviva is a large security company and says "We don't really fit in here". On the sixth floor she leads us through a door to the left and we enter a completely different environment.

Welcome to Dropbox!
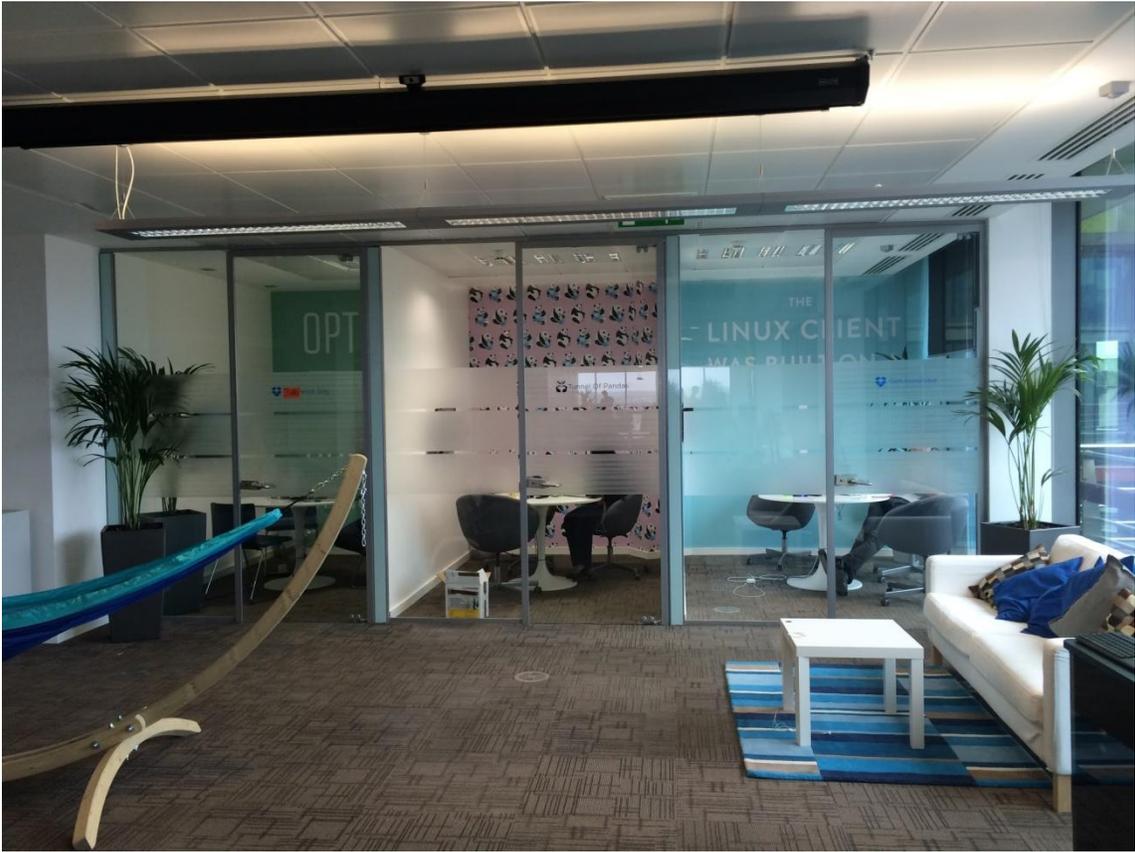
4.2.1 Dropbox – an innovative cloud service company taking over the world

In 2007 the two university students Arash Ferdowsi and Drew Houston got tired of emailing files back and forth to be able to work from more than one computer, so they founded Dropbox. Seven years later, Dropbox was named the fourth most innovative company in the world on Fast Company's yearly list (Kessler, 2014) and today they have offices all over the world, serving more than 300 million users (Dropbox, 2015).

Dropbox describes the service they provide as "one place for all your stuff wherever you are". More precisely, it is a cloud service that provides storage for companies and consumers, giving them access to all their files from any place or devise, straight from the folders on your computer. Dropbox has been praised by many publications for its simple design and ease of use (G.F., 2010).

Dropbox has offices all over the world; in North America, Asia, the Pacifics, Europe and Middle East with their headquarters in San Francisco and the EMEA (Europe, the Middle East and Africa) headquarters in Dublin. Currently there are around 1000 people working at Dropbox but the company is still growing and continually hiring new employees (Anna Klaile, interview 31.3.2015).

Business solution

Dropbox offers a freemium service model which means that signing a membership does not cost anything. The freemium service is called *Dropbox Basic* and offers two gigabytes (GB) of space, a backup service, access to your files from anywhere and file sharing for anyone you give access to. Dropbox gets revenues from their two other services called *Dropbox Pro* and *Dropbox for Business*. When upgrading to *Dropbox Pro* you pay 9.99 euros per month (or 99 euros per year) and compared to the freemium service the Dropbox Pro offers more space (one terabyte) and some additional applications such as the "Remote wipe" that allows the user to delete any data from a lost or stolen device. *Dropbox Business* is a service already used by 100 000 businesses. For this service the companies pay 12 euros per

month per user (or 120 euros per year) or a little less if they have a minimum of five users. Dropbox Business offers an unlimited amount of space and file recovery and some additional features compared to the freemium and Dropbox Pro service. (Dropbox, 2015)

The European head office

In this study we visited the European head office in Dublin, Ireland. The office opened in 2013 and has grown from around 35 employees a year ago, to around 120 today with the goal to reach a number of 200 by the end of this year. The office consists of six departments; sales, user operations, HR, marketing, information technology (IT) and the management team as well as a community manager.

The interviewees

The table below shows all the employees we interviewed. Most of the interviewees work with sales in Dublin, but we have also interviewed the workplace manager Jasper in Sydney and the design lead Arthur in San Francisco to find answers to all our questions. The names of the employees have been changed due to confidentiality reasons.

TABLE 2: Interviewees Dropbox

NAME	OFFICE	DEPARTMENT
Amanda	Dublin	Sales
Graham	Dublin	Sales
Miles	Dublin	Sales
Iris	Dublin	Sales
Jasper	Sydney	Workplace
Arthur	San Fransisco	Design

4.2.2 Describing innovation and design

When asking the employees at Dropbox about how they would describe innovation and design, we received a lot of different answers, but with common characters and meanings. Below is the result, starting with innovation.

What is innovation?

Innovation is a term familiar to all of the interviewees. Miles would even call it a buzzword claiming it is being used too much. Even though describing the term leaves the interviewees with a bit of discomfort, they all share the opinion that innovation can be described as something new and improving.

They say that innovation is *something new*, or to create something new; it is about coming up with a whole new solution. It should also be something useful. Iris adds that "It has to be something new, surprising and radically useful".

Innovation is *improving*. It is about doing things in a smarter way. It is thinking about things differently, thinking outside the box. Thinking about new ways of doing things, and doing it better. Innovation can also be described as approaching a problem from several very different standpoints.

Miles thinks that innovation does not have to be something radical, it is more about doing the everyday tasks more efficiently, and that those little innovations or improvements, will lead to greater efficiency. Arthur explains further, that how one would describe innovation depends on how one defines it. If it is incremental innovation, a new colour on an old cup would be innovation, but if you define it as radical innovation, the item needs to be more drastically changed to be called innovation.

What is design?

Design is a term that the interviewees have different relationships to and knowledge of. Some of the interviewees who are not so familiar with design get notably uncomfortable when we ask them to describe the term. Some are

a bit more confident, having a personal interest in design, and then there is the lead designer who answers the questions without a doubt.

A COLLABORATIVE, CREATIVE, PROCESS. More than one interviewee associate design with process. Design is being described as a very creative approach that needs all people involved; and design is involving all the people in the process.

CONNECTED TO INNOVATION. Two interviewees bring up innovation when describing design; "It is a construction of innovation that is meaningful" and "a controlled process that brings innovation or change into life." Arthur claims that "everything design does is innovation" (if you are referring to innovation as incremental).

EVERYTHING. Two interviewees take it as far as claiming that design could be everything. "Like everything is design in a way. Whenever something is intentionally shaped in a particular way, then this is design. Then I guess everyone that works here is a designer. In some way intentionally, like everyone intentionally shapes things.".

AN ONION. Arthur points out that design can be explained as an onion with craft at its core, followed by process, mindset, community and culture, as visualised in Figure 4.

FIGURE 4: Design described as an onion by Arthur, visualised by the authors.

4.2.3 Working with innovation and design

To explore how Dropbox is working with design and innovation, we found it interesting to find out what kind of approach they use, what the innovation and design process looks like and if they overlap.

Innovation takes place in all parts of the company

The result shows that innovation is seen as something organic, taking place in all parts of the organisation. Iris claims that "probably every department has aspects of being innovative" and the other interviewees agree, saying that innovation happens everywhere and that everyone in the organisation is an innovator. Miles points out that he never heard the company specifically talk about innovation; he thinks it is more about the way they work and a mindset that is integrated into the spirit and culture. He claims that innovation is about improving small things in the daily work, constantly making small changes, rather than only aiming at coming up with revolutionary ideas. It comes down to people having the freedom to do what they feel is right, and being able to take responsibility to do things the way they believe makes sense. Iris tries to be innovative by bringing concepts of creativity into her everyday work and Graham asks for advice from people that might not have any connection to the subject. He thinks that a lot of innovation happens in conversations, when ideas are bouncing back and forth in what he calls "an innovation ping pong". Jasper adds an external aspect of working with innovation, saying that they are not only looking at competitors, but staying on top of the newest and latest.

Even though the interviewees agree that innovation happens everywhere in the company, some of them would say the engineering team in San Francisco is the most innovative, if they must pick one. In fact, innovation seems to be mainly San Francisco driven, from the headquarters, and Graham claims that the Dublin office has other focuses than innovation, since they are growing at such a high speed. What unifies all offices though, is the yearly "Hack Week" that is being arranged to celebrate the birth of Dropbox and get back to the roots (Dropbox Blog, 2015; Ingraham, 2014). For one week the employees get to work on unrestricted projects, experiment with bold ideas,

get out of their comfort zones and unleash their passion and innovation. In the Dublin office though, according to Graham, it was too risky to shut down the sales office for a whole week, so instead they had a "Hack Day".

The non existing innovation process

When we ask the interviewees to describe their innovation process, they all get a bit confused before coming to the conclusion that there is none. Miles explains; "if a company needs to talk about innovation, it's already too late, it has to be inbuilt into the way you do things" and points out that there is no point in having an isolated innovation team, it needs to happen continuously. He says that it is a continuous feedback loop from the customers and the market, through the sales team that forwards the feedback to the product team, who then prioritizes the request, reflects it to the mission and then decides what changes need to be done. Iris thinks the innovation process equals the process she calls the design thinking process: "focusing on the user, creating empathy, creating point of view, then going on to brainstorming, prototyping, testing".

Design – it is all about the user

The sales team in Dublin is quite distant from the design team in San Francisco, so the majority of our interviewees cannot answer our specific questions about the design activities in the company. They do have a general understanding of how design is being treated in the organisation though; Iris, Miles and Graham are very much into design thinking and are from time to time in contact with designers in San Francisco. Among our interviewees is also the well informed design lead, Arthur.

In line with the different opinions about what design is, as well as the diversity of their work tasks, the way our interviewees work with design differs in some ways. Arthur explains that there are three design departments: Insights, Brand and Interaction Design, where all kind of designers are working - graphic designers, interaction designers, design researchers, prototypers etcetera. According to Arthur it all comes down to a user-focus, always emanating from the users, when you constantly listen to their feedback regarding needs and wants. This way of working can also be seen in the Dublin office where they all tell us about gathering feedback from the

customers and sharing it in online forums for the developers to take part of. Iris explains: "The product team take into account all the feedback that we get from the users". Several of the interviewees tells us about the importance of the products being easy to use, and Amanda explains that it is a motto they have; the products should be designed in such a simple way that your grandma could use it.

As mentioned earlier, everyone at Dropbox can be seen as innovators and according to Graham they can also be seen as designers. Graham further points out that "because we are growing we need to be constantly designing, otherwise we are not gonna grow.". Miles further explains that design is part of his daily routines and Iris explains how design can be different things:

> "It is like a visible layer, it is the way the user interface looks, the way our corporate design looks, the way our offices are shaped, all the spaces and the visible things, but then underlying there is this other layer of how we work together and how we shape our processes. So I think it is part of the whole organisation in a way".

The non existing design process

Arthur is the only interviewee that has enough knowledge about the design process to answer our questions about it. He tells us that they do not have one; it is rather a mindset of user-centeredness, always focusing on the user in everything they do.

Design thinking

When exploring Dropbox and their way of working with innovation and design, we find that design thinking is present at the Dublin office. During the week of our visit a "Human Centered Innovation Workshop", also called "Introduction to Design Thinking", is being arranged as a training for the newly hired sales people. Graham is the coordinator and Iris and Miles with previous experience of working with design thinking are hosting the two hour workshop that Amanda is taking part in. They explain that design thinking is up and coming at Dropbox; in many ways already implemented, but not yet fully integrated. The initiatives come from individuals that are

interested in the subject and according to Miles there are some design thinking gurus in San Francisco.

Design thinking is being described as "a framework or process to come up with innovative ideas". Graham calls design thinking human centered innovation and Miles calls it a method. Graham says design thinking is a new way of approaching innovation and Amanda thinks it is about not only doing the bare minimum of solving a problem, but solving it in a user friendly way, and thinking a couple of steps ahead. They all think it is about making something nice, improved or better. Miles explains: "design thinking is challenging your beliefs and putting that into a process that has concrete outcomes", and Arthur describes design thinking as a mindset of putting the user at the center.

When describing how they work with design thinking, they tell us about brainstorming with post-its and a lot of experimentation. Graham points out the importance of empathy and Amanda explains that it is about being open-minded and not judging people. She tells us about one specific moment when she used the mindset she had been taught: "First I was like 'this is never gonna work, but I'll give them a bit more time before I tell them', and it actually developed into, thanks to me shutting up, it developed into being the solution.".

Iris tells us about the previous IDEO employees that are now working for Dropbox in the San Francisco office. They have created a specific Dropbox design thinking process, or human centred design process, that they are using as a part of what is called "The Active Soapbox"; a yearly project where they ask all the employees of Dropbox what they think about the company. They send out surveys to everyone to find out what they like and what they want to improve, and from the insights they get, they create different teams that will use the design thinking process to tackle the findings.

The design thinking process

As mentioned before, Iris thinks the innovation process equals the design thinking process and explains it in seven steps: focusing on the user, creating empathy, creating point of view, brainstorming, prototyping and testing. She

further explains: "I personally see design thinking not as something that you always have to go from one to step five, but you can take aspects of it and kind of mash them together in a new way.". Miles and Graham agree, pointing out that you cannot go through a collaborative process by yourself.

4.2.4 The culture

We also set out to analyse the culture of Dropbox to see if it had an effect on design and innovation, exploring things such as the common values, how the employees feel about working at Dropbox and if the office atmosphere plays an important role.

The important values

What seems to be of high importance at Dropbox is the values, being well known by the interviewees and also displayed on posters on the walls in the Dublin office. Iris tells us that they are derived from the way the culture works, and not the other way around. The values are: *we, not I; sweat the details; aim higher; be worthy of trust;* and *cupcake.* The values are all written on posters, except for the last one; cupcake, which is instead visualised in an illustration (of a cupcake). The interviewees keep giving examples of the values from their work experiences. For example Amanda explains the cupcake as "going over and beyond, delighting the customer." Miles tells us about their detailed oriented product development: "We fine-tune things to the very last moment, and then launch when we know it is guaranteed to work." (sweat the details) and explains that they emphasize teamwork (we, not I).

A positive start-up chaos

Dropbox is in a "hyper growth stage", a stage described by Miles as the sweet spot with the flexibility and freedom of a startup, profitable enough to have resources for marketing, but still not at the stagnating corporate stage. Amanda says: "Compared to big corporate companies in the field Dropbox is smaller, more agile and hip.". Dropbox is growing at a high speed and it can be noticed in the culture. Miles describes it as sometimes being chaotic due to all the changes happening; "but I think it's chaotic in a good way; you get a new challenge and there comes a new chaos and then we solve it. So there

is a positive chaos.“. The workplace is defined by challenges and flexibility, giving the employees a lot of different roles and hats, adding extra internal projects and activities to their main tasks.

There are no strict working hours and no typical weeks. With the start-up atmosphere comes a lot of freedom, but also responsibility, and there are great opportunities to grow within the company. Amanda says "if you do well, you can progress quickly". The organisation is flat. Miles says "you can go and talk with anybody and there's no like hierarchy" and Jasper tells us that in the small Sydney office you can just shout across the room if you have a question, and whoever it is directed to will answer; "everyone is very approachable, so anything you need help with or have a question about, you can just go directly to that person.".

Fun, collaboration, experimentation and trust

When asking how it is to work at Dropbox, the interviewees, sometimes referring to themselves as "Dropboxers", express words as love, great and fun. Working at Dropbox is "incomparable to anything else" and "the best place to work at". Miles explains, that it is the culture that makes him love it: "The culture is kind of like the glue, I mean, that is the reason why you wake up in the morning and why you actually do those extra hours because it's something you actually believe in.".

Iris describes working at Dropbox as a lot of fun and everyone being extremely helpful and *collaborative*. Miles says "It is super we-spirit and not just looking at yourself" and thinks it is due to the small size of the office. They work a lot in teams and have many common activities, both in- and outside of the office.

All of the interviewees regard *experimentation* as a big part of the culture. Miles explains: "Experimentation, that is the whole theory, we try a lot of new things and sometimes we fail, sometimes it works" and Amanda says "you really get to try things and be very active and innovative" and "it is the kind of atmosphere that allows you to be a bit... crazy is probably not the right word but... think outside the box. It is very much supported and it is a good thing". Along with experimentation comes the risk of making mistakes,

but according to Miles that is not an issue: "I think we are a very good environment in encouraging people to try out this. So mistakes are not really bad, it is more like something, that they are fine with." and Amanda relates it to the values: "I think the principle be worthy of trust really allows you to make mistakes".

Amanda tells us that she feels trusted at Dropbox "you're trusted in the sense that you can take on projects and you can kind of choose yourself what path you're taking and you get the trust to do so." She thinks that they really *trust* the employees, since they have made a solid screening, making sure everyone is worthy of trust and Miles concludes "It's all about trust".

Talented and inspiring people

When we ask the interviewees what inspires them in their work environment, almost all of them answer: the people. Jasper explains: "I'm surrounded by the smartest people I've ever met" and Graham agrees and says that it is incredible how many talented people that are working at Dropbox and assures that this is what inspires him. The people are furthermore described as positive, open, friendly, helpful and supportive.

Dropbox seems to be putting a lot of effort into hiring the right people. "Hiring people who have the right fit to the culture, is very important." Miles says and Amanda further explains: "We have hired different personalities, but at the same time self motivated people, so people that are ambitious [...] I think we are very different personality wise, with a lot of my colleagues but we still have the same drive.". When they hire people they also always test for creativity.

4.2.5 The workspace reflects the culture

We enter the Dropbox office to find an open office space, full of young people chatting on the phone, teddy bear pandas, balloons, palms, couches and a hammock. Desks with apple devices. Around the corner there are three long dining tables with benches pushed together for a lot of people to eat side by side at the same time, there is a café with all kind of treats and types of coffee you can imagine. Next to it is a huge Dropbox bean bag. People are wearing jeans and t-shirts or a shirt and there is a high energy level. Behind the couches there are three small conference rooms with glass walls, one of them is named Tunnel of Pandas, decorated with a pink panda wallpaper. The employees are not really sure what all the pandas is about, but one thinks it is the mascot of Dropbox. From the sixth floor is a nice view over the city.

The startup atmosphere can also be noticed in the office. It is crowded with people and Amanda explains that they will soon be moving to another floor of the house that is currently being renovated. She takes us through the security doors to the next room on the current floor, and we find a big space, completely empty except for a couple of clean desks, a corner filled with cardboard boxes and a football table. All signs in the office are printed posters on the walls, displaying the logo, the values, and some inspiring quotes such as "wake up, kick ass, repeat", which gives a sense of temporariness.

The "tea and scones cart", available for any volunteering employee to sign up for to push around the office and hand out a delicious snack, and the music room turns out not yet to have reached Dublin - they are situated in San Francisco. In Dublin they have to settle for a football table, some guitars, a bar, a gym and a beamer to screen movies or games at any time. Except for the well filled kitchen they also have an agreement with the café downstairs, where they can get barista made coffee for free. A food designer prepares buffets for breakfast, lunch and dinner every day. Amanda tells us "you could basically live here if you wanted to" and Miles comments upon the extra amenities: "If I would say very pessimistically I could say that all these perks are a good way to hire people but I think essentially they are a

reflection of the culture in the company." He continues saying that he thinks it makes the environment more relaxed, gives a feeling of that people can be themselves and be more open, collaborate more and strive towards the same vision.

The open and energetic workspace is not only sunshine though. Some of the interviewees point out that they actually feel more creative when they are in a calm environment. "I guess during the morning. When there's not a lot around" is Amanda's answer to the question "When do you feel creative at work?" and Miles says "I think it's those moments when I can be by myself with a problem. And create some kind of hypothesis or ideas for how to solve the problem." Miles's solution is to find a quiet café to work at or from home and Iris finds her peace in one of the small conference rooms, equipped with post-its and whiteboards. There also seems to be a small separation between work and social life. Iris tells us: "We're like this hub in Dublin where no one really has their outside world". It seems like that is mainly an issue in Dublin though, where most people have moved there mainly for the job and do not really know anyone else than their colleagues. In San Francisco people tend to already have an established network of friends and family within the city.

The interviews give a clue about the Black Ops team in San Francisco, focusing on keeping the employees happy and the Dropbox spirit alive. Fast Company provides some more info in their article interviewing the Black Ops team leader (McCorvey, 2015). He explains that the name Black Ops is for "this secret wing that accomplishes whatever needs to be done at the company" and that their main tasks are to connect people and keep them informed, inspired and happy. They are aiming to keep the spirit they had when they were 10 employees even when they are 1000. He points out the importance of design when communicating a message in their work. For example, they design team specific items to give the different teams an identity and to help them feel proud about what they are doing. It could be dices with the core principles, emblems or t-shirts.

4.2.6 Strategic importance of innovation & design

Our research shows that design, along with innovation, plays an important role at Dropbox. Not only in their daily work, spirit and culture but also in all the effort they put into hiring top designers. The interviews tell us that the designers working at Dropbox are in top class, and according to Miles "the designers are kind of the gurus of their world." Iris claims that you can notice that it is a very design oriented company. In contrast Graham tells us there are different views on the importance of design: efficiency versus culture of innovation.

Dropbox in the Design Ladder

How strategically important is design at Dropbox? To create a discussion about this subject, we asked the interviewees to place Dropbox in the Design Ladder. Four of the interviewees placed Dropbox on the third step; "design is integral to the development process", while two interviewees found the fourth step more suitable; "design as strategy".

STEP 4
Design as
strategy

STEP 3
Design as
process

STEP 2
Design as
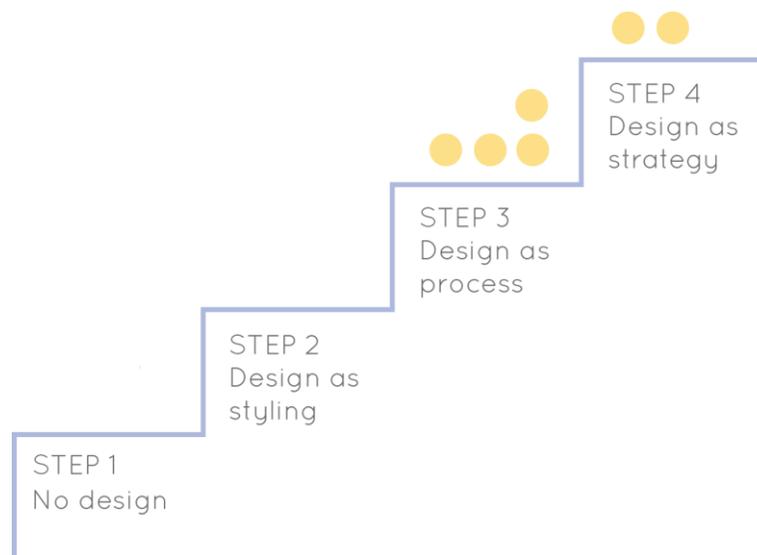styling

STEP 1
No design

FIGURE 5: Dropbox in the Design Ladder

Iris, putting Dropbox on the third step, was not sure that design as strategy was applicable as a strategy, claiming that "We are not IDEO". Graham, also choosing the third step, explained that it depends on the kind of people you are dealing with; some are more pragmatic and efficient and see design as a strategy to be too resource intensive, taking too much time, while others would take design more seriously. Miles chooses the highest level, step four, and explains,

> "I think design and innovation is so much in the heart of Dropbox, keeping things simple, that we don't even need to talk about the design as a separate thing. I think it's a matter of routines, like you know, in individual person's life, if you naturally eat healthy, workout, sleep well, you don't need to talk about them as separate projects, you just do them, so design is like a natural habit for us. And that's why the highest level."

The result so far shows us, that all of us are innovators and designers, innovation appears everywhere in the company and design methods are being used in everyday work all the way from the design core in San Francisco to the sales office in Sydney. There is no specific process for innovation or design, it is rather a mindset and it comes down to the everyday tasks, the spirit and the glue that unifies and inspires people in an organisation and affects their way of working.

4.3 Case 2

13:30 AM, 1.4.2015, DUBLIN, IRELAND.
We arrive to LinkedIn's Dublin office in the afternoon, without knowing what to expect. It is a grey concrete building in the centre of Dublin and we know straight away that we have come to the right place when we see the blue LinkedIn logo on the entrance wall. There are two friendly guys sitting in the reception and we ask for Edward. We are asked to sit down on the white leather couches under the staircase to wait for Edward to come back from lunch. When he comes we sign in at the reception and walk up to meet the workplace manager Vivian. She is not there so Edward takes us up for a coffee to the brand new fifth floor, where LinkedIn's coffee bar is situated. Fruits, flavoured water in cans and chocolate are available at the coffee bar. A lot of people are sitting in the couches. They are working or just chilling and chatting. We can immediately notice the difference between the old part of the building we just came from, and this new floor with its modern design and lively atmosphere. There are a lot of people in the café and Edward tells us it is always like this after lunch. Employees are walking by in groups, laughing and talking, some wearing gym clothes, others casual work clothes, maybe going to the gym or to a meeting. After getting our cappuccinos from the barista, Vivian joins us and we sit down at one of the tables to have a chat. The café is cosy and people are welcoming. "So, girls... what do you need?" Vivian asks us friendly while finding a clean page in her notebook. Two hours later she has given us a tour in the office, a long interview and organised three more for the next day. We have our second case confirmed.

Hello LinkedIn!

LINKEDIN DUBLIN OFFICE.

4.3.1 LinkedIn – the world's largest professional network on the Internet

LinkedIn started out in the living room of co-founder Reid Hoffman in 2002, and was officially launched on May 5, 2003 (LinkedIn, 2015). In 2011 LinkedIn was listed 24th on Fast Company's yearly list of the 100 most innovative companies in the world (Fast Company, 2011).

Out of the 3 billion professionals around the world, LinkedIn has more than 347 million members in over 200 countries and it is the world's largest professional network on the Internet. LinkedIn is publicly held and has a diversified business model with revenues coming from member subscriptions, advertising sales, and talent solutions (LinkedIn, 2015). LinkedIn has offices in 26 countries around the world with its headquarter in Mountain View, California. Jeff Weiner is the CEO and there are almost 7000 employees working at LinkedIn. (Eileen Slamon, interview 1.4.2015). The company is growing fast and according to many employees LinkedIn is now even in a "hyper growth" stage.

Business solution

A membership at LinkedIn is free, however LinkedIn has three business divisions where it derives its revenues from, which are; *Talent Solutions*, *Marketing Solutions* and *Premium Subscriptions*. Shortly described these divisions provide the company revenues by selling recruitment services, advertising and subscriptions. Described in more detail: *Talent Solutions* is a service for recruiters and corporations, where they pay for a branded corporate page on LinkedIn. Within this service they also pay per click through Job ads, that are targeted to LinkedIn users, who match the job profile. Additionally within this service they pay for access to the database of LinkedIn users and resumes. The second division is *Marketing Solutions* which is a service for advertisers, that pay for pay per click-through targeted ads. Finally *Premium Subscriptions* is a service for members of LinkedIn that want more than just the basic features of the free LinkedIn service and pay a certain amount per month for these extra features. The services within Premium Subscriptions are *LinkedIn Business* for business users, *LinkedIn Talent* for recruiters, LinkedIn *Sales for Sales Professionals* and *LinkedIn*

JobSeeker. LinkedIn *JobSeeker* is for example an extra service for unemployed LinkedIn users that are looking for a job.[5] (LinkedIn, 2015)

The European Head Office

In this study we visited the European head office in Dublin, Ireland. Linkedin opened its Irish office in March 2010 and the Dublin office is the headquarters for European Middle East and Africa (EMEA) and has around 750 employees. The Dublin office consists of six departments: global sales organisation, global customer operations, global talent organisation, engineering, finance and marketing. These departments are further divided into separate teams with different work tasks. (Eileen Slamon, interview 1.4.2015)

The interviewees

The table below shows all the employees we interviewed. In Dublin we interviewed three persons from the sales team, one workplace manager, as well as one engineer. To gather further data we did a Skype interviewed with one designer in Mountain View. The names of the employees have also in this case been changed due to confidentiality reasons.

TABLE 3: Interviewees LinkedIn

NAME	OFFICE	DEPARTMENT
Vivian	Dublin	Workplace
Edward	Dublin	Sales
James	Dublin	Engineering
Philip	Dublin	Sales
Elizabeth	Dulbin	Sales
Barney	San Fransisco	Design

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[5] Read more about the services at: https://business.linkedin.com/biz?u=0

4.3.2 Describing innovation and design

When asking the employees at LinkedIn about how they would describe innovation and design, we received a lot of different answers. Innovation was more familiar to the interviewees than design. Below is the result, starting with innovation.

What is innovation?

When asking how the employees would describe innovation they mainly talk about development, improvement, doing things differently and taking risks. Innovation was also described in relation to design as "a value that good design can have".

DEVELOPMENT & IMPROVEMENT. According to many of the employees, innovation is changing something in order to develop and improve a product or a process; "If you're not changing then somebody else is gonna come and catch you". Edward takes it further and says that innovation is to create a value for other people or for something customers are willing to pay for. "So you take an invention or idea and change it into something better". Barney says innovation is "identifying unique ways to solve problems" and Vivian describes innovation as "doing what you're doing more effectively and more efficiently, but with a bit of wow in it".

DOING THINGS DIFFERENTLY & TAKING RISKS. Elizabeth describes innovation as doing things differently; "I think innovation is thinking differently about things. Testing the kind of status quo and the kind of norm". Phillip also says that an adhere part of innovation is taking intelligent risks, which is one of the company's core values.

What is design?

Design was harder for the employees to describe than innovation and the answers varied a lot. One reason being that most of the interviewees were neither familiar with design, nor had worked with it.

HARD TO DEFINE. Some of the employees wanted us to define design and asked what kind of design we meant (design for workplace, product i.e.).

When asking Edward how he would describe design he started to talk about the design for the products and that member experience "is really key". He further explains that member experience is tied to design as well because it really has to be for the benefit of the member, hence easy to use. Edward further says that in terms of workplace design you can really see that the culture shines through in the office design.

CREATING SOMETHING & CREATIVITY. Many of the employees define design as a process to deliver what the customer wants and as creating something. Phillip says that "design to me is the process to find out what customers want or that you believe customers want and delivering that". Creativity was also mentioned when defining design.

4.3.3 Working with innovation and design

To explore how LinkedIn is working with innovation and design we wanted to find out what kind of approach they are using as well as what the innovation and design process looks like. From our research we found that *people* are important, collaboration between different teams is a common way of working and that user-centeredness is an important part of the overall approach. First, an overall approach of working with design and innovation will be presented, thereafter more specifically working with innovation, and finally design.

Collaboration and user-centeredness

As noticed when describing design and innovation, they sometimes overlap. The same goes for working with the two. All of the interviewees mention that they communicate and work a lot with different teams and departments because their work involves many different stages and processes which requires knowledge from different people. For example Vivian points regarding the design of the office workspace "it's been very much a collaborative process" and Phillip says that his work touches "a large number of cross functional parts of the business". According to the employees the products that the company offers are more user friendly than they were before, which also applies to how they work today; it is very important to talk to the customers and the users and everything they design has to be easy

to use. Regarding the workspace Vivian points out that it is important to involve the employees that are going to use the space in the process.

Innovation - happens in the whole company

The interviewees agree that innovation is not separated into a single division or process, but that it happens everywhere, and every team in the company is working with innovation in some ways. According to the interviewees the employees have the freedom to experiment as well as test and try new things. According to most of the employees innovation is about change and to react on what is changing on the market and also about improving the way the company is doing things. According to some of the employees, development is even more important in the digital market, because there the market is constantly changing so you need to be constantly innovating. Many of the interviewees point out that LinkedIn is a company that is constantly looking into how they can make things better. According to Vivian there are even initiatives from the CEO, who started a discussion about change "if there was one thing you could change about LinkedIn, what would it be?" which have resulted in the employees talking about how they could develop and improve the company. The employees also explain that they are allowed to try out new things with the risk that it might not work out;"if you don't fail you didn't try." (Vivian).

When asking the employees what team is the most innovative, they mostly mention the production team but also say that every team is innovative in some way. Phillip says that product innovation is mostly US driven and that there is a lot of innovation going on there, in terms of the functionality of their products, how they look, how they feel and what the customers want. Elizabeth also mentions the sales team being very innovative; "I think in terms of sales and stuff like that there's innovation as well, I think we're quite innovative at that in terms of how we approach the customer, the pitches we have, the way that we use technology in our sales.". This all points to what has been confirmed by the interviewees; innovation comes from discussions and chats with people, thus seen as a collaborative process rather than a one man show. James even points out that the worst way of innovating is having a "chief of innovation" who decides the whole innovation agenda for the company.

The executive leaders at LinkedIn also have an active role and support all the employees to engage in innovation from different aspects. They support and push the innovation agenda forward by speaking about their visions of the company in the *All-hands meeting*[6] every other week. Barney also says "innovation is very important and there's an expectation within our sub groups and teams, that there needs to be constant improvement". They also push the innovation agenda by organising theme days such as the *InDay*[7] and *Hackday*, where every employee spends the day doing other things than their core job. Edward, who works in sales, tells us that the only time he feels creative is when when he works with those kind of side projects.

The innovation process

When asking if they can describe the innovation process of LinkedIn most of the interviewees say that LinkedIn does not have an official innovation process. Some say they have different processes in their teams that they are working with, and some employees also mention that the product team has their specific innovation process, but they cannot explain it. Phillip says that they do not actually have a process and that "it's more free flowing than that". He further explains "it's discussions and chats sort of over lunch, over coffee, formal meetings, [...] I don't have a formal, like 'next week I'm gonna deducted to innovation', like it's more organic than that." The actual way of innovating, according to him, is rather to set up a goal, evaluate multiple options and create a plan or process to get there. Vivian, from the workplace design team, says that their team's way of working with the innovation process is similar to "design thinking from the classical view of programming", starting with the problem definition in order to understand what it is they need to innovate. She explains that a request from an employee is only an indication on that there is something to explore, hence

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[6] A global meeting every two weeks, where the CEO stands up and talks about what LinkedIn's operating priorities are and then somebody from a different part of the business gives a keynote address, where everyone gets the opportunity to participate in questions and answers.

[7] InDay is a day at LinkedIn where employees take all or part of the day off, once a month, from the regular work to explore new ideas, hack with friends, volunteer for special causes, invest in themselves or whatever inspires them.

they need to define *the real* problem by looking at different options, asking questions and doing further research.

How is LinkedIn working with design?

According to Barney design transcends everything they do at LinkedIn. Vivian, from the workplace team, also point out that design is something that they work with every day.

When Vivian and Barney are talking about the workplace design, they say it is a collaborative process where many different teams have to be involved in order to design the workplace in the best way. Barney also explains that all the employees within the workplace team can be called designers, if the term is more broad. He further explains that if we explicitly talk about the "real designers" (people with a design education), the project managers are those in the workplace team. According to some of the interviewees the engineers/product team can be seen as designers. Phillips thinks "it's sort of the engineer product teams who are at the forefront of that, who are constantly taking out products and redesigning or designing new ones." Edward also thinks that experience is linked to design and refers to the product, that it should be user friendly and that way create an experience for the user.

The interviewees from the sales departments can not say that they directly work with design. When talking about design they mainly mention making presentation slides and adapting a user-focus by putting themselves in the customer's shoes, to truly understand the person they are selling to.

The non existing design process

Similar to when we asked about the innovation process, the employees cannot really describe what their design process looks like. Vivian still mentions that because everything is changing all the time the process of working at LinkedIn is iterative.

Design Thinking

Most of the employees are not familiar with design thinking or know very little about it. Therefore when asking the interviewees how they would

describe design thinking there are a lot of different answers. According to Vivian design thinking is about being very open and to be able to think about all the possibilities. Other employees say design thinking means doing things differently and that it is related to usability. According to Barney design thinking is a trend: "there is this new trend where a lot of companies are hiring even design firms to help their non classically trained designers to thinking in different ways".

According to Barney the trend of design thinking has reached LinkedIn and affected how they work. He explains that only about a year ago his team did not have as many projects as today and says that "pure solutions with just minimal inputs was probably ok as an approach". Today, more thorough research is required from the employees. He further explains that Linkedin has grown so much and that numerous facilities they now are working with are the size of the Dublin office (around 1200 people) and the same goes with the office in Mountain View in California. That is why he thinks design thinking is required, in order to avoid mistakes when growing so quickly. Furthermore, Barney says that they are just in the beginning of working with multidisciplinary teams and in the future the company will very likely move into the direction of having multidisciplinary teams in all of their projects. Barney also mentions that LinkedIn needs design thinking to innovate, to not "waste a lot of time" and to be able to "continue to succeed at the speed that we need to succeed".

4.3.4 The culture

Culture is something highly valued by LinkedIn. This was clear when gathering information from online sources i.e. company web page, blog, as well as when doing field research; interviews with the employees and observations in the workplace.

On LinkedIn's official blog there is a presentation about the company culture (Wadors, 2015) where they describe how important the culture is; "Culture is something we take pride in at LinkedIn. As the collective personality of our organization, it sets us apart, defines who we are and shapes what we aspire to be." (Wadors, 2015). This is also confirmed when talking to the

employees. Many of the interviewees mention that the company has a strong culture that is lived out in the company. Elizabeth says "there's a great culture, I think a lot of companies preach and speak about the culture, but not always implement it, but here I think that they really do try to implement it here." Phillip also mentions that LinkedIn has an innovative nature which is "summed up in the values and the culture." According to Vivian the company is now trying to be more innovative and creative, the culture is changing and is not as stiff as before

A culture of transformation

LinkedIn's culture is described as "the collective personality of their organisation" that includes five themes (Wadors, 2015). Transformation is the most common theme that comes up when interviewing the employees. The company is growing fast, which requires a lot of transformation and according to the employees the rapid growth also means constant innovation. Barney explains that "for me, every day requires creativity and innovation because business is growing so fast.". LinkedIn is a culture of three different kinds of transformation: *transformation of self, transformation of company* and *transformation of world* (Wadors, 2015). There are many different ways the company is working with each of the three themes of transformation and this is something that clearly comes up when interviewing the employees. For example many of the employees mention that there are a lot of initiatives inside the company to help people grow in their career and even to change career if they want to, which is a concrete example of how the company is working with the theme *transformation of self*.

> "They really encourage you to kind of focus on other areas than your core jobs, so there is a lot of initiatives such as parties, different volunteer work, there is a huge initiative to help yourself transform, doing different training, and you learn something about the different areas of the company. So if you wanna continue developing and learning and getting new skills it is a really amazing place to work." (Elizabeth, 2015)

The seven important values

Apart from the five themes that describe the personality of LinkedIn's culture the company has seven values: *our members come first, relationships matter, be open, honest and constructive, demand excellence, take intelligent risks* and *act like an owner.* The values are described as "the operating principles they use to run the company on a daily basis" (Wadors, 2015). According to the employees the values are an important part of the culture and lived out in the whole company. Edward says that "you can kind of feel that we are one big family and everybody is really friendly with each other". We will describe some of the most common values that came up when interviewing the employees and that we find important for the context of this thesis.

TAKE INTELLIGENT RISKS. One of the core values of the culture is to take intelligent risks and according to LinkedIn this is a key reason for why the company has been so successful (Wadors, 2015). They try to keep the startup mentality and say that every risk they take will not work out, but that it is important to learn from those mistakes and then move on (Wadors, 2015). Every year the company focuses on one of the values and this year it is "take intelligent risks". Edward explains what an intelligent risk is: "we are allowed to take risks, but we have to evaluate them first. So, that is the intelligent risk, we have to evaluate the upside to downside, like what is the potential cost and kind of compare to the benefits." This value has been reached out to the whole company by the management team and the CEO. According to Philip the goal is that everyone in the company would take at least one intelligent risk this year.

RELATIONSHIPS MATTER. Another important value is relationships matter. LinkedIn thinks their business requires to build relationships and it extends into the relationships that they have at work (Wadors, 2015). They take into consideration that people have different experiences and perspectives and by fostering trust among all the stakeholders they will succeed (Wadors, 2015). This also became clear when interviewing the employees; at LinkedIn they value the people. When interviewing the employees they talk a lot about their colleagues and how nice, supportive and smart they are. Phillip says "everybody is incredibly nice, smart, driven, ambitious, challenging and fun

to be around". For some employees their colleagues are also a source of inspiration to grow and develop. According to them everyone's work is respected and seen as important. Vivian says "everybody's job is important, because the success of this office is somehow everybody's contribution. Which is, I think is part of the glue that kind of holds all of the bits of it together.". Edward also explains that when working on his side project he gets the support he needs from other people in the office which is very welcome because it is a project that requires collaboration.

BE OPEN, HONEST AND CONSTRUCTIVE. LinkedIn expect their employees to communicate clearly and to give constructive feedback (Wadors, 2015). They push everyone to be transparent and share as much as possible because they think that will enable them to come up with the solutions to their problems, leverage the best practice and allow all the employees to feel that they are part of the company (Wadors, 2015). Also according to many of the interviewees the culture at LinkedIn is very open and shareable, you can ask anyone for help and you are encouraged to speak up, even if you aren't sure about something. The interviewees further explain that LinkedIn is a lot about strong communication with your colleagues: "there's a lot of different people involved, there are different stages, but you need to be constantly communicating with each other to make sure that it kind of works successfully as a good workflow." (Elizabeth). The culture also allows you to try out new things and one employee points out that if you have an idea, the company is certainly willing to test it. People do not expect you to know everything and they are supportive. Vivian says that "you can put your hand up and you can say 'I got this wrong' or 'I don't know how to do that' or 'I need help, I'm struggling with this' and it's not perceived as something negative.". When asking about what happens if you make a mistake, all the interviewees agree on that the culture allows you to make mistakes, and that you learn from them. Philip even points out that "people make mistakes but you can't be in an industry like this and get right all the time. If you are a company that get it right all the time you are slow moving [...] it doesn't work that way." Many of the interviewees also mention that being open, honest and constructive is also important in terms of feedback and Vivian mentions that the company encourages to give both negative and positive feedback, because it will help to make things better in the company.

LinkedIn is a nice place to work at

When we ask the employees how they like working at LinkedIn, they all agree that it is a great place to work at. We get several similar answers and for example Phillip says, "It's fantastic. I love it. It's by far the best place I've worked." and Vivian says "I think my family would say I haven't been happier." According to all the interviewees there is no typical week at work, the work tasks vary a lot and every day is different. In terms of working hours and the physical place you work from the culture is also very flexible.

4.3.5 A change in the workspace

The Dublin office is situated in the centre of Dublin. It is a building with six floors in two connected buildings and the different departments are placed into separate parts of the office. On the 6th floor is the dining area where all the employees are served free breakfast and lunch. Snacks and coffee are also free and available during the whole day for all employees. There are also other rooms and spaces that are not related to work, including a gym and a praying room.

The design of the workplace has gone through a lot of changes during the last couple of years. Along with the growing workforce LinkedIn is building a new office right next to the old one that is planned to be ready in 2017 and has capacity for around 1200 employees (Bohan, 2014). According to Vivian the office used to look like a typical "traditional office space" but now you can clearly see the changes made in the design of the fifth floor. This floor is brand new and very different from the old building and floors. At the fifth floor there is a café with LinkedIn's own barista, a lot of hang out areas and transparent conference rooms. According to Vivian the transparent conference rooms was an intentional choice when designing the workspace and reflects one of LinkedIn's core values; *be open, honest and constructive.*

You can clearly see that this floor displays the culture of LinkedIn in a visual way. There are different textures and design details everywhere, such as the core values hanging on the wall with reference to quotes by Dublin writers. Edward also points out that "they really take into consideration kind of what

our culture is, what our value is and put that into effect when they design the work spaces for us.". Barney from the design team in California even points out that the workplace design is a differentiator for LinkedIn and a huge success factor of the company. He says the design of the workplace is affecting the experience of the employees from the moment they come to work to the moment that they leave and everything in between. He also says that when designing the workplace they also need to think about it from a strategic point of view, so that it aligns with and fits into the leader's vision and "how that gets interpreted for each business unit and each location."

You can clearly see that the design of the workplace supports the user of the facilities, which is also mentioned many times by Vivian from the workplace team; "there are aspects of how we design their space, that needs to support the type of work that they do". Vivian further explains that the conference rooms in Dublin have been designed for a "seamless experience", with tables that allows you to see everyone that sits around it and with conference call cameras in eyesight to make it similar to when you are talking to a person in a real physical meeting. The different rooms are also designed to meet different feelings and purposes, e.g. couches and cosy lighting in one room and hard chairs and a big conference table in another. The interviewees like the new fifth floor a lot. Elizabeth thinks that the environment makes a big difference and explains that when she comes down to the fifth floor she goes to the cafeteria, which helps her to focus.

4.3.6 Strategic importance of design & innovation

All of the employees we interviewed agreed that innovation and design is very important at LinkedIn. Some employees said so when talking about design from a more traditional view of design such as designing webpages, colour coding i.e., and others from a more strategic view of design such as "problem solving type of design".

Barney from the workplace design team says that LinkedIn has hired many new directors, within the management team during the past year. According to him these managers are very experienced "industry veterans" and in a very short time the focus of the company has been concentrating on design,

meaning how LinkedIn works with design and defining the results of the design process.

When asking how high up strategically design is at LinkedIn Barney says it is at the highest level;

> "If it is the problem solving type of design, I feel like that is very much at the highest levels, because that is the innovation agenda, the speed of which we need to create new things, we talk about that all the time for the leadership [...] it goes up to the vice president level, so the top of our leadership chain, and directors very much, this is a big priority."

LinkedIn in the Design Ladder

How strategically important is design at LinkedIn? To create a discussion about this subject, we asked the interviewees to place LinkedIn in the Design Ladder. Three of the employees would put LinkedIn on the third step in the ladder; "design is integral to the development process", while two of the interviewees would put the company at step four; "design as strategy".
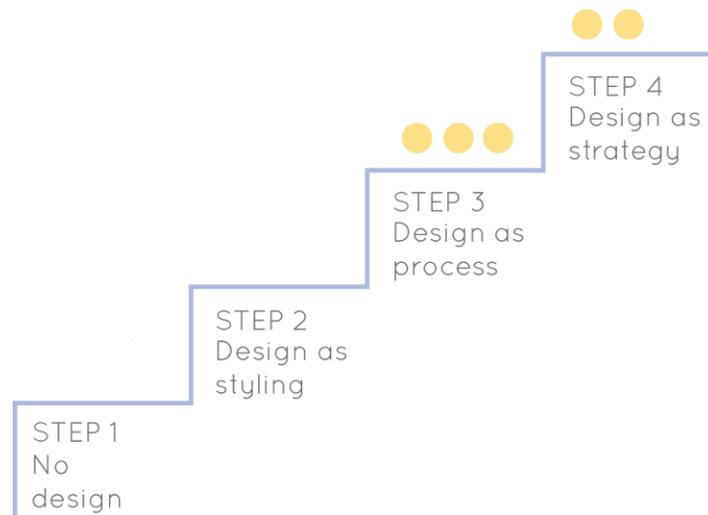
FIGURE 6: LinkedIn in the Design Ladder

All the employees from the sales team put LinkedIn on stage three. Elizabeth is a bit uncertain but says she "probably would go for…for three maybe" because she thinks "development is key, development of new products". Edward who also choses step three thinks "design is an integral part of the development process because I believe design is taken into the consideration in many of the product and workplace decisions made in the company." He also thinks that "LinkedIn is moving towards number four, as design is becoming even more important for making the right strategic decisions and developing products that will enhance our members and clients experiences with LinkedIn."

Both James from the engineering team and Vivian from the workplace design team were very sure about LinkedIn being at stage four in the ladder. According to James LinkedIn has "a very high level vision of the whole company and the products and how we want to work with the environment and the strategy is defined on that base and the products are defined to be aligned with that strategy." Vivian says, "Definately stage four. Definately. Without a shadow of a doubt" and explains that she thinks design transcends everything they do; "it's about you know, it's about the process that goes into everything."

4.4 Design and innovation

In this chapter we have presented the two cases of Dropbox and LinkedIn, where a relation between design and innovation seem to exist. The relation found in the results can be seen in figure 7. Design and innovation are seen as parts of the same mindset of constant improvement, and innovation happens everywhere in the organisation - everyone is innovators. We have seen that the culture is considered as important for innovation in both companies, as an integrator for the mindset. The values, as well as the workplace, seem to be important for reflecting the culture. Finally, the strategic importance of innovation in the companies was discussed and also the result from the discussion about the Design Ladder was introduced to demonstrate how important design strategically is in the companies. This will be further discussed in detail, as well as compared to theory in the next chapter: *Analysis.*
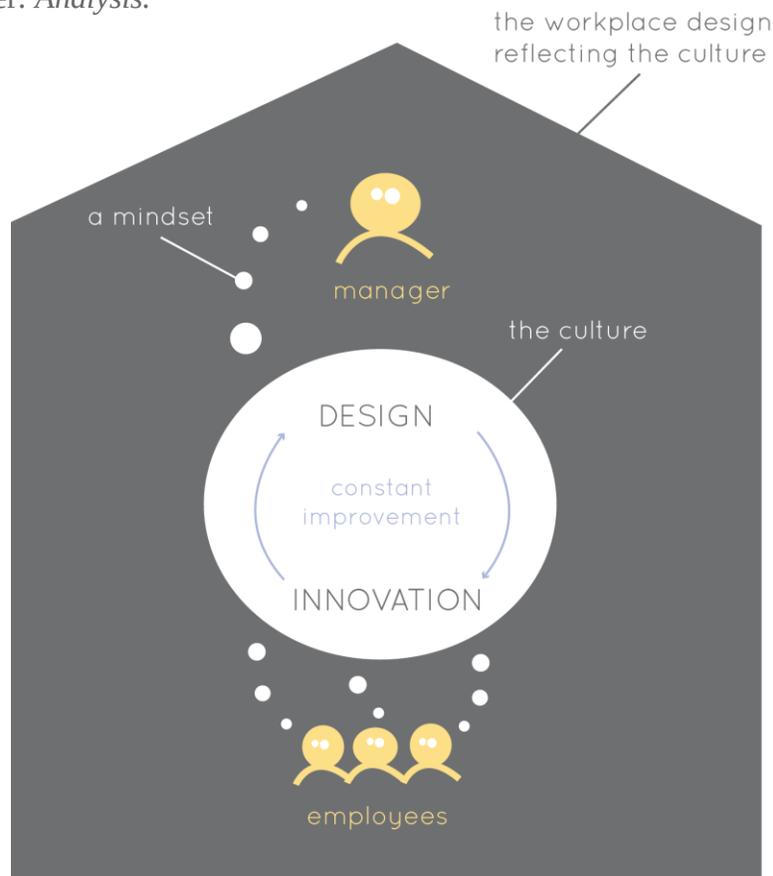
FIGURE 7: The relation between design and innovation

5. Analysis

So, what is the relationship between design and innovation in two young IT companies? In this chapter we will answer the research question by comparing the empirical result to previous literature and the theoretical framework presented in the theory chapter. The two cases are analysed together, and referred to as IT companies, but differences in the two cases will also be discussed.

5.1 The relationship

A relationship between design and innovation has earlier been found in several different contexts (eg. Edeholt, 2007; Press & Cooper, 2003; Jahnke, 2013). In this study we can also find that the two disciplines are connected in more than one way.

5.1.1 Design and innovation are overlapping

The result confirms that design and innovation indeed are overlapping terms (Edeholt, 2007). They are described in relation to each other, directly and indirectly, as in the literature (Press and Cooper, 2003; von Stamm, 2004; Jahnke, 2013).

For example, innovation is described as the act of identifying unique ways to solve problems, which can be related to von Stamm (2004), who also claims that the activity of design is to find unique ways to solve problems. An employee describes design as a "construction of innovation that is meaningful" which can be related to Jahnke (2013) who relates design to the creation of meaning. Innovation is also often described as improving, which is related to Simon's (1969) theory that describes design as always being related to an improved future. Design is further being described as a controlled process that brings innovation to life, which is a bit contradictory to the design process that is often described as chaotic (Dorst, 2011; Brown 2009). It is interesting, though, that design is seen as a *controlled* process to bring *innovation* to life, meaning that it is a controlled way of creating innovation. Finally it is also mentioned that *everything* design does is innovation.

However, if we turn it around: solving problems, improving and a controlled process is not necessarily only describing design. In contrast to the Swedish[8] meaning of the word design as only the design discipline, the english word can have several meanings such as "construction" or "plan". Edeholt (2007)

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[8] Swedish is the native language of both researchers.

argues that the meaning of design as a discipline in between rational, commercial engineering and intuitive, cultural arts, often gets mixed up with engineering while the art side is left out, which could be the case in these findings.

Design and innovation as a process of working

The result shows that the companies do not have a typical innovation process, since innovation is rather seen as an ongoing part of the company's operations. This view is in line with Stamm's (2004) innovation theory of seeing innovation as a mindset of constant change.

The result does not show a specific design process, which could be explained by our scope of looking at the companies from a wider angle, rather than zooming in on certain processes in certain departments. Although when referring generally to a design process the result shows that it is something you need to have a (multidisciplinary) team to go through. The companies point out, in line with Dorst and Cross (2011), that it is a collaborative process, where it is important to get everyones, or the users', input. In Dropbox's case, instead of a design process they rather have a mindset of user-centeredness, always emanating from the user.

Both companies relate the innovation process to the design thinking process, which shows a clear relation between design and innovation. This is not a surprise, since design thinking is often seen as process for innovation (Brown, 2009). Also when referring to the design thinking process, the result shows that it is something you need a multidisciplinary team to go through, but according to the employees you can also use only bits and pieces of the process. Dropbox describes the design thinking process in seven steps: focusing on the user, creating empathy, creating point of view, brainstorming, prototyping and testing. The design thinking process at Dropbox can be compared to Brown's (2009) description with the three steps: inspiration, ideation and implementation. Inspiration is where the problem or opportunity is defined, which could be comparable to creating empathy and point of view. The second step ideation - generating, developing and testing ideas - is comparable to brainstorming, prototyping and testing. What is missing is the implementation phase. Brown do argue,

that the process is iterative, open to changes and does not follow a certain path of clear steps.

Both companies point out that there is a need for constant change in the IT world, due to the rapidly changing digital market, and according to Cooper (1998), that is why innovation needs to happen continuously. The result also confirms what is stated by Baregheh, Rowley & Sambrook (2009) as well as Cooper (1998): that companies need to innovate constantly in order to compete and differentiate themselves successfully on the market.

5.1.2 Two design-conscious IT companies

Comparing the result to theory, it is clear that both companies favor a user-driven approach (Brown, 2009). As mentioned in the theory by Gemser, Jacobs and Cate (2006) the IT sector is often characterised as being technology-driven, which means that companies focus on client-specific services and that the development process is usually dominated by technical and functional requirements. What they further claim is that design conscious companies can be found in the IT sector as well, which we can also clearly see when looking at both cases. As a contrast to a technology-driven approach both companies are more design-conscious, because they have a more user-driven culture where the goal is to develop services that are user-centred through the aspects of aesthetics and usability (Verganti, 2009). The usability of the services is important for both companies and they also point out that usability is an aspect of design that brings innovation into an organisation.

The human-centeredness is like a red thread throughout the result. Customers are the center of attention for sales and design, while the employees are the center of attention when designing the workplace and the culture. At Dropbox they say that they constantly listen to the needs and wants of the users, both when doing design research, as well as through a flow of feedback from the customers, via sales back to the developers. In both companies, but especially at LinkedIn, the employees say it is staying on top of the newest and latest and reacting on what is changing in the market,

which shows a market-driven approach that is also characterised by a user focus.

The human-centred approach the companies are applying can be seen as contradictory to Verganti's (2009) design-driven innovation theory, since the driver of innovation is different. The driver in design-driven innovation is to have the competence to interpret, foresee and influence the occurrence of new product meanings, (Verganti, 2008). User-need analysis can still be part of the design driven innovation process, but the main focus is on the meaning of the product. Since the result shows that the approach of the two companies is user-driven, Verganti's theory is not applicable. We can not, though, rule it out completely, since this research have not covered all parts of the organisations. A design-driven focus might be found when taking a different angle or focus and looking closer at the product development process.

Design thinking – an upcoming trend

Along with human-centredness, design thinking is expressed as upcoming in both companies. Some employees from the sales team at Dropbox tell us that they bring design thinking into their everyday work. At LinkedIn it is a trend that have just reached the company and at Dropbox design thinking is implemented in many ways but not yet completely integrated.

Design thinking forces you to stay with the problem and not jump directly to the solution.This will get you a better comprehension of the problem (Liedtka, 2014), which we have seen examples of in both companies. Just the knowledge of the open-mindedness of design thinking have made them more patient and made them realise, that ideas they first thought were crazy actually turned out to be great.

Design thinking is definitely something they apply at Dropbox. It is integrated in their daily work, as well as being taught to newly hired employees in sales as a tool for innovation. The workshop that was observed in this research was though an individual initiative of one of the passionate design thinking employees in the Dublin office, and the result tells us that it is rather an individual driven approach, than encouraged from the top management. Nevertheless, these "individual initiatives" are supported from

the headquarters, which further shows how important freedom and the sense of trust in the culture is for innovation (Dul & Ceylan, 2011).

In the case of LinkedIn it is not clear how they are using design thinking. What we can see, is a shift of focus towards a more design-conscious company, bringing in design veterans to the top management and changing their approach to be more user-focused. The trend of design thinking seems to influence the way of working in the company, by putting the user in the center and demanding more user-input and research instead of just one simple solution. They see design thinking as necessary when growing so fast and they have just started to create multidisciplinary working teams.

Although design thinking can be seen as a good way of incorporating design into the organisation, it has also got a lot of critique. For example, it has been criticised to leave out some of the important aspects of the design discipline (Johansson Sköldberg & Woodilla, 2013; Tonkinwise, 2011; Edeholt, 2007). One can wonder if the design practice in these companies takes into account all the aspects of the design discipline, such as material and aesthetic knowledge and methods that not only supports the rational but also the more intuitive subconscious conductions, also referred to as the designers nonverbal competencies and skills (Brown, 2008; Johansson Sköldberg & Woodilla, 2013; Edeholt, 2007; Tonkinwise, 2011). Are they instead using design more as an innovative "toolbox" for problem solving, such as design thinking has many times been described and criticised for? This might be the case, since many of the employees define design thinking as a method or a tool, and therefore it might be fair to say these two companies do not depart from the essence of design or how the designer works (Dunne & Martin, 2006). This way of working with design thinking is also in line with (Johansson Sköldberg & Woodilla, 2013) separating design thinking from designerly thinking. In this case the companies are working with design thinking, which is a simplified version of designerly thinking (Johansson Sköldberg & Woodilla, 2013). Design thinking, according to them, is often used within the management field, where design skills and knowledge are used for and with people without an education in design and as a way to be creative and innovative, which correlates with the findings in this research. This is further strengthened by the fact that in the Dublin offices they do not

have any "real" designers, hence the designers nonverbal skills are not present in the design work there. Further in order to use design thinking fully, it requires a multidisciplinary team (Brown, 2008) that also includes "real" professional designers, which can not be the case, apart from at the headquarters in California where the design teams sit in both companies. This aspect we can only speculate about since our study mainly covered the Dublin offices.

5.1.3 A mindset integrated in the culture

Innovation is overall described as organic and that it happens everywhere in the organisation rather than in a separate division decided by single individuals. It should rather be incorporated as a mindset of creativity. This approach to innovation is similar to von Stamm (2004), seeing innovation as a mindset to be integrated in the whole organisation. To illustrate, the worst example of innovation is described as having a chief of innovation or an innovation department.

At Dropbox design is described as the visible layer of the company, the corporate design, how the offices are shaped, and also to include the "underlying layer" where the everyday work process is. In that sense it is seen as part of the whole organisation, in line with Gardien and Gilsing (2013) who claim that design needs to be the core of the business in an integrated way. This point of view also goes hand in hand with the notion of von Stamm (2004) that points out design to be the key facilitator for the innovative mindset, by being embedded into the culture.

The mindset of innovation and design can also be seen in the way both companies put a lot of effort into creating inspiring and creative workplaces. For example recently at LinkedIn the design of the workplace have been in high focus and shows clear aspects of a user-driven approach of working, as well as design attributes as aesthetics and usability. Several scholars express the importance of an inspiring and supportive work environment for innovation (Woodman, Sawyer & Griffin, 1993; Amabile et al., 1996; Dul & Ceylan, 2011) and in the result it can not only be found in the culture of both companies but also in their workplace design.

People is the key

According to many scholars it all comes down to the people in the organisation, to get all the people in the organisation involved in the innovation process and to contribute on all levels (Woodman, Sawyer & Griffin, 1993; Amabile et al., 1996) which also seems to be the case in both companies. There seems to be an iterative and collaborative working approach in both companies, because they talk about involving different people in the processes.

Both companies say that the talented and ambitious people is their biggest source of inspiration, which is also important for innovation to flourish (von Stamm, 2004). Furthermore, the companies talk about innovation as coming from conversations when discussing back and forth with different people, which was referred to as an "innovation ping-pong".

Since everything comes down to the people, the companies are also putting a lot of emphasis into hiring the right people that fit into the culture. At Dropbox they test for creativity during the hiring process, which is according to von Stamm (2004) a good way to evaluate candidates for an innovative culture. Creativity is further, according to many scholars, a fundamental part of both innovation and design (Dorst & Cross, 2001; von Stamm, 2003), hence here we can see a strong relationship between the two. Both companies ensure some creative work for all of their employees by arranging regular theme days such as the InDay and Hack week. They are also working actively with bringing in concepts of creativity in the everyday work by having a flexible company structure, no strict time constraints (regarding work hours), varying creative work days as well as creative and inspiring workplaces (Dul & Ceylan, 2011).

On the other hand hiring people that are creative can also have a downside. High diversity among employees is also important for innovation (Brown, 2008) and if the companies are only hiring creative people it might weaken the strength of diversity. On the other hand, in this case the companies said it is just one aspect they take into account when hiring people and the companies both have a big variety of employees with different skills and

even cultural backgrounds. This shows that at least the companies have the possibility to work in multidisciplinary teams. Another risk is also that creativity in these types of companies is more of an image aspect because creativity has been praised by the society and claimed to be a source for successful business and innovation (DDI and The Conference Board, 2014), hence something that probably most companies think is important to bring out to their stakeholders.

The values lead the way

The importance of the values are emphasised in the result and they are described as inspiring. The values encourage teamwork, constant improvement, openness and putting people first, which can all be related to Brown's description of a design thinker (2008). The values further express innovation, in line with von Stamm's (2004) description; about taking risk, being allowed to make mistakes, and freedom and flexibility (through trust). Furthermore, De Guerre et al. (2012) advocates a culture for innovation, where mistakes and experiments are allowed, and Martin (2009) advocates flexibility. In the case of Dropbox it is also interesting that one of the values, that normally solely are written in text, is visualised, as visualisation is a communication tool strongly connected to designers (Tomes, Oates & Armstrong, 1998). We can not conclude that it is a direct design relation only due to the visualisation of a value, even though we strongly doubt that it would happen in a non design-conscious company. Nevertheless, all these clues together confirm, what also have been said by the employees, that design and innovation are implemented in the values and the culture, and we can therefore conclude a relationship.

An entrepreneurial spirit

These successful companies both have an entrepreneurial spirit, flexible work terms, open communication and are constantly improving and changing (innovating). The companies are growing at such a high speed that freedom and flexibility is crucial (Martin, 2009). Under these circumstances creativity and a positive problem-solving mind is necessary, and growing fast automatically leads to constant change (or innovation). Design thinking have been seen to bring in creativity in an organisation (Hobday, Boddington &

Grantham, 2012), and a positive attitude towards problems is one of the key characteristics of a design thinker (Brown, 2008). It can therefore be argued that design thinking is needed as a tool to handle this challenge of constant change and ambiguity and to creatively solve new complex (wicked) problems (Dunne & Martin, 2006). It is a "controlled way to bring innovation to life", or to keep innovating.

5.1.4 At the highest strategic levels

Although the result shows that design and innovation are considered as important in both companies, some employees at Dropbox also point out that it varies according to who you are talking to. Some employees prefer efficiency and see design as too resource requiring. Others would take the discipline more seriously and even connect it to a "culture of innovation", which is interesting if considering von Stamms (2004) opinion that innovation should be engraved in the culture and that a very high focus on efficiency does not foster innovation in an organisation. Again at LinkedIn, design and innovation was told to have been the focus and the prioritisation of the company recently. When referring to design as important, they describe how the company works and what the output from the design process is.

In both companies all designers are situated at the headquarters in California, where we can find that design is strategically important and that they work close together with the management team and the CEO. At Dropbox they point out that the company is very "design oriented" and even transcends everything they do and refer to the daily work tasks, the culture as well as the qualified designers that the company has hired.

We will further analyse the strategic importance of design by discussing how the employees placed the companies in the Design Ladder.

The Design Ladder

All the employees in both cases would place their company either on step three or four in the Design Ladder and the placement is quite evenly distributed between the two companies, meaning neither company put more weight on either of the two steps. Step three and four in the Design ladder implies that design is either integral to the development process or even core to the business (Sharing Experience Europe, 2011), in other words that design is strategically important in the company.
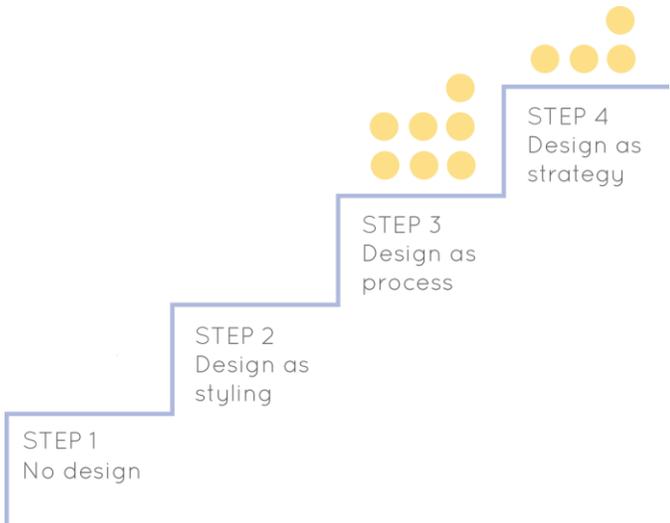

FIGURE 8: Result from both companies in the Design Ladder

Step three was the most common answer (seven out of eleven) among the interviewees. Almost all of the interviewees from the sales teams put the company on stage three in the ladder, which implicates that design is important to the companies as a whole, but not as integrated in the sales departments, although step three already shines light on a high strategic importance of design in the companies. Some of the employees at LinkedIn who placed their company on step three also said the company is moving towards step four, one reason being that design is becoming even more important for making the right strategic decisions in the company and for creating experiences for the users of their services.

The employees that placed the company on step four in the Design Ladder were more spread across different teams, but conclusively all the employees who put the company on step four were highly familiar with design from different aspects. One reason for putting the company on step four at Dropbox was that innovation and design is a "matter of routines" in the company because they want to keep things simple.

Conclusively we can find that design is not just an afterthought in the development process, but that design is already brought in earlier in the process, and can even be seen as core to the business, at least when looking at design as an integrator for innovation or as a problem solving activity. A certain caution should be taken into consideration when analysing what the employees say when praising both design and innovation, since design can be described in so many different ways such as shown in the result. In these cases one could claim that design is indeed seen as strategically important, but here design refers mainly to an innovation activity rather than to the more traditional aspects of design such as aesthetics and the subconscious knowledge and skills of the designer. Another aspect that needs to be taken into consideration is that the reason for why these employees are saying that design and innovation are important, might be because it is something that they know their company think is important, or something that they think that we as interviewers want them to say (Alvesson, 2011). Also the fact that these aspects have been buzzwords in the media recently, might influence how they think about theses terms.

6. Discussion

In this chapter we will zoom out and critically discuss the analysed result in relation to previous research and our own interpretations. What have we found, and what do the findings actually mean?

6. Discussion

This thesis have taken an open and explorative approach to the relationship between the complex terms innovation and design, to stay open for all different kinds of understandings that could be found in the cases. For innovation we received similar descriptions that together made sense, but for design it was harder to find a common understanding. Design was described as wide as everything you consciously can create, which further makes design applicable to any kind of process, and hence the aspects of the traditional design practice hard to find.

Conclusively the result shows, that when describing design it is often related to innovation in many ways. What can be further discussed is what kind of design the companies are referring to. Is design in these companies always innovation and in this case only about change, development, improvement and solving problems or does the design practice in these cases also carry the aspects of the more traditional design practice? These aspects can be aesthetics and the designers subconscious knowledge or non-verbal skills, which are often hard to transfer, hence difficult to prove their contribution.

What could be noted as missing in the result of the design understanding, is the aspects of the knowledge of the practicing designer, the aesthetic knowledge, which has been criticised by several scholars to often be left out in innovation studies (Tonkinwise, 2011). Design being described as problem-solving, improvement and creativity, similar to the result in this thesis, is considered as typical concepts of design in innovation theory, and criticised to diminish the true powers of design (Jahnke, 2013). Several scholars have expressed their concerns over design losing its true values with the spread of design (thinking) as a management tool, which is well expressed by Jahnke: "Design risks being turned into a method-based and cognition-oriented approach for solving 'wicked problems'." (Jahnke, 2013: 41). Many scholars claim that it is in the aesthetic tradition the contribution of design for innovation can be found, and in correlation with the emerging

role of the designer as a meaning-maker, who focuses less on the artifact and more on the emotional relation between people and the objects.

Design as meaning-making (eg. Verganti, 2009; Rampino 2011; Jahnke, 2013) have not been part of the findings in these two cases, which could be explained by the scope of the thesis to explore other parts of the organisation than specifically the designers daily work or the product development process. Further research within the design team in California of both companies would be required in order to state that this is the whole truth. Even though some traditional aspects of the design discipline seem to be be left out, there are still several characteristics that are bringing in a new perspective of design in these companies. It has been proven to be a mindset of creativity with a human-centred approach that contributes to innovation into both companies. These approaches or this mindset could not have been proven if the companies would not have been design conscious at all. Also one can discuss if it is even possible for these big corporations to capture the more traditional aspects of the design discipline and work in multidisciplinary teams similar to companies such as IDEO. Would it make the companies more successful and what would they gain from it? Maybe their way of capturing the design discipline is enough in their case.

Conclusively one could say there are clear signs showing that these companies are taking both design and innovation into consideration, and even see them as crucial for the success of their business. However, it is impossible in our case to tell if that is the whole truth, as it is rather an overall picture we have gotten about the two companies. Also we can not explain how exactly these two companies work with design, since it would require further research within the design team, hence design in this context refers mainly to a mindset embedded in the culture and connected to problem solving and innovation activities. On the other hand, traditional companies that are not driven by an innovative mindset or only take design into consideration in terms of styling, would probably not praise innovation and design as much as these companies. Hence we can see a clear difference here between these types of new young IT companies compared to more traditional companies.

7. Conclusion

In this final part of the thesis we will sum up and conclude our research findings. Finally, the contribution of the thesis to the field of business and design and future research will be discussed.

7. Conclusion

This research set out to explore the relationship between design and innovation in two service providing young IT companies; Dropbox and LinkedIn. In these cases we can conclude that a relationship between design and innovation indeed exist in these companies.

What we have found are two design-conscious IT companies, driven by a user-focus rather than the norm of a technology-driven approach in the IT sector (Gemser et al. 2006). The two companies use design as an innovative design thinking tool, rather than using the aspects of the more traditional design discipline. They are more design conscious than traditional companies, who are often driven by an efficient goal focused mindset and a stiff culture and workplace. The culture of Dropbox and Linkedin are defined by flexibility, creativity and innovation and they also put a lot of effort into creating supportive and inspiring workplaces.

The relation between design and innovation in these companies are found in their user-driven approach of working, closely related to design thinking. Innovation and design are further seen as a mindset of creativity integrated in the whole organisation. Guided by the values and the workplace design, the mindset is integrated in the culture.

7.1 Contribution

This thesis contributes to the field of business and design by exploring how design is applicable in different ways in two IT companies. It contributes to the research of design and innovation by exploring the almost unexplored field in this context of young IT companies. Finally it adapts a new focus on the design research, when studying the overall picture of an organisation rather than the traditional view of design, seen as useful only in the NPD process.

7.2 Future research

The role of design for innovation can still be further discovered, as the relationship as well as the definitions of both terms remain unclear. Further research is needed within the IT field, especially within service providing young IT companies, since it is a new and almost unexplored field.

There is also a need for further research about both Dropbox and LinkedIn, to fully understand how they work with design and innovation. An important research would for example be to study if these companies carry the traditional aspects of the design discipline, by digging deeper into aspects such as the aesthetic knowledge and skills of the designers in both companies.

Furthermore, we encourage more research to be made on the relationship between design and innovation, when looking at what strategic level the organisations operate on, and not to limit the study to only cover the NPD process, but rather explore if and how these disciplines are spread in all parts of the company. Finally, the importance of the organisational culture and workspace seems to be an important differentiator in these new types of IT companies and could be further researched in the context of design and innovation.

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INTERVIEWS

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Appendix

Interview guide

About You

- What are you working with at Company X?
- For how long have you worked at Company X?
- What did you work with before Company X?
- What is your educational background?

Work environment

- Please describe a typical week at work?
- What are your working hours?
- Where do you work from?
- How is it to work at Company X?
- What is the vision and mission of Company X?
- What are the core values?

- What inspires you in your work environment at the office?
- We have heard that you have "a tea & scones cart", a music room and a gym. Is that true? Is there more?
- When do you feel creative at work?
- What happens when you do a good job?
- What happens if you do something wrong/make a mistake?

- Who do you work with?
- How would you describe your relationship with your colleagues?
- How do you spend time with your colleagues?
- Do you have any regular get-togethers?
- How do you deal with conflicts?

Innovation

- How would you describe innovation?
- Do you see Company X as an innovative company?
- How is Company X working with innovation; in the company, in your team and you (as an individual)?
- What department would you say is the most innovative?

- Could you please describe your innovation process?
- Where does new ideas come from?

Design

- How would you describe design?
- How is Company X working with design?
- What kind of designers work at Company X?
- What role do they have?
- What do they work with?
- Where are they situated?
- How are *you* working with design?
- What is your relationship with the designers at Company X?
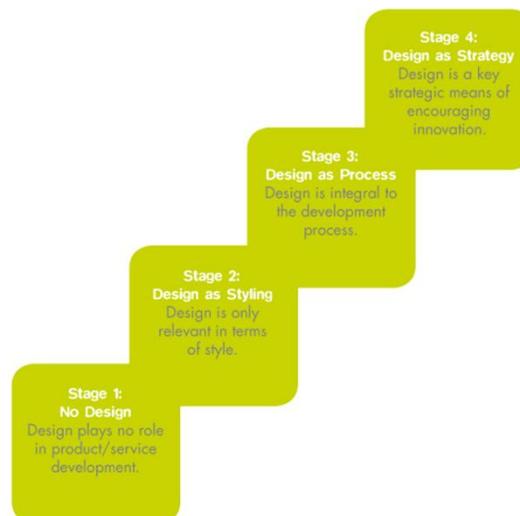
- Where would you identify Company X in the Design Ladder?

Design Thinking

- How would you describe design thinking?
- How is Company X working with design thinking?
- How are *you* working with design thinking?

- Are you familiar with and do you use any of the following tools/methods:
    - brainstorming
    - prototyping
    - co-creation
    - storytelling
    - experimentation
    - crowdsourcing
    - customer journey / blueprint
    - personas
    - storyboard