UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

# Uncovering Design Management

*How multinational corporations can differentiate and better satisfy customer needs by implementing design management to the international R&D processes*

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**Authors**
Källström, Mattias
Markovski, Stefan

**Tutor**
Yakob, Ramsin

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Mattias Källström

Stefan Markovski

# Abstract

**Title:** Uncovering Design Management - How multinational corporations can differentiate and better satisfy customer needs by implementing design management to the international R&D processes

**Background and Problem:** With increasing international competition, it also becomes difficult to survive in the long run. Therefore, only focusing on innovative products is no longer enough. Consequently, better satisfying customer needs and differentiating has become substantial.

**Purpose:** The purpose of this study is to investigate and create an understanding of how an implementation of design management to multinational corporations' international R&D processes can help them create a long lasting competitive edge. Furthermore, essential factors for a successful implementation of design management are to be identified and analysed.

**Methodology:** The empirical material has been collected through six qualitative interviews by a case study at Mölnlycke Health Care, a Swedish multinational corporation within the health care industry. Later, the material was analysed by being compared to the theoretical background, in order to find similarities and differences. Furthermore, in order to answer the research question, discussions have been made to facilitate understanding.

**Results and conclusion:** The study discovered that design management can foster differentiation and enhanced customer satisfaction. However, the outcomes are strongly linked to improved organisational structure and informal communication that design management also emphasises, the latter labeled as 'design thinking'. Furthermore, when providing the design function more influence in the product development process, it becomes a common denominator between R&D and marketing. In other words, design strives to develop user-oriented products with appealing aesthetics, effectively fostering enhanced customer satisfaction and differentiation. Finally, by internationalising the R&D process, the corporation can facilitate further differentiation and customer satisfaction, as leveraged local know-how can provide further innovation as differentiation, but also a better understanding of local customer needs.

# Definitions

*Design:* Design is a process, meant to develop solutions in an innovative way according to both functional and aesthetical user needs, as well as customer demands. Design can be applied to and leveraged in product development, as in organisational processes. The nature of design processes is often modeled as linear, although, it is a highly complex and flexible, jumping back and forth within activities in the search of an optimal solution (Best, 2006; Borja de Mozota, 2006; Brown, 2008; Dunne, 2011; Kotler & Rath, 2011; Miller, 2004).

# Key words

Design management, design thinking, international R&D, innovation, differentiation, customer satisfaction, competitiveness

# Abbreviations

MNC - Multinational corporation

R&D - Research and Development

SME - Small and Medium-sized Enterprise

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# 1. Introduction

The aim of the introduction is to provide the reader with a background of innovation and design management in order to create an understanding of how important it is to differentiate and understand customer preferences. Later, the introduction presents and signifies what problems design management can solve in the problem discussion. Furthermore, the purpose and research question of the study are presented. Finally, the introductions shortly underlines the limitations of the thesis, as well as the thesis' structure.

## 1.1 Background

Corporations constantly have to recess the different parts of the organisation to reduce costs and improve the value adding processes (Burton, 2014; Hill, 2012; Joshi, 2013; Maletic, Maletic & Gomiscek, 2012). Moreover, corporations are required to constantly change in order to stay competitive and survive in the long run (Parker, Peters & Turetsky, 2002; Trott, 2012). In the well-developed society of today, it becomes persistently more difficult for companies to increase their profitability and only creating innovative products is no longer enough (Hill, 2012; von Stamm, 2011).

Innovation is also a matter for the management of corporations. Managerial innovations are for example new organisational structures and processes that add value to a corporation (Birkinshaw, Hamel & Mol, 2008; Kimberly, 1981, in Damanpour & Aravind, 2011; Hamel, 2006). Although, innovation related to management are not vital aspects for fostering successful innovation, on the other hand, it is the human capital itself (Trott, 2012). Nevertheless, innovation in a corporation can be fostered by effective management (Trott, 2012; Kim & Srivastava, 1998) and, thereby, create a long lasting advantage and boost competitiveness (Hamel, 2006). Therefore, it is an ongoing search for finding new ways to manage organisations to best foster innovation (Robbins, Judge, Millett & Boyle, 2014; Trott, 2012). Consequently, one of the relatively new and undeveloped management theories that has evolved is 'design management' (Cooper, Junginger & Lockwood, 2011).

In this thesis, based on the theoretical background, design management is defined and interpreted as a new perspective regarding how to better manage and integrate more organisational functions, with an emphasis on designers, early on in the product development process. This results in a more holistic managerial perspective, with a large focus on design and where all the functions are effectively leveraged. However, it is important to understand that the holistic integration does not always require all functions to be prevalent at all times, but rather emphasises the importance of flexibility. Further characteristics and a more thorough definition of design management are presented in the theoretical background.

## 1.2 Problem discussion

With increasing competition in most industries on an international scale, innovation becomes one of the most important factors distinguishing success from failure (Eucomed, 2013; Landro, 2011). Furthermore, it has become increasingly difficult to stay innovative in the long run and corporations have been forced to find new ways to be innovative (Hill, 2012). Only focusing on producing innovative products is not enough, but corporations also have to find new ways of structuring and managing their organisations to increase efficiency (Burton, 2014; Trott, 2012; von Stamm, 2011). With the enhanced global competition, corporations also find it harder to differentiate from their competition, which requires them to think outside the box and create organisations that are different from their competitors (von Stamm, 2011). Consequently, to become more competitive, working with, collaborating and leveraging international R&D processes have gained a significant importance (Chiesa, 1996; Chiesa, 2000; Eppinger & Chitkara, 2006; Slone, Becker, Penton, Pu & McNamee, 2011).

A major problem for many MNCs, is to differentiate from international competitors that are creating products with similar functions. Hence, the traditional approach to R&D is no longer sufficient (Trott, 2012). Instead, corporations have to try other ways of differentiating which can be done by, for example, focusing on product design and their packaging (Borja de Mozota, 2006; Brown, 2008; Cooper & Press, 1995; Svengren Holm, 2011). According to Cooper and Press (1995) and Hill (2012), customers prefer to pay more for products that better satisfy their needs. Furthermore, they are becoming increasingly sophisticated in their demand for products

(Conway, 2014; von Stamm, 2011). Additionally, when the price of two products is the same, a customer will choose the product with the best quality and most appealing design (Bruce, 2011; Veryzer & Borja de Mozota, 2005). Design and visuality adds commercial value to products and can, therefore, also determine the price of a product (Cooper & Press, 1995; van Breemen & Sudijono, 1999; Warell, 2004, in Ranscombe, Hicks & Millineux, 2012). Lastly, design has been shown to substantially affect customer behaviour, consequently, being a crucial factor for commercial success (Bloch, 1995; Bruce, 2011; Crilly, Moultrie & Clarkson, 2004; Crilly, Moultrie, Clarkson, 2009; Person, Snelders, Karjalainen, Schoormans, 2007, in Ranscombe, Hicks & Millineux, 2012).

Designers traditionally enter the product development process at a late stage, resulting in limitations in the process and, therefore, inefficiency. By leveraging designers earlier in the product development process, a new dimension of thinking is added, which facilitates development and production of more user-oriented products. It also increases efficiency by reducing the likelihood of design aspects needed to be reworked later on. Therefore, design management strives towards having a customer oriented focus in the first stages of the product development process (Borja de Mozota, 2006; Cooper & Press, 1995; Kotler & Rath, 2011). Although, restructuring R&D departments might result in initial inefficiency due to inexperience (Robbins, 2009). However, implementing design management to the R&D processes can provide organisations with a substantial organisational advantage, an aspect that can be remarkably difficult for competitors to master (Keller & Price, 2015). Therefore, working with design management can provide corporations organisational differentiation and competitive edge compared to their competitors (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Cooper & Press, 1995).

## 1.3 Purpose of the study

The purpose of this study is to investigate and create an understanding of how an implementation of design management to multinational corporations' international R&D processes can help them create a long lasting competitive edge. Furthermore, essential factors for a successful implementation of design management are to be identified and analysed.

## 1.4 Research question

How can design management enhance the international R&D processes of multinational corporations, in order to differentiate and better satisfy customer needs?

## 1.5 Limitations in the study

The theoretical background of the thesis will solely focus on MNCs' internal R&D operations on an international scale in the product development process, whilst striving to connect it to design management. Therefore, the product development processes will often be referred to as 'R&D processes'. As a result, the contributions of this study will mainly be applicable to MNCs with international R&D operations. Furthermore, in the empirical findings, information was only gathered from several respondents in one Swedish MNC within the health care industry, meaning that the contributions can be differ between industries and countries.

## 1.6 The structure of the thesis

The thesis is built up by six different chapters, which are the introduction, theoretical background, methodology, empirical findings, analysis and discussion, and conclusion. A short disposition of the chapters are presented below.

1. *Introduction* - The first chapter provides the reader with a presentation of the field of research in the background, and signifies what problems design management can solve in the problem discussion. Furthermore, it defines the purpose of the study and the research question. Lastly, the limitations to the thesis are outlined together with this subchapter.

2. *Theoretical background* - The theoretical background introduces relevant theories within both domestic- and international R&D. It continues with a presentation regarding the theory of the design management concept, in order to make it possible to 'uncover design management'.

3. *Methodology* - In this chapter, an explanation and justification of the methods and approaches to the thesis are explained. For instance, perspectives and challenges in the

empirical collection are addressed, as well as why this thesis can be generalised into a theoretical recommendation.

4. *Empirical findings* - In this part, the results from the qualitative interviews are presented, in order to answer the research question and fulfil the purpose of this thesis.

5. *Analysis and discussion* - The analysis strives to analyse the empirical findings by comparing the empirical material to the theoretical background, in order to identify loopholes. Therefore, it facilitates a discussion where similarities and differences can be identified. As a result, the discussion fosters a better understanding of the conclusion to come.

6. *Conclusion* - The conclusion aims to summarise the thesis in a descriptive way by returning to the research question and purpose of the study. Moreover, future research suggestions and implications for practitioners are also provided in this last chapter.

# 2. Theoretical background

This chapter starts with an introduction of R&D, while later moving on with presenting the characteristics of international R&D. After the R&D has been introduced, a subchapter regarding the concept of design management awaits. First, that subchapter starts with outlining the characteristics of design management, to provide the reader with an insight of the concept. Consequently, it is easier for the reader to grasp an understanding of how design management can be defined, which is next after the characteristics. Furthermore, a definition of design management is presented, which is based on definitions from previous research, as well as the characteristics presented. Thereafter, the importance of design management is emphasised. The chapter ends with a brief summary of international R&D and design management, in order to clarify the theoretical view on how design management can contribute.

## 2.1 An introduction of R&D

### 2.1.1 What is R&D?

According to Trott (2012), research and development has historically been described "as the management of scientific research and the development of new products" (274), which has later been abridged to R&D. In the economy, the term R&D involves both new scientific knowledge and the use of old science to produce new products (ibid). Moreover, the process of R&D has historically been regarded as linear, beginning with research, later moving on to engineering, design and manufacturing and so on. The linear process was mainly adopted by corporations because of the ability to more easily measure the expenditures of R&D (Godin, 2006; Trott, 2012). Although, much of the traditional R&D has turned out to be difficult to commercialise. Hill (2012) stresses that only between 10-20 % of all R&D projects result in commercially successful products (ibid). Therefore, it is important to view R&D as a long-term investment, as it can reduce short-term profitability (Bushee, 1998; Trott, 2012). Due to the fact that many innovations are hard to commercialise, the significance of connecting R&D to corporations' business strategies has increased (Lee, Park, Yoon & Park, 2010; Trott, 2012), implying the need for developing R&D management.

### 2.1.2 Characteristics of international R&D

International R&D is almost solely a matter of large MNCs with the exceptions of some special cases of SMEs that are unusually international (Boutellier, Gassman & von Zedwitz, 2008; Davis & Meyer, 2004; Dunning & Lunden, 2008). Traditionally, innovation was driven by Vannevar Bush's philosophy 'technology push', meaning that R&D only should create innovations and very little focus was put on what the market demanded (Boutellier, Gassman & von Zedwitz, 2008; Trott, 2012). With the rising competition following the globalisation, corporations started developing products internationally, in order to better adapt to foreign market preferences (Boutellier, Gassman & von Zedwitz, 2008). Furthermore, international R&D is used as an attempt to leverage location-specific knowledge and innovative minds to stay competitive in the increasingly globalised business environment (Dunning & Lundan, 2008; Eppinger & Chitkara, 2006; Hill, 2012; von Zedtwitz & Gassman, 2002).

Therefore, having a completely centralised approach to R&D is not viable due to two factors. First, as the world does not consist of only one country, knowledge can be found worldwide. Consequently, conducting R&D in only one country makes a corporation hugely restricted to resources such as human capital, which can be accessed by locating close to science and technology clusters for instance (Asakawa, 2001; Dunning & Lundan, 2008; Eppinger and Chitkara, 2006; Kuemmerle, 2000; Richtner & Rognes, 2008; Slone, Becker, Penton, Pu & McNamee, 2011; von Zedtwitz & Gassman, 2002). In addition, Dunning and Lundan (2008) and Kuemmerle (2000) stress that there are additional relevant resources corporations can absorb to their own organisations by having an international approach to R&D, such as new research results from both competitors and foreign universities (ibid). Second, by not having international R&D, competitors with R&D on an international scale will always be faster to adapt their innovations to the specific markets (Chiesa, 2000; Kuemmerle, 2000). To illustrate how MNCs can set up international R&D departments, a model below developed by von Zedtwitz and Gassman (2002) shows four different approaches to international R&D (Figure 1).

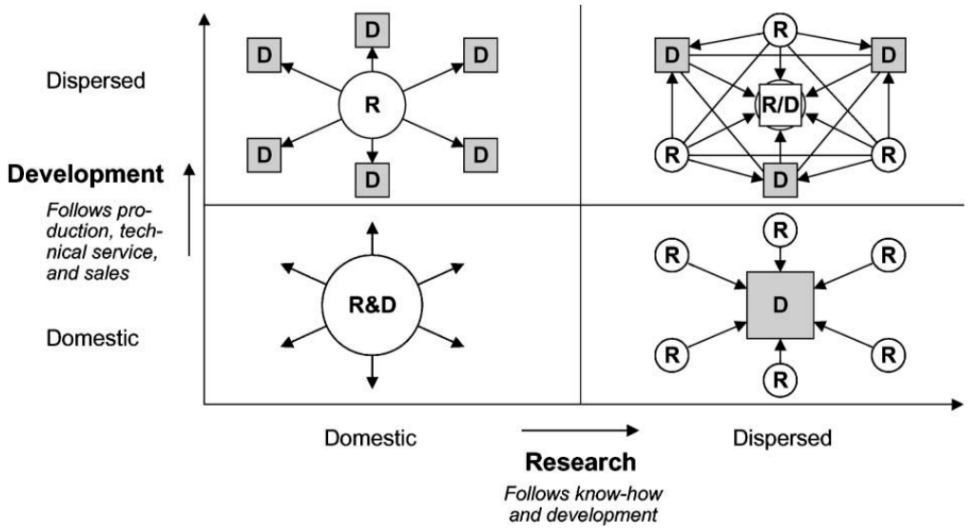



Figure 1: Organisational structures of international R&D

source: von Zedtwitz, M., Gassman, O. 2002. Market versus technology drive in R&D internationalization: four different patterns of managing research and development: 575. *Research Policy*, 31(4): 569-588.

The model shows how corporations can structure the R&D process differently, depending on what drives their R&D departments forward. Corporations can be *market-driven*, that focuses on developing the products close to the markets and *technology-driven*, that focuses on locating R&D centres in areas with important know-how. Furthermore, *national treasures* strive to keep control of important know-how by maintaining research within the home nation. Lastly, *globals* focus on leveraging all local advantages. Most corporations fall into one of these four categories, however, not with a 100% fit. Sometimes the different ways of setting up R&D are mixed for optimal results. In addition, Kuemmerle (2000) defines two different types of international R&D sites similar to von Zedtwitz's and Gassman's (2002) description. Kuemmerle (2000) defines them as either 'home-base-augmenting sites' or 'home-base-exploiting sites'. The first has the objective to conduct development at home and research globally, in order to take advantage of the worldwide knowledge. The latter has the opposite strategy, where research is performed at home while the foreign R&D departments develop and commercialise domestic innovations.

Finally, it is important to underline the communicational aspect of international R&D. Efficient communication is central for being able to exchange knowledge and leverage the advantages of

international R&D (Kar, Subramanian & Saran, 2009; Meyer, 1991, in Nobel & Birkinshaw, 1998; Perks, Cooper & Jones, 2005; Zeschky, Daiber, Widenmayer & Gassman, 2014). Further, to leverage and exchange local and domestic R&D knowledge has proven to be complex (Boutellier, Gassman & von Zedwitz, 2008; Richtner & Rognes, 2008; Zeschky, Daiber, Widenmayer & Gassman, 2014). The latter aspect is also stressed by Kuemmerle (2000), Nobel and Birkinshaw (1998), who argue that it is not easy to exchange knowledge between domestic and foreign R&D sites due to language and cultural barriers, and because R&D fundamentally is tacit knowledge (ibid). Nevertheless, subtle mechanisms as informal networks, lateral contacts, mutual trust, team spirit, incentives and rewards for cooperation fosters better knowledge exchange and communication between international R&D departments (Griffin & Hauser, 1996; Kar, Subramanian & Saran, 2009; Perks et. al, 2005; Richtner & Rognes, 2008; Thamhain, 2003; Zeschky, Daiber, Widenmayer & Gassman, 2014). In addition, technological communication infrastructure is substantial for good knowledge sharing in MNCs (Moenaert, Caeldries, Lievens & Wauters, 2000; Perks et. al, 2005; Zeschky, Daiber, Widenmayer & Gassman, 2014), although, due to the scope of the thesis, this aspect will not be further precised. Consequently, to facilitate effective exchange of knowledge and information between international R&D departments, an 'integrated network' ought to be developed within a MNC (Håkanson & Zander, 1986; in Nobel & Birkinshaw, 1998).

## 2.2 Design Management

### 2.2.1 Characteristics of design management

Design management is today a relatively undeveloped field of research (Cooper et. al, 2011). It is characterised by a shift from the traditional hierarchical 'Taylor management' towards a flexible organisation that encourages initiatives from individuals, risk taking and independence (Borja de Mozota, 2003). Because of the lack of a general understanding of design management, it has not developed and grown to achieve a significant importance (Best, 2006).

The concept of design management facilitates increased value added for various of a corporation's stakeholders when efficiently utilised. For instance, design management strives to provide

enhanced customer satisfaction and a closer cooperation between all functions that are engaged in the product development process (Borja de Mozota, 2006; Cooper & Press, 1995; Lockwood, 2011). Furthermore, design management emphasises the significance of spreading a mindset and culture throughout an organisation, in order to help the employees understand the potential benefits of a design focus (Best, 2006 Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995). Brown (2008), defines this as 'design thinking', which this important mindset and cultural aspect will be referred as in this thesis. Further, it is important that design thinking sheds through an entire organisation, from executive- to production level, in order to completely leverage the benefits of design management (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995).

To provide a short presentation of how the design management theory has developed, we will start with a presentation of the early ideas within design management, beginning the 'rugby approach' favoured by Cooper and Press in 1995. The rugby approach is a development of the traditional linear and notably isolated product development process, and focuses on the importance of collaboration between various organisational functions from the beginning of the product development process. For instance, the marketing function should provide input regarding customer needs, while the R&D is responsible for the creation of new and innovative products. Furthermore, the design function's role is to aid the product development process with aspects regarding user-orientation, such as user-friendliness and appealing aesthetics. Lastly, the finance department should provide financial input to the product development process, but also revise the expenditures. By successfully implementing the rugby approach to the product development process, it is plausible that it will result in a reduced time to develop new products and facilitate more products brought to the market (Cooper & Press, 1995; Takeuchi & Nonaka, 1986). Consequently, it can provide organisations with an organisational competitive advantage. The rugby approach is presented below (Figure 2).

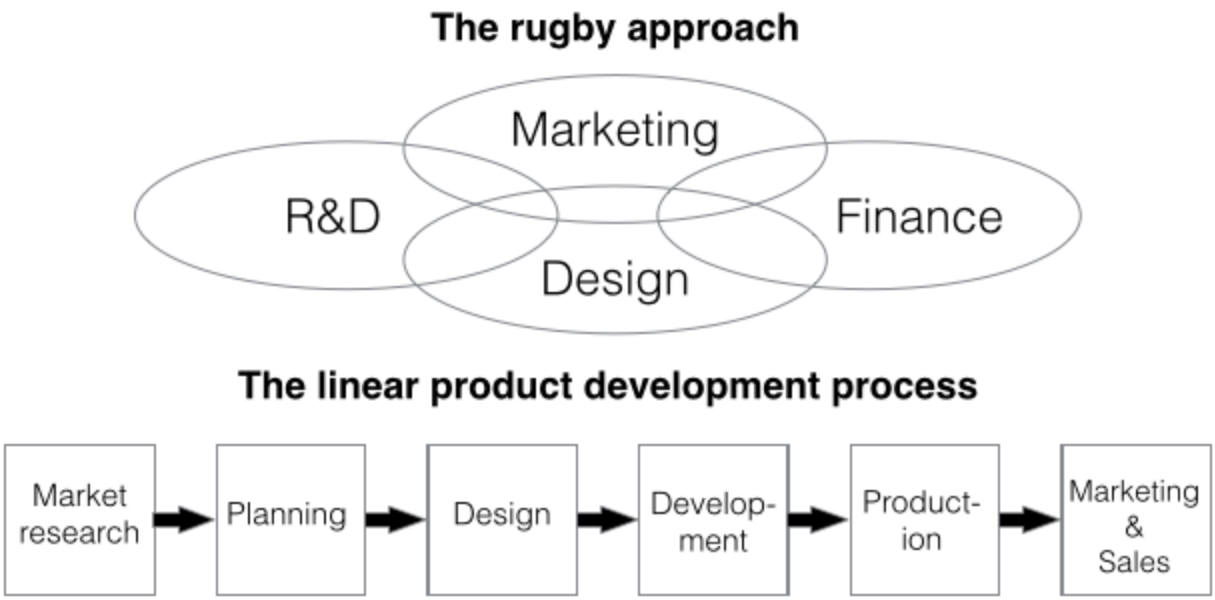



Figure 2: The rugby approach vs. the linear product development process

Modified, based on: Cooper, R., Press, M. 1995. *THE DESIGN AGENDA - A Guide to Successful Design Management: 126.* John Wiley & Sons.

Since Cooper and Press favoured the rugby approach within the theory of design management in 1995, Brown (2008) has further developed and identified three phases, which processes favouring design must pass through. The phases are labeled as *inspiration*, including a problem or opportunity, *ideation*, which is the process for problem-solving or using the opportunity, and finally *implementation*, which is the last phase where the solvation is put into action (ibid). In addition, even before Brown's (2008) identification of the three phases in processes favouring design, Bruce and Bessant argued in 2001 that processes favouring design ought to involve as many participants as possible from the start and be managed efficiently, in order to benefit a corporation as much as possible (in Best, 2006). It is important to point out that processes favouring design usually do not take linear paths through the different phases but rather jump back and forth, several times until a feasible and optimal solution is found (Brown, 2008). Many characteristics of the processes favouring design can be compared to a model of 'the integrated design management process' developed by Lockwood in 2011, which is a further contribution to the theory of design management. Below is the illustration of Lockwood's (2011) integrated design management process (Figure 3).

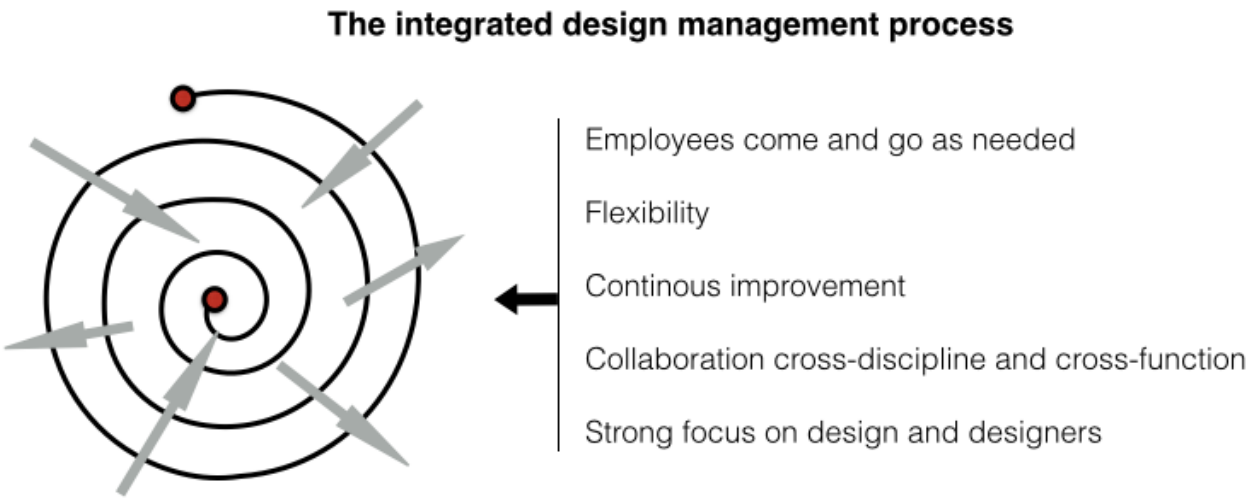



Figure 3: The integrated design management process
Modified, based on: Lockwood, T. 2011. A Study on the Value and Applications of Integrated Design Management. In Cooper, R., Junginger, S., Lockwood, T. 2011. *The Handbook of Design Management: 255.* New York: Berg.

What Lockwood (2011) further stresses in his model in addition to Brown's (2008), Bruce's and Bessant's (2001, in Best, 2006) description of processes favouring design, is a collaborative, iterative, ongoing and flexible process. It leverages functions and employees when truly needed, whilst still emphasising close cooperation between different organisational departments. Furthermore, it underlines the importance of design and the designers' role (ibid).

In order to fully leverage design management, it is important to involve all parts in the chain of command. Cooper & Press (1995) takes it as far as to suggest involving the board of executives in the product development process as a top-to-bottom approach. By doing this, it is possible to achieve a faster decision-making process, whilst integrating as much of the organisation in the product development as possible (ibid). Furthermore, Best (2006) argues that it is favourable if a corporation has a board member with a background in design or touch for it, to better understand the advantages design management can facilitate (ibid).

When moving on to the designers and their integration with the other departments, especially R&D, it is essential to maintain good communication and keep them up to date with the latest

information and inventions, whether it concerns materials, machines or manufacturing methods. By allowing designers access to more information, the probability that they can help to commercialise new innovations, both in the way of satisfying customer needs, as well as making new products economical to develop, increases. Therefore, the more designers are involved and informed in a product development process, the better the finished new product will become. Consequently, communication is crucial for the viability of design management to prosper in an organisation. In addition, it is beneficial for designers to spend time with the sales personnel and the corporation's customers, to really make them understand the customers' needs and who the designers really are designing for (Cooper & Press, 1995; Kotler & Rath, 2011; Perks et. al, 2005; Stone, Rose, Lal & Shipp, 2008; Veryzer & Borja de Mozota, 2005; von Stamm, 2011; Wilkinson & De Angeli, 2014).

Designers and processes favouring design require a lot of time and resources, in order to foster innovation (Best, 2006; Mikhailov & Lack, 2005). Consequently, it is significant to have long-term approach to design overall (Cooper et. al, 2011; Cooper & Press, 1995). Cooper and Press (1995) argue that providing designers time can be difficult and might not always be a priority. Further, it is more difficult to integrate design management in organisations that do not perceive themselves as design-led (Best, 2006). Another aspect that is important to address, is that design management is difficult to implement in some industries. In fact, implementing design management within the service industry's product development process has another dimension compared to tangible products. As for an example, in the banking sector, which sells intangible services, it might not be worth to integrate design into the development of the services and it is questionable if design adds enough value to the products sold. In that sector for instance, the brand plays a large role, contributing much to the revenues and attraction of customers, compared to the design of the products sold (Cooper & Press, 1995). Although, as this study only focuses on product development related to international R&D, design management within service corporations will not be further discussed.

To briefly conclude the characteristics of design management, it is important to achieve a high level of communication, in order to take full advantage of the design management's benefits. Consequently, the need for an deep integration of design thinking within a corporation's culture is crucial. On the other hand, design thinking cannot be implemented and achieve a significant impact without sufficient managing, therefore, the need for design management. Design thinking should have a central role throughout the whole organisation, not only in the design function. From the top to the bottom, executives are responsible for setting up a mentality of design thinking in the organisation, whilst the middle management is responsible for the implementation of design thinking on a strategic level. Finally, it is the workforce that is responsible for working accordingly to design thinking principles. Consequently, design management can integrate many functions and boost creativity, whilst providing direction and vision in the new product development process via a shared mindset and methodology (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995).

### 2.2.2 Defining design management

Before defining design management, it is of great importance to understand what design is. To complement the definition of design in the beginning of this thesis, Peters described in 1989; "Design is only secondarily about pretty lumpy objects and primarily about the whole approach of doing business, serving customers and providing value." (in Borja de Mozota, 2006: 72). Peters' quote emphasises the aspect of business within design, and by leveraging design management, corporations can take advantage of the benefits design can provide.

The term design management has been defined by several people and there is currently no true definition to it (Best, 2006). To start with, Borja de Mozota (2003) argues that design management has a purpose, which is to make managers familiar with design and designers familiar with management, with the hope of integrating design into the corporate environment. Moreover, Borja de Mozota (2003) claims design management as a new perspective, not only to the product design, but also a change to corporate behaviour and vision (ibid). On the other hand, Blaich (1993) describes design management as "... the implementation of design as a formal program of activity within a corporation, by communicating the relevance of design to long-term

corporate goals and coordinating design resources at all levels of corporate activity to achieve the objectives of the corporation" (in Cooper & Press, 1995: 103). Moreover, Gorb (1990) defines design management as "the effective deployment by line managers of the design resources available to a corporation in order to help the corporation achieve its objectives" (in Borja de Mozota, 2006: 70). In addition, Hetzel (1993) takes the concept further by defining design management as a way of managing design and the creative process within a corporation, as well as emphasises how corporations should be managed according to design principles (in Borja de Mozota, 2006).

In this thesis, based on the theory gathered regarding the definitions of design management and its characteristics, design management is defined and interpreted as a new perspective regarding how to better manage and integrate more organisational functions, with an emphasis on designers, in the product development process. When integrating more organisational functions early on in the product development process, especially designers, corporations avoid having to revise products later on in the process. This fosters efficiency, but also a better leverage of the entire organisation. Furthermore, by providing the design function a larger influence in the product development process, designers can help a corporation to differentiate and enhance customer satisfaction by developing and creating more appealing and user-oriented products. These two factors increase the possibility of commercialising innovations, which has become increasingly important. Yet, it is significant to understand that the holistic integration does not always require all functions to be prevalent, but rather emphasises the importance of flexibility. To truly implement design management, the theory underlines the importance of creating an understanding within a whole organisation, in order to incorporate design into the corporate culture. This is referred to as 'design thinking' within design management. Design management involves the integration of design thinking on all levels of the organisation, to ensure that all employees work with a similar mindset, towards common goals and with a united perspective regarding the importance of design.

### 2.2.4 The importance of design management

According to the former president of the Design Management Institute, Earl Powell, companies will see a growing importance of implementing design management to their organisations. First, he emphasises that design management is a powerful source for stimulating innovation in the organisation and by using it, corporations can build a sustainable competitive advantage. Second, Powell suggests that the customers are changing and demanding more of product designs, as a result of the increasing amount of competing products on the market (in Borja de Mozota, 2003). The latter fact is also argued by Conway (2014) and von Stamm (2011). On the other hand, Brown (2008) focuses more on the design thinking's importance, to understand customers and thereby create better products. What Powell and Brown have in common is that they emphasise the importance of using design management in a more loose organisational context that fosters innovation and 'outside the box thinking', to create a long lasting competitive advantage. This is also a fact presented by Best (2006), who argues that design management can facilitate customisation of products, increased the speed to market, foster product differentiation and improve internal performance, as a way of generating a competitive edge. Regarding product customisation, design can help companies to both better understand customers needs by leveraging user-oriented designers and, as a result, produce more appealing products. Moreover, by focusing on design, it is also possible to extend products life cycles. As for example, the option to design product foundations that further can integrate improvements in the future can extend product life cycles (Cooper & Press, 1995; Gu, Hashemian, Sosale, 1997). This kind of opportunity can be of huge relevance in the modern society and business world of today where products life cycles constantly diminish and, thereby, force companies to constantly develop and commercialise new innovations in a even shorter time period (Hill, 2012). Furthermore, by leveraging design management early on in the product development process, the time it takes for the product to go from ideation to the market can be reduced (Best, 2006; Borja de Mozota; 2003 Cooper et. al, 2011; Cooper & Press, 1995; Lockwood, 2011). Further, by focusing on design helps corporations to differentiate, both by providing product specific differentiation and assisting in the strengthening of the corporation's image. Consequently, it is possible to develop an own customer segment by the development of differentiated products, a segment that can be difficult

for a corporation's competitors to reach (Borja de Mozota, 2006; Brown, 2008; Cooper & Press, 1995). When utilising design management internally in a corporation, it can result in an improved working environment and, therefore, motivate employees to work harder, effectively creating a working environment that stimulates innovation and stronger results (Best, 2006). To summarise the importance of design management with a quote, professor Burder stresses that "design decisions are becoming increasingly important for market acceptance" (in Best, 2006: 120). In addition, professor Colin Clipson of the University of Michigan interprets the complete aspect of design as the only process where technological, stylistic and ergonomical specifications can be transformed into viable products (in Cooper & Press, 1995). Consequently, design should have a large influence on all business activities, in order to make it possible for corporations to stand out of their competition (Best, 2006; Brown, 2008; Cooper & Press, 1995). Thus, design management is needed.

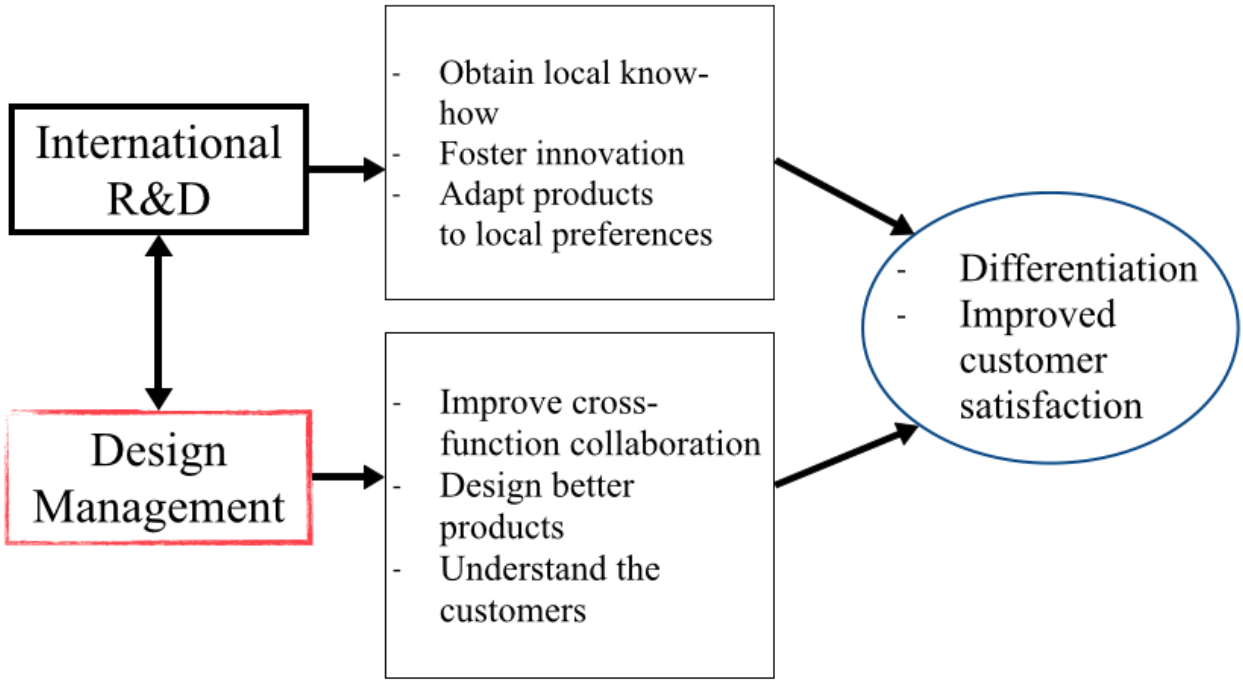
## 2.3 Summary

Design management can be implemented to all of functions and departments of an organisation. However, as previously mentioned, this thesis focuses only on the international R&D operations of MNCs. Consequently, the most important aspects relevant for this thesis' purpose and research question regarding international R&D and design management have been underlined and summarised in a table below (Table 1).

| | *International R&D* | *Design Management* |
|---|---|---|
| **Organisational structure** | It strives to fully integrate and combine local and foreign R&D, to optimally leverage the creation and development of innovative products. | Focuses on flexible cooperation between all functions, with an emphasis on the designers importance, to create innovative and demanded products. |
| **Communication** | Good communication flows between international R&D departments are crucial for knowledge exchange. It is favoured to develop an 'integrated network' within an organisation, in order to foster good communication and, therefore, innovation. | It emphasises good communication flows between all functions of a corporation, for optimal information and knowledge exchange. Consequently, the possibility of developing products demanded by customers increases. 'Design thinking' is a subtle tool, facilitating a mutual understanding and favouring of design in an organisation. |
| **Differentiation** | Fundamentally, R&D focuses on creating innovative products. With the dimension of international R&D added, local know-how should be leveraged to develop even more innovative products. | Emphasises the importance of differentiating by focusing on design and user-orientation of the final product, in order to create increased value for the customer and stand out if the competition. |
| **Customer satisfaction** | In this dimension, compared to the one above, R&D departments are set up close to the market to better research and develop products according to customer needs and preferences. | By integrating more organisational functions, with an emphasis on designers, it is more likely that customer needs are understood and met. In addition, it is possible to further satisfy customer needs by leveraging the advantages of design. |

Own Table: Table 1 - An overview of the theoretical framework

The theoretical framework provides a fundamental overview of the field of research and concludes that international R&D and design management has both similarities and differences in their characteristics. Hence, it indicates a complex and challenging subject. Therefore, it is relevant to carefully consider an approach to view and interpret the topic studied. As a result, a conceptual model (Figure 4), presented below, was developed. The model describes the relationship between international R&D and design management in the product development process and tries to illustrate what this thesis strives to examine. The first two boxes simply represent international R&D and design management. Further, the next two boxes underline what positive results international R&D and design management can help a MNC to achieve. Consequently, if design management is implemented to the international R&D processes, it can facilitate differentiation and improved customer satisfaction.




Own Figure: Figure 4 - The relationship studied

# 3. Methodology

The purpose of the methodology is to provide the reader with an insight and understanding of the thesis' research approach, research method and scientific approach. Furthermore, the development of the theoretical framework, and how the empirical data has been collected and analysed are presented and discussed. The methodology ends with an ethical statement regarding the empirical material collection.

## 3.1 Research approach

### 3.1.1 Qualitative approach

The choice of research approach depends on numerous of factors, for example the context of the research problem (Bryman & Bell, 2011a; Cresswell, 2014). A qualitative approach is the structure of utilising non-ordinal information in the research gathering (Cresswell, 2014). Conducting qualitative research has positive implications, it notably facilitates depth and has a strong possibility of understanding complexity. Moreover, qualitative data is derived from reality, whose truth has a significant influence and impact on the reader (Guercini, 2014; Jacobsen, 2002). In addition, qualitative approaches to research are also likely to obtain unexpected information (Blumberg, Cooper & Schindler, 2011).

### 3.1.2 Justification of the choice of research approach

Due to the purpose of the study, to analyse non-ordinal information, a qualitative research approach is appropriate. Moreover, to be able to compare the theory of design management and how corporations work in reality, a qualitative approach is the only possible approach to make it feasible, as numbers cannot answer this. This is also emphasised by Best (2006), who stresses that aspects related to design are more appropriate to be measured in qualitative methods because of its contribution to organisational learning and improved effectiveness. Further, Jacobsen (2002) also argues that a qualitative approach is appropriate when striving for an understanding of a phenomenon, such as how design management can help MNCs to create a long lasting competitive edge. Finally, as design management is a relatively unexplored area of research

(Cooper et. al, 2011), the qualitative approach may provide unexpected information, which can prove to be relevant to answer this thesis' research question.

## 3.2 Research method

### 3.2.1 Single case study

The thesis will be conducted from a single case study perspective. A case study can be defined as "the process which creates depth and detail necessary for capturing the 'hows' and 'whys', rather than only the 'whats'" (Harrison and Easton, 2004, in Tsang, 2014: 374). The purpose of a case study is to seek common patterns and later break them down, to make it applicable and analysable for one's research (Tsang, 2014). Furthermore, case studies strive to provide studies rich information and a realistic dimension (Eriksson & Kovalainen, 2008; Piekkari et. al, 2009, in Tsang, 2014; Tsang, 2014), consistent with the qualitative approach (Guercini, 2014; Jacobsen, 2002). This fosters a development of a theoretical explanation of a phenomenon (Tsang, 2014). Albeit, there is a relevant drawback with case studies that needs to be addressed. Yin (2003), Bryman and Bell (2011a) stress that single case studies have it difficult to provide support for scientific generalisation. The short answer to this problem, is that results from case studies can be generalised to theoretical recommendations, and not to all aspects (Yin, 2003). A theoretical recommendation strives to provide significant explanations of relationships between data observed in studies (Sharp, 1998, in Tsang, 2014). Moreover, a theoretical recommendation is meant to be applied to various perspectives, therefore, is also referred to as an 'analytical generalisation' (Tsang, 2014; Yin, 2013). Due to the deep perspectives case studies can offer, Tsang (2014) argues that case studies have more merit for generalisation compared to opposite quantitative methods, who mainly strive to provide theoretical generalisations themselves (Bryman & Bell, 2011a). To round up the case study perspective, case studies have three targets, either to test or to develop theory, or both simultaneously (Tsang, 2014; Yin, 2003). This aspect will be further discussed in the section regarding the thesis' scientific approach, in combination with the this study's generalisability.

### 3.2.2 Justification of the choice research method

As previously mentioned, case studies strive to provide comprehensive perspectives, as this thesis strives to do when 'uncovering design management' and arguing how a better leverage of the concept can help MNCs to differentiate and better satisfy customer needs. As Yin (2003) stresses, single case studies can be considered having a low validity to the purpose of a research, although, single case studies can offer several advantages. First, only conducting one case study makes it it possible to dig deep into one perspective. Second, it facilitates time efficiency, as it saves time in the strive for wider empirical results, effectively freeing more time to perform a deeper analysis and discussion. Consequently, these two aspects can be interpreted as an increase of the validity of this study due to the need of as much in-depth information as possible, together with a larger focus on a deep analysis and discussion, to foster understanding. On the other hand, the other alternative would have been to gather more, but less in-depth information from several case studies. This would have facilitated a more shallow analysis and discussion due to less thorough empirical information, but also time consumption when conducting several case studies. Finally, when combining the research method with the scientific approach, this thesis develops an analytical generalisation with increased credibility. This discussion awais next.

## 3.3 Scientific approach

### 3.3.1 Abductive approach

This thesis is approached through a scientific abductive perspective. The abductive approach is derived from the inductive and deductive approach to science. An inductive approach is based on empirical data and strives to develop a generalisation and describe one or many patterns prevalent in various individual observations. On the contrary, the deductive approach is based on theoretical findings and does not strictly emphasis on describing a phenomenon. Instead, the deductive approach aims to rigorously determine a theoretical framework. Often, the deductive approach does not have any underlying patterns to the concept it defines, risking being questionable. It is important to stress that the abductive approach is not an equal mixture of the two latter approaches, and that its ambition is to develop an understanding (Alvesson & Sköldberg, 2008). Therefore, it is possible to be pragmatic in one's research, in order to provide

relevance for a reader (Saunders, Lewis & Thornhill, 2009). When analysing empirical material according to the abductive approach, it is also granted to combine earlier research and findings within the field of interest, either to inspire a more relevant conclusion or to emphasise one's own interpretation of the phenomenon studied. Moreover, by approaching a thesis from an abductive perspective, it is more possible to develop a holistic result, which also is consistent with the target of case studies. By combining the theory with the empirical findings, it is both possible to test the theory according to the reality, as well as complement the empirical material with the theoretical background. Consequently, the theory can provide the empirical findings width, and as a result, make a better generalisation (Alvesson & Sköldberg 2008). This aspect is also consistent with the purpose of case studies as well, who strive to either to test or to develop theory, or both simultaneously. As a result, Alvesson and Sköldberg (2008) underline that the abductive approach to science is leveraged when conducting a case study that strive to provide a holistic interpretation. This can interpret and motivate why also Tsang (2014) argue that case studies have merit for generalisation.

### 3.3.2 Justification of choice of scientific approach

Since the theory of design management is relatively unexplored in the academy (Cooper et. al, 2011) and because the sample in the empirical material gathering is non-probable and small, an aspect discussed later on in this chapter, it makes sense to test the prevalent literature developed within the research field by comparing it to the empirical findings. Therefore, the theory is compared to a real-life context (Adams, Kahn & Raeside, 2007). Consequently, if the theoretical background is relevant, it will be able to transform the empirical findings to a wider context and, as a result, provide a better generalisation. This is also a technique often approached by case studies (Alvesson & Sköldberg, 2008), which motivates both this study's research method and scientific approach simultaneously. Consequently, it is possible to answer the research question of the study with higher credibility. Furthermore, the testing of the theoretical framework will mainly be visible in the analysis and discussion, where it will be identified if the theoretical contributions design management can facilitate are relevant to the reality. In sum, as this thesis will be performed from a case study perspective as a research method where qualitative approaches are appropriate (Sage, n.d.), because the empirical findings are needed to support the

theoretical background, and due to the need of theory to facilitate a better generalisation of the contributions, the abductive approach is an appropriate scientific approach for this thesis.

## 3.4 Development of the theoretical framework

### 3.4.1 Literature sources

When developing a theoretical background, it is possible to use primary, secondary, and tertiary sources of literature. In order to understand the differences, the characteristics of the different sources of literature need to be explained. Saunders et. al (2009) describe primary sources as "sources that are the first occurrence of a piece of work" (69). Primary literature can often be found in reports, theses and governmental publications, offering an advantage of further reference to literature. Secondary sources are for instance books and academic journals, and are characterised by being later publications of primary literature. Finally, tertiary sources' purpose is to ease the research of primary and secondary literature and are, therefore, often referred as 'search tools'. The characteristics of tertiary sources are for example, abstracts, encyclopedias and search engines. What distinguishes the different sources of literature are mainly the level of detail, and the use of different literature sources depends on the research question and time available. Although, a majority of research can draw the most advantages from secondary literature (Saunders et. al, 2009).

In this thesis, search engines, databases, academic journals and books have been used develop the theoretical background. The chapter presenting R&D starts with an introduction of R&D's fundamental characteristics, while later on underlining its significant international characteristics. The forthcoming chapter regarding design management begins with an outlining of its characteristics, as design management is a relatively unexplored field of research (Cooper et. al, 2011). Consequently, it is more likely that the reader will grasp a holistic and relevant insight of design management. Later on, and as a result of the characteristics of design management, design management as a concept is defined. To complement and provide strength to our definition of design management, other authors definition of design management are also presented. Furthermore, the chapter ends with an outline of design management's importance. Finally, as the

concept is relatively unexplored (Cooper et. al, 2011), it was discovered that books mainly were the sources with most information. However, academic journals have also been used to develop the theoretical background overall, but also to complement the mainly sources utilised and provide them more quality. In addition, databases were also utilised, in order to ease the process of developing a theoretical background.

## 3.5 Empirical material collection

### 3.5.1 Primary data

It is not only difficult to gather primary data, it is also time-consuming and can be expensive. Therefore, it is of extreme importance that this type of research is carefully planned before conducted. Face-to-face or telephone interviews are common within the research field of business and management, but tend to have small sample sizes (Adams et. al, 2007) like this thesis has. As discussed earlier, Adams et. al (2007) also stress that interviews provide in-depth information for qualitative research, which is relevant for this thesis.

In this thesis, the empirical evidence was collected through a case study at Mölnlycke Health Care, explained further in detail later. Through the gathering of empirical data, it was possible to compare it to the theoretical framework and, therefore, 'uncover design management' with a larger credibility, as discussed in the subsection regarding the scientific approach. Consequently, the reader is provided with an answer to the research question, which can be interpreted to a more holistic perspective.

### 3.5.2 Sampling method

In order to fulfill the thesis, collecting empirical information from a corporation was fundamental. When conducting a study, it is possible to either utilise a probability sampling method or a non-probability sampling method (Quinlan, 2011). According to Quinlan (2011), the first method is representative to a population, whilst the second method is not (ibid). This aspect is discussed in an coming paragraph. Sometimes, the non-probability method is the only sampling method feasible (Blumberg, Cooper & Schindler, 2011). Furthermore, the non-probability sampling method is the only approach relevant when studying a small number of cases, in order to

emphasise and investigate a phenomenon (ibid). Since a case study was performed, the non-probability sampling method was the only relevant approach to leverage, in order to fulfil the purpose of the study.

When performing a study according to the non-probability sampling method, purposive sampling is commonly used when striving to provide the sampling approach a strategic edge. The purposive sampling approach implies a selection of respondents to predetermined criterias (Bryman & Bell, 2011a; Quinlan, 2011). Moreover, convenient sampling is another approach to the non-probability sampling method where the respondents participating in the study contribute due to their accessibility (Quinlan, 2011). This thesis has been approached from a mixture between purposive sampling and convenience sampling.

Although, the non-probability sampling has drawbacks. According to Bryman and Bell (2011a) and Quinlan (2011), the sampling approach does not make the empirical findings representative to a population. However, the non-probability sampling method can provide as deeper understanding within the field of research due to the strategic choice of respondents (ibid). This drawback is countered in this thesis as the contributions' from the qualitative case study are humble, which they ought to be according to Yin (2003). Furthermore, the abductive approach to science facilitates a better generalisation of the contributions due to the leverage of the theory, tested by the empirical material. Therefore, this thesis makes design management relevant to be applied in more situations. A similar aspect is also argued by Tsang (2014), as discussed earlier. Another dimension to this discussion is yet to be added in detail in subchapter 3.8.1. To finalise this section, convenience sampling sometimes is sufficient even when the sample size is small. For instance, if the empirical findings seem to converge to a large extent, their is a larger possibility that the findings are one-sided, making further interviews not vital (Quinlan, 2011).

### 3.5.3 Sampling choice

The case study was conducted at Mölnlycke Health Care. The corporation is a rapidly growing MNC with headquarters in Gothenburg, Sweden. The corporation is active in the healthcare industry (Investor, n.d.; Mölnlycke Health Care, n.d.), mainly producing wound care products and

surgical equipment when referring to all the participants. The corporation also conducts R&D worldwide according to all respondents in this study, which matches the criteria for the purpose of this thesis. Furthermore, the corporation recently underwent a reconstruction of the organisation according to the participants of this study, where many of the respondents reflect on the organisational reconstructions outcome and effects.

### 3.5.4 Justification of sampling choice

As mentioned many times in this thesis, design management is a relatively undeveloped field of research (Cooper el. al, 2011). With that emphasised, it is appropriate to both discover the concept further theoretically and, later on, apply it to a realistic context. However, as this thesis has a scope on multinational corporations' international R&D processes, the only feasible corporation to conduct this study at, is a corporation that matches this criteria. Mölnlycke Health Care does that and, in addition, they have recently performed a massive reorganisation of the corporation worldwide. This makes it interesting to discover if design management as a management concept is included in this massive reconstruction, as well as in their future plans. Moreover, it can be identified what the respondents think about design management and if it matches their vision of an optimal approach to management. Whether it does that or not, it is an appropriate opportunity to apply the theory of design management to a real-life context and discover how it can help Mölnlycke Health Care to differentiate from competition and better satisfy their customers' needs when implemented to the international R&D processes. As stressed in the introduction, differentiation and better satisfaction of customer needs are increasing in importance (Borja de Mozota, 2006; Conway, 2014; Hill, 2012; Svengren Holm, 2011; von Stamm, 2011). In addition, as the Mölnlycke Health Care's headquarters is located near the Gothenburg University of Business, Economics and Law (Mölnlycke Health Care, n.d.), it facilitates face-to-face interviews, which is a better form of conducting interviews compared to telephone interviews (Jacobsen, 2002; Yin, 2013). This is the reason for the convenience sampling method. Finally, to ensure credibility and validity, managers within R&D, marketing and design were interviewed, since they are considered to posses the best knowledge about how Mölnlycke Health Care works with international R&D, product development, design, but also, how good different organisational functions collaborate with each other.

### 3.5.5 Interviews as a choice of empirical research method

The empirical evidence was collected through semi-structured face-to-face interviews with representatives at Mölnlycke Health Care. The respondents are presented in appendix 8.1, as well as their positions and when the the interviews were made. Face-to-face interviews have both benefits and disadvantages, as well as further important perspectives. These perspectives are outlined below as a result of the learning process regarding the empirical material collection. Furthermore, it fosters a critical view on the research when presenting and reflecting upon the important aspects on an ongoing basis.

Advantages and disadvantages

Referring to Jacobsen (2002), face-to-face interviews can provide more in depth answers compared to the other way of performing an interview, which is by telephone. Moreover, the possibility that the respondent gives "false" answers by telephone is larger compared to face-to-face interviews, implying that respondents have it easier to distort answers when interviewed by telephone. Consequently, Jacobsen (2002) concludes that it is inappropriate to conduct an interview by telephone if the interview contains many open questions. In addition, the ability to observe a respondent's behaviour can prove to be crucial because the interviewer thereby easier interprets how far it can take supplementary questions, an aspect more difficult when conducting an interview by telephone (ibid). At worst, supplementary questions can make the respondent fall back and become an inferior source (Bryman & Bell, 2011a). In addition, qualitative case studies are often conducted through in-depth interviews, where the results and learnings many times strive to be applied to holistic perspective (Alvesson & Sköldberg, 2008; Sage, n.d.; Tsang, 2014; Yin, 2013), an aspect consistent with the purpose of this thesis.

According to Groves and Kahn (1979), a significant disadvantage of face-to-face interviews is the 'interviewer effect' (in Jacobsen, 2002). In contrast to the advantages explained in the paragraph above, the advantages might become disadvantages. The interviewer effect emphasises the respondents and their enthusiasm, as well as their experienced comfortness when being interviewed face-to-face. Jacobsen (2002) stresses that telephone interviews has a lower

probability to foster the interviewer effect and if the interviewer effect is estimated of being large, a telephone interview is favourable compared to a face-to-face interview.

The interviewer effect has in this thesis been countered mainly by agreeing with the respondents if the interviews should be conducted face-to-face or by telephone, but also by a framework utilised, favoured by Yin (2013). In Yin's (2013) framework, he stresses three factors that favourable when gathering empirical information through interviews. First, it is important that the interviewer is a good listener. Being a good listener does not only show the respondent respect, it also makes it more likely to be able to 'read between the lines'. Reading between the lines has two advantages, it can foster improved supplementary questions during an interview, but also facilitate a better analysis due to better interpretation of the results. Second, being inquisitive may be as important as being a good listener. Being inquisitive shows interest, in addition to fostering a better empirical material gathering. Third, showing respect to respondents and others involved in the study is crucial, as the study is not viable without them. When interviewing for instance, an interviewer uses someone else's time as much as its own (ibid). This third aspect is further discussed in the subchapter 'Ethical statement'.

Semi-structured interview

Interviews can vary from being structured to open. Structured interviews have strict questions, in order to provide specific answers, whilst open interviews can be interpreted as a conversation within a specific field (Jacobsen, 2002; Yin, 2013). Furthermore, Jacobsen (2002) defines these differences in a spectrum, where open interviews can be combined with structure and, as a result, form semi-structured interviews as well (ibid; Eriksson & Kovalainen, 2008; Blumberg et. al, 2011). Referring to Jacobsen's (2002) spectrum, a special point in the spectrum accurately defines the semi-structured form of interview conducted in this study, which Jacobsen (2002) defines as "questions in fixed order, with the possibility of open answers" (63). This implies that the interview questions used in this thesis clearly search for specific answers, although, do not exclude information not specifically asked for. This perspective is also addressed by Blumberg et. al (2011), who stress that semi-structured interviews are appropriate when the research question

has a wide range of aspects, and where the researchers of the study gain from detecting and identifying new perspectives relevant to the study. Consequently, the semi-structured interviews could provide both a better depth and width to this thesis.

Planning the interview questions

"Developing research questions into interview questions" (Eriksson & Kovalainen, 2008: 79) implies the target of interview questions, as they ought to provide the answers needed to answer the research question of the study. Interview questions can be either open or closed. The first mentioned usually provides more details, whilst closed questions mostly result in shorter and direct answers. Besides, questions can also be either direct or indirect. A direct question strives to attain a specific answer, while indirect questions mostly are used when direct questions can be vulnerable to the respondent. Often, when asking indirect questions, topics or problems related to a specific issue are asked (Eriksson & Kovalainen, 2008). Eriksson and Kovalainen (2008) argue that direct questions usually produce more talk than indirect questions. Furthermore, it is favourable to develop various simple questions compared to one complex and holistic question, as easier and more questions can provide more specific details. Moreover, complex questions might not even provide the answer an interviewer is searching for. Additionally, if an interviewer focuses too much on the preplanned questions, relevant topics might not be raised by the respondent (ibid). Consequently, the interview questions in this thesis involved both closed, open, direct and indirect questions, where the respondents had the opportunity to add certain information if they found it important to include in the interview and results, whilst we also were humble when not always asking direct supplementary questions.

Recording and transcription

There are various ways of recording interviews. It can be done by ongoing notes, notes after the interview, or taping an interview with a recorder. Writing ongoing notes interfere with an interview process, whilst notes written after an interview easily miss out details (Eriksson & Kovalainen, 2008). Referring to Jacobsen (2002), interviews should be recorded on tape if possible. Firstly, recording interviews gives the interviewer the opportunity not to be forced to

take many notes, which Eriksson and Kovalainen (2008) also argue is important. It fosters and maintains better eye contact with the respondent, hence, making the interview more alive and natural. However, recording interviews also have drawbacks (Jacobsen, 2002). First, it is not always possible to record an interview due to the respondent's demands (Eriksson & Kovalainen, 2008; Jacobsen, 2002). Second, recording can lure the interviewer to underestimate the use of taking relevant notes, as it takes a lot of time to transcribe an interview without any notes (Jacobsen, 2002). Third, recording machines might break down during an interview, ultimately deteriorating the interview's results to a large extent (Jacobsen, 2002; Bryman & Bell, 2011b).

In order to attain a holistic perspective of an interview as possible, transcription is relevant. Transcription is a complete document regarding the interview, including answers, as well as both personal thoughts and impressions from a respondent. Transcription can strengthen the analysis because the researcher's own values and opinions will not influence the empirical material if transcribed. Furthermore, the respondent's answers can easier be compared to other interviewees' answers (Bryman & Bell, 2011a).

### 3.5.6 Implementation of the empirical information research

Six face-to-face interviews were conducted between 15th April and 11th May at Mölnlycke Health Care, in order to gain insight about how the MNC works with international R&D, but also to grasp if and how the MNC works according to design management principles. Furthermore, by conducting face-to-face interviews it was possible to interact and analyse the corporate culture, which was crucial in order to understand how an implementation of design management would be perceived. The interviews were structured with questions regarding the respondents view on international R&D, as well as design and customer orientation. Furthermore, the questions were also sometimes broad, in order to allow the respondents to express their own thoughts regarding the topics and to ensure that answers were not forced upon them (the interview questions can be found in appendix 8.2 to 8.4). Both interviewers conducted the interviews whilst also using a recording device. This approach was time consuming. However, it ensured that the answers could be fully grasped and the documentation accurate, as one interviewer fully focused on asking questions, whilst the other interviewer mainly transcribed effectively on an ongoing basis.

## 3.6 Empirical Material Analysis

### 3.6.1 Template analysis

According to King (2004), one way of analysing qualitative data is by a template analysis. When conducting a template analysis, the empirical material collected is arranged into significant categories, in order to facilitate a structure for further analysis. The advantage of the categories, is that they can be formed according to the purpose and research question of the study. Furthermore, it is beneficial to summarise the empirical findings, for instance in a table. By doing so, it is plausible that the researchers will find relationships and patterns in the empirical material. Moreover, this approach to analysis is also appropriate to the abductive approach of science, because of the target of comparing the theory and results (in Saunders, et. al, 2003).

### 3.6.2 Justification of the choice of approach to the analysis

The relevance of a template analysis in this study is multiple. First, it gives the study a better structure with the categories, which also are summarised in tables, effectively breaking down the relevant empirical findings, but also the theoretical framework and presenting them both in a reader-friendly way. Second, the structure and the categories of the more reader-friendly empirical material facilitates an enhanced possibility of conducting a better analysis, because of the increased likelihood of discovering patterns in the research. Third, the template analysis is also adaptable due to its pragmatics stance, consequently, enabling future amendments and corrections if needed. Fourth, it is significant for an abductive approach as discussed above and, therefore, enhances the credibility of the contributions of this thesis. For these reasons, a template approach to the analysis was considered the most favourable approach, in order to foster a good discussion that can discover the research question and fulfill the purpose of the study.

### 3.6.3 The credibility of the findings

When conducting a study, it is important to provide the answers and contributions with credibility. The credibility is a result of the reliability and validity of a report. According to Collis and Hussey (2009), reliability is concerned with the empirical findings of a report, where the findings can be viewed as reliable if they can be repeated in a similar study (ibid). Furthermore, there are aspects regarding reliability ought to bare in mind when conducting interviews, as have

been done in this thesis. The first is participant biases, implying that the respondents can provide answers they find most relevant and not actually how it is. One way of countering this risk, is by offering the respondents anonymity, which all respondents in this study were offered. The second aspect is observer biases, an observer bias occurs when less structured interviews are conducted by different researchers, fostering the possibility of different answers and perspectives. In this thesis, the interviews were always performed by the two researchers simultaneously, where one of the researchers always took notes, whilst the other mainly asked the mostly structured interview questions. Although, the other author sometimes also helped the other researcher to ask questions as well. The last aspect relevant to bare in mind is observer biases, where the researchers simply can interpret the empirical findings in different ways, effectively contributing different conclusions (Saunders et. al, 2009). As for the validity, it is significant that the findings provide a true picture of the phenomenon being studied (Collis & Hussey, 2009; Yin, 2013). Therefore, it is important to triangulate empirical findings from several sources, which it has been done by interviewing several employees at Mölnlycke Health Care. Triangulating empirical results strengthens the validity of a study, because it justifies if the results differ from different resources to a larger extent. The more a study can show convergence in its results, the more valid a study is perceived (Bryman & Bell, 2011a; Yin, 2013). To foster further validity, it is important to provide the study as detailed answers as possible and to summarise the empirical findings, in order to favour a good understanding (Yin, 2013). This has been done by both transcribing and recording the interviews, as well as summarising the empirical findings in a table. Moreover, attaining insight within the field of research is significant for the researchers, in order to provide relevant contributions and, therefore, strengthen the validity of a study (Saunders et. al, 2009). By researching and triangulating many sources in the development of the theoretical framework, it fostered good insights of the concept studied. In addition, further insights were also fostered by the semi-structured approach to the qualitative interviews as the respondents could provide in-depth answers, relevant for the purpose of this study.

### 3.6.4 The execution of the analysis

In this thesis, the template approach was leveraged to analyse the empirical findings. To begin with, the categories were determined, as we had attained a lot of insights within international

R&D and design management, but also knew what we wanted to achieve with the analysis. When the categories had been determined, but also summarised in the tables, the results were attached to the categories of relevance in the analysis. Furthermore, with all insights and knowledge about design management, we began by taking notes in the analysis were we firstly could identify differences between the empirical findings and the theoretical background. During this process, the theoretical background proved to lack a few aspects, which were added to the theoretical background in the analysis. With this comparative analysis as a foundation, we continued to deeply investigate the theoretical background once again, in order to make a deeper analysis by further comparing the results with the theoretical framework. Therefore, it fostered an enhanced possibility of finding linkages and relationships of how Mölnlycke Health Care currently works, with how the participants defined would be the optimal process. Hence, we were able to identify to which extent design management is used, and if the theory is similar to how the participants described as optimal product development. Lastly, we discussed how design management can improve Mölnlycke Health Care's organisational efficiency, which facilitated an answer of how it can help the corporation to differentiate and better satisfy customer needs. By rounding up the analysis with discussions, it can be determined by the reader of how design management can improve Mölnlycke Health Care's organisational efficiency, to foster differentiation and a better satisfaction of customer needs. As a result, the reader is provided with a clear view of how design management can help the corporation, which is beneficial in order to fully understand the answer of the research question awaiting in the conclusion.

## 3.7 Ethical statement

When performing qualitative interviews in academic research, it is important to mind the ethical issues one's research implicates. First, respondents ought never to be forced to participate in a study. Moreover, it is advised not to award participants either financially or materially, as this can provide biased results. Furthermore, anonymity ought also to be offered to the respondents, in order to provide comfort and to make it impossible to identify them without their permission. Consequently, anonymity can also provide higher honesty and response rate, which fosters enhanced validity (Collis & Hussey, 2009; Eriksson & Kovalainen, 2008). In addition, the respondents ought to be informed of all aspects relevant to the interview in advance, for instance,

the interview questions and a short presentation of the study (Collis & Hussey, 2009; Blumberg et. al, 2011). Moreover, Yin (2013) argues that it is of great advantage to develop a good image and connection with the respondents, due to the probability of an enhanced cooperation, in order to perform better interviews. Further, developing a connection with respondents can foster future cooperations, beneficial for both behalfs (ibid). Moreover, Blumberg et. al (2011) stress that it is important to clearly inform the interviewees of the purpose and benefits of the study, to further improve the cooperation. It is also important to show the respondents respect and not prolong the interviews (ibid). When the study is finalised, it is relevant to reconnect to the respondents and share the contributions of the study. It makes the study more relevant for all stakeholders and, further, improves the connection with the participants (Blumberg et. al, 2011; Yin, 2013).

In this thesis, none of the respondents have not been forced to participate, neither have they been rewarded by doing so. All participants answered no to the question if they wanted to be anonymous. However, we insisted and agreed with the marketing manager and head designer to make them anonymous, as their answers in the empirical findings might be easier identify because they are the only ones' with more insights in marketing and design. This provided the marketing manager and head designer larger comfort. Consequently, our relation to them was improved, but also reduced the possibility of obtaining biased answers. Nevertheless, all respondents are not named in the empirical findings, therefore, making them anonymous in that chapter. The reason for this is to show the participants respect and not label them explicitly. Furthermore, before all interviews, the interview questions were sent to all participants, as well as an presentation of design management. Before the interviews started, the concept of design management was rehearsed, as well as the purpose with the study. Additionally, it was asked if the interviews could be recorded, in order to ensure accuracy and validity. The respondents did not mind that the interviews were recorded as long as they remained confidential. All interviews were agreed to last around an hour, although, no interview was prolonged. In addition, the participants had the opportunity to round up the interview whenever it suited them. The thesis was sent to all participants when finalised.

# 4. Empirical findings

As mentioned previously in the methodology, the case study was conducted at Mönlycke Health Care. In this chapter, the subchapters are presented according to the main topics of the interviews. As earlier mentioned, the answers do not label any participant of the study explicitly. Furthermore, the respondents and the interview questions can be found in the appendix. Finally, to conclude the empirical findings, the results are summarised in table (Table 2) similar to Table 1, in order to facilitate a better analysis of the linkages and relationships between the theoretical framework and empirical findings. Consequently, it fosters a better discussion needed to answer the research question.

## 4.1 International R&D - structure, coordination and management

### 4.1.1 How new products are developed at Mölnlycke Health Care

All the respondents describe Mölnlycke Health Care's organisation as fairly small, however, the company has grown rapidly in the past years and recently went through a vast organisational reconstruction. All the respondents point out that nearly all new products start their R&D process in the headquarters where the marketing teams research closely with R&D operations to understand the market demands and create innovative products. According to the respondents, the corporation currently works with international development to some extent and they all stress the importance of internationalising, in order to leverage local know-how. One respondent further emphasises how important it is to access local talents and that creative individuals are crucial in order to create an innovative organisation. Three of the respondents also describe how an international R&D organisation can assist with leveraging local competitive advantages such as lower prices and understanding of local customers. Furthermore, a majority of the respondents emphasise the importance of doing market research on an international scale in order to understand customer preferences in the local markets.

With the recent reconstruction, two previous divisions merge and when referring to the respondents, one of the results they are hoping to achieve with the reorganisation is a further

integration between the corporations different functions early on in the product development process. According to all the respondents, most of the corporation's research and development is conducted in their headquarters where the R&D management also is located. In some product categories, development is also done in factories all over the world by closely cooperating with headquarters, to keep close contact with the local markets and know-how.

### 4.1.2 Communication and corporate culture

A well developed network and the ease of communications is of greatest importance according to all the respondents. Without it, well-developed products will not be created. A majority of the respondents also agree that it was easier to communicate when the organisation was smaller, as it was easier to reach other colleagues, in order to provide opinions regarding new ideas or prototypes. They emphasise that this is a natural path for a growing corporation, due to the fact that previously, most employees were located in the same country and office. As a result of the corporation’s rapid growth, the R&D departments as mentioned earlier, have been located all over the world in order to stay close to the market and to leverage on local talent. Two of the respondents stress that communicational difficulties arise when expanding and internationalising. The expansion has made it increasingly difficult to exchange ideas and discuss with colleagues, both from different departments within the corporation, but also with people within the R&D organisation. However, all respondents do feel that the corporation has good communication. Additionally, all respondents emphasise the importance of being able to easily get in touch will colleagues, in order to exchange ideas and stay efficient. However, they also point out that it is very time consuming and difficult to achieve perfect integration and knowledge exchange. Occasional phone-meetings and trips are not enough to create the strong connections that are required for a natural and efficient knowledge exchange. One respondent points out that the communication within the corporation is completely dependent on relations between individuals. The respondent also points out that several departments and groups lack in communication due to this, which is a managerial challenge. Another respondent does however not consider the international communication a problem due to the fact that almost all R&D in the product category the respondent works with is conducted at the headquarters.

A majority of the respondents argue that good communication is much easier to achieve on a project level and that Mölnlycke Health Care currently have a well functioning knowledge exchange because project groups works tightly with people from different departments. They believe that the project level communication is crucial and that clear guidelines on who does what is needed in order to stay efficient.

Most of the respondents describe that Mölnlycke Health Care previously was centred around technical innovation and product functionality. They underline that the reconstruction is a first step towards creating a customer-focused organisation and that it will take time before the results show. Four of the respondents also stress the importance of making sure the entire organisation has the customer-oriented way of working and that the management has a vital role guiding this vision. Furthermore, the respondents believe that if the implementation of a design- and customer-oriented focus in an international organisation is to be successful, it is vital that there are clear parts of the corporate culture that ensures unity.

### 4.1.3 Decision making

All the respondents stress that being able to take quick decisions is vital to the innovation process. Furthermore, they also emphasise the fact that the efficiency of decision-making is deeply reliant on the corporation's organisational structure. With the smaller organisation, they describe the decision making to be efficient by default, however, after growing large, it was necessary to restructure in order to create a better management and organisational structure. One of the respondents further describes that when the organisation grew larger, more managers were appointed and it became increasingly unclear who to turn to with ideas, which has led to some inefficiency and time lag.

## 4.2 Innovation and Design Management

### 4.2.1 Main drivers for innovation

Referring to two of the respondents, extensive idea creation is prevalent within the organisation and fostering more is not the main problem to solve. According to the respondents, innovation is rather the result of being able to manage the ideas within the organisation and deciding which

ones to continue with, in other words, get them into a development process. One respondent similarly emphasises that it is vital to have an organisation where relevant people are responsible for determining which ideas have potential, but also are in line with the corporation's goals and strategy. Consequently, relevant people who make decisions facilitate the creation of innovative products.

On the other hand, a majority of the respondents rather emphasise that innovation is created by fully understanding customer needs. Further, half of the respondents describe that one of the most important factors to create innovative products is knowing which questions to ask the customers and how to interpret their needs.

Furthermore, all the respondents agree that innovation can involve different aspects such as visual design and the product functions. They stress that innovation only can be achieved by closely working together in teams, helping each others in the organisation and taking advantage of each others strengths. There are a lot of different people within the organisation with different specialities and it is important to be able to involve them all in the product development process according to all the respondents.

### 4.2.2 The importance of product design

Five of six respondents point out that design is vital to customer satisfaction. Furthermore, they stress that when spending time on developing products with good functionality, that are easy to use and have appealing design, they can differentiate from their competitors. Four of the respondents further describe design as the next step, in order to stay in the leading position they have achieved by creating products with innovative functions. Moreover, the competition catches up and creates products with similar functionality. However, as the respondents points out, design is a competitive advantage hard to copy. The products' visual design is mainly satisfying to the end consumer, nevertheless, it is equally important to also focus on creating attractive and clear packaging, which is something that five of the respondents believe is vital for differentiating and provide further customer value. Two respondents point out that Mölnlycke Health Care puts a lot of time and effort into different design aspects when developing their products. They further

explain that one of the main areas of research is to innovate with the product's functionality and ease of use, which involves spending a lot of time to optimise both the product and its packaging. One respondent exemplifies the importance by explaining how they could see a clear increase in customer satisfaction by replacing the text with instructions on the packaging with clear instructive pictures.

In addition, half of the respondents also describe that patents are expiring, which aids competing corporations to develop products with similar innovative functions that have been vital for Mölnlycke Health Care's success. As a result, Mölnlycke Health Care have to look into new ways of differentiating. The respondents further stress design as one possible differentiator and that Mölnlycke Health Care might not be working enough with the visual part of the products.

According to two respondents, the corporation does not focus much on design and stress that the industry is not very design oriented. The two respondents believe that the visual design of some products is currently not the vital factor for success. All the respondents agree that Mölnlycke Health Care previously has been using a function-oriented approach and that the reason for their success it mostly due to technical innovations.

### 4.2.3 The respondents view on how R&D will develop in the future, in order to better satisfy customer needs

All the respondents believe that the R&D organisation will move towards a less linear structure with more focus on incorporating more divisions earlier in the R&D process. It is vital to keep decision-making efficient, which can be managed by not having a stiff and hierarchical organisation according to the respondents. Furthermore, the respondents also believe that a close cooperation between marketing and R&D will be vital, in order to better understand and develop products that fully satisfy the customers needs. Four of the respondents further stress how difficult it is, and how long time it takes to restructure and implement changes in the organisational structure. They also stress that it is important to change incrementally and that clear and united goals for the entire organisation are crucial, in order for the changes to succeed. A majority of the respondents further underline the importance of working with a customer focus, in order to create relevant products that can be commercialised.

All the respondents agree that design will achieve a greater significance due to the increasing international competition. Furthermore, a majority of the respondents also agree that further internationalisation of R&D in combination with increased customer focus and closer collaboration with design is vital, in order to differentiate and develop successful products.

## 4.3 Summary of the empirical findings

As mentioned in the beginning of this chapter, the empirical findings gathered are summarised in a table (Table 2), similar to the table used to summarise the theoretical framework (Table 1). This makes it easier to find linkages and relationships between international R&D and design management by comparing the tables. In addition, it provides an overview of the main findings. Although, this table has been approached from a current situation compared to a favourable perspective, in order to later analyse how Mölnlycke Health Care is working today and compare it with what the participants find the most optimal. Furthermore, these results will later be compared to the table summarising theoretical framework, which focuses on the most optimal traits of international R&D and design management. Consequently, this kind of comparative analysis will provide a good foundation in the following discussion, which will facilitate an answer to this thesis' research question.

| | *Current situation* | *Optimal approach* |
|---|---|---|
| **Organisational structure** | Most of the R&D is centralised, while the foreign R&D departments mainly are leveraged to develop and adapt products close to the local markets. | A fully integrated approach to international R&D would be optimal, conducting both research and development of products worldwide. |
| **Communication** | It increases in complexity when the corporation grows. The personal chemistry and acquaintance are the first factors put to challenge. In addition, communication with unfamiliar employees in different countries is demanding. | There should be a common denominator, a culture, favouring a typical mindset, shedding the whole organisation, in order to foster innovation, efficiency and good communication. |
| **Differentiation** | Mölnlycke Health Care has mainly the functionality of their products as differentiator. It has been their competitive advantage for a long time. | Product design, including packaging, is a good next step to make Mölnlycke Health Care stand out of their competition. For instance, design can further satisfy customer needs, but also increase the awareness of their products. |
| **Customer satisfaction** | There is a good integration between the different organisational functions in the product development process, such as marketing and R&D, since the reorganisation. This fosters a stronger customer-oriented focus. | The current approach is relevant and favoured. Although, every function should mainly focus on their purpose, whilst still having an effective collaboration with other departments. Nevertheless, providing designers and product design larger influence should be the next step. |

Own table: Table 2 - How the current product development process is on an international scale at Mölnlycke Health Care vs. how the international product development process should be optimal according to the respondents

# 5. Analysis and discussion

## 5.1 Organisational structure

When comparing the theoretical background with the empirical findings regarding the organisational structure, it is clear that there are many aspects of design management that Mölnlycke Health Care could use in order to optimise their product development process.

To begin with an analysis of Mölnlycke Health Care's approach to international R&D according to Figure 1, all respondents state that the corporation more or less utilises domestic research, while having development dispersed around the world. No empirical data describes why the corporation has this this approach. Although, Hill (2012) Dunning and Lundan (2008) argue that organisational knowledge tends to be centralised when corporations strive to keep control of. When comparing this fact to von Zedtwitz's and Gassman's (2008) approach, Mölnlycke Health Care's headquarters can, therefore, be interpreted as a *national treasure*. On the other hand, the development of products the corporation has abroad in order to adapt their products to the markets where they are sold, can be interpreted as a version of the *market-driven* approach by von Zedtwitz and Gassman (2002). In addition, when further referring to Kuemmerle's (2000) description, Mölnlycke Health Care utilises 'home-base-exploiting-sites', in order to conduct research at home, while the development abroad strives to adapt their products close to the local markets. Although, to become more internationally competitive, all respondents stress that it is important to further internationalise to obtain and leverage international know-how. One of the respondents stresses that this is crucial in order to create an innovative organisation. In addition, a more international approach to R&D operations is favourable according to all the respondents, to grasp a better understanding of local customers. The future outlooks referring to the respondents from Mölnlycke Health Care, is consistent with what von Zedtwitz and Gassman (2002) suggest regarding the importance of conducting corporate research internationally to become *globals*, in order to be internationally competitive (Asakawa, 2001; Dunning & Lundan, 2008; Eppinger and Chitkara, 2006; Kuemmerle, 2000; Richtner & Rognes, 2008; Slone, Becker, Penton, Pu & McNamee, 2011).

Whether or not Mölnlycke Health Care's R&D operations become more internationalised, design management can further increase their organisation's efficiency, especially the product development processes. Design management favors an early holistic integration of an organisation, whilst providing designers larger mandate, in order to foster the development of appealing and user-oriented innovations (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Cooper & Press, 1995; Lockwood, 2011; Veryzer & Borja de Mozota, 2005; von Stamm, 2011). Two respondents favour a similar holistic and integrative development of Mölnlycke Health Care in the future, although, not with such an influence of designers as design management favours. To continue with the design management theory, successful innovations have strong focus on customer demand and user-orientation, which can be commercialised as a result (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Bruce, 2011; Cooper et. al, 2011; Cooper & Press, 1995; Dunne, 2011; Veryzer & Borja de Mozota, 2005; von Stamm, 2011). This is consistent with answers from three respondents, who argue that the R&D processes in the future will become even more customer-oriented. Furthermore, all respondents agree that design will gain a larger significance in the future. Consequently, it can be understood why all respondents find design management an attractive concept to be implemented at Mölnlycke Health Care, as it further can increase Mölnlycke Health Care's organisational efficiency.

In the most modern contribution to the theory of design management, Lockwood's (2011) illustration of how the integrated design management process works (Figure 3) can provide a concrete argumentation of how design management can further improve Mölnlycke Health Care's organisational efficiency, meanwhile providing differentiation and enhanced customer satisfaction. The two latter outcomes are discussed further in detail later in this chapter. If applying the integrated design management process (Lockwood, 2011) to Mölnlycke Health Care's product development process, the corporation would be able to benefit from enhanced flexibility, whilst still having effective collaboration due to the compulsive communication needed. This allows all functions to fundamentally focus on their purposes, whilst being able to receive input from other departments (Cooper & Press, 1995; Lockwood, 2011). In the product

development process itself, all functions would have to collaborate from the start, together with a larger emphasis the design function. However, due to the flexibility, individual functions would only be present in the process when truly needed (Borja de Mozota, 2006; Kotler & Rath, 2011; Lockwood, 2011). Together with good communication flow, this flexible model of developing products can reduce the time-to-market due to easier decision making, as not all functions are a part of the development processes at all times (Bruce, 2011; Borja de Mozota, 2011; Cooper & Press, 1995). In addition, the early entrance of designers would allow them to provide input from the beginning. Therefore, it can foster further time efficiency as the designers input can be processed and consolidated with various functions immediately, for instance with input from R&D or marketing. This implies that designers' input are less likely to force revision of the product development later in the process (Borja de Mozota, 2003; Kotler & Rath, 2011). Consequently, design management can foster a smoother product development processes for Mölnlycke Health Care.

When applying this analysis and discussion to an international dimension, communication increases in importance, in order to fully leverage the benefits of design management. Therefore, a more in-depth analysis on the importance of communication follows.

## 5.2 Communication

All respondents stress that communication within and between departments is crucial both domestically and internationally, in order to stimulate innovation and create an efficient product development process. This is consistent with both the communicational perspectives of international R&D and design management, which focus on the development of an 'integrated network' and 'design thinking' for efficient communication and knowledge exchange (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995; Håkanson & Zander, 1986; in Nobel & Birkinshaw, 1998; Kar, Subramanian & Saran, 2009; Meyer, 1991, in Nobel & Birkinshaw, 1998; Perks et. al, 2005; Zeschky, Daiber, Widenmayer & Gassman, 2014). Further, the respondents underline the importance of cooperation, collaboration and communication when analysing customer preferences and behaviour. This is similar to the design management theory, which emphasises the importance of including preferably all

functions early on in the product development process, illustrated in Figure 2 and 3 (Cooper & Press, 1995; Lockwood, 2011). The respondents also agree that a flexible organisation that includes all functions early on in the development process is crucial, in order to efficiently be able to develop products with a customer focus, which is in line with the theory of design management (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Cooper & Press, 1995; Lockwood, 2011). This is especially true when corporations grow into larger MNCs where the distance between the employees increases as international R&D departments are set up to better understand the local markets and leverage local know-how (Asakawa, 2001; Dunning & Lundan, 2008; Eppinger and Chitkara, 2006; Kuemmerle, 2000; Richtner & Rognes, 2008; Slone, Becker, Penton, Pu & McNamee, 2011; von Zedtwitz & Gassman, 2008). Moreover, the theory and respondents agree that it is of grave importance to have a well functioning communications network, which assists with the exchange of ideas (Håkanson & Zander, 1986; in Nobel & Birkinshaw, 1998). Several respondents further stress the increasing difficulty of exchanging ideas as a result of the corporation's growth, which further emphasises how important it is to manage the corporation's communications and stimulate knowledge exchange. Regarding this aspect, both an integrative network and design thinking is advantageous. An integrative network underlines the importance of developing informal communication channels as these foster an even more communicative environment (Håkanson & Zander, 1986; in Nobel & Birkinshaw, 1998; Richtner & Rognes, 2008; Zeschky, Daiber, Widenmayer & Gassman, 2014), whilst design thinking strives to foster information and knowledge sharing within a corporation, in addition to achieving a large design focus (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995).

Furthermore, design management emphasises the importance of mutual values, especially regarding design, for everyone to understand and work towards (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995). This was also was underlined by two of the respondents as important aspects if the implementation of a concept such as design management is to be successful. Furthermore, they agree that there are differences within the organisation when discussing the importance of design and believe that it is crucial that the top

management is responsible for implementing guidelines regarding design. Consequently, it can foster a unified organisation. Moreover, two respondents stress the importance of not only creating an organisation that includes designers early on in the product development process, but also to work with implementing customer- and design focus in the corporate culture, in order to add a dimension to the current function-oriented organisation. This is also discussed in the design thinking perspective, which emphasises the importance of making sure that all parts of the organisation, both nationally and internationally, understand the benefits of design and believe in that factor for success. Consistent with the two respondents answers of how to successfully implement a specific mindset, the theory of design management underlines that the top management should initiate an implementation of design management by shedding the design thinking. As a result, it is more likely that the whole organisation will work towards common goals with efficient communication (Best, 2006; Borja de Mozota, 2003; Brown, 2008; Burder, 2011; Cooper et. al, 2011; Cooper & Press, 1995).

To summarise this part, communication is crucial for both international R&D and design management to prosper, according to both the theoretical and empirical findings. Furthermore, the theory of design management emphasises the importance of the top management to be the initiator of an implementation of common design goals and design thinking, in order to ensure that everyone works in unity with the same focus on design. This is also consistent with the empirical findings, where it is clear that the respondents have different views on the importance of design.

## 5.3 Differentiation

The theoretical findings suggest that only focusing on innovating product functions is not enough (Hill, 2012; von Stamm, 2011; Svengren Holm, 2011) and that corporations have to develop new ways of providing the customers with increased value (Conway, 2014; Cooper & Press, 1995; Hill, 2012; von Stamm, 2011). As competition increases, it becomes more difficult to stand out of the competition. Moreover, design has been shown to substantially affect customer behaviour, consequently, being a crucial factor for commercial success (Bloch, 1995; Bruce, 2011; Crilly, Moultrie & Clarkson, 2004; Crilly, Moultrie, Clarkson, 2009; Person, Snelders, Karjalainen,

Schoormans, 2007, in Ranscombe, Hicks & Millineux, 2012). All the respondents in this study underline the importance of finding new ways to differentiate due to the fact that it is not always possible to innovate the functions of products. They also describe design as a way to increase customer awareness of the brand. Furthermore, a majority of the respondents stress that design is becoming increasingly important and that it is a necessary factor to work with, in order to differentiate from the competition and sell premium products. This is consistent with the theory, which argues that customer are ready to pay more if their needs are better satisfied (Borja de Mozota, 2003; Bruce, 2011; Conway, 2014; Cooper & Press, 1995; Hill, 2012; Rooney, 1995; von Stamm, 2011). As mentioned in the theoretical background, design does not only add tangible value in the form of specific product design, but also an intangible value by strengthening the corporation's communication and image towards the customers. In addition, differentiating by focusing on product aesthetics, also increases the customer awareness of the corporation's brand (Best, 2006; Brown, 2008; Cooper & Press, 1995).

As touched upon earlier, the empirical findings suggest that giving design and designers a larger influence is crucial in order to 'take the next step' and create products that are more appealing to the customers. Furthermore, it can help the corporation to move on from the core focus of functionality and let design provide another dimension not prevalent today, both regarding the products and the packaging. Borja de Mozota (2006) describes this aspect as 'design as differentiator', implying that design can be a competitive advantage providing increased customer awareness, customer loyalty, premium pricing and brand building. In addition, differentiating by designing the packaging can also facilitate increased customer satisfaction and brand awareness (Bruce, 2011).

To conclude this subsection, design is a key source for differentiating, but also for building a sustainable brand, as consumers today have a relatively short decision span for their purchase decisions (Berkowitz, 1997; Page & Herr, 2002, in Montana, Guzman & Moll, 2007). Therefore, design is a pertinent tool to stand out of the crowded marketplace (Best, 2006; Cooper & Press, 1995; Veryzer & Borja de Mozota, 2005). When a corporation stands out from its competition by

differentiation and branding, customers are less likely to accept substitutes (Ginden, 1993, in Rooney, 1995).

## 5.4 Customer satisfaction

Referring to all respondents, Mölnlycke Health Care's current approach to new product development, both on an national and international scale, has gained customer-orientation. However, as this approach is a result of the recent reorganisation of the MNC, the respondents argue that it remains to be seen how well and effective it will turn out to be. Nevertheless, there are ways that design management can aid Mölnlycke Health Care to better satisfy customer needs.

Five of the respondents argue that design should not only be interpreted as a competitive advantage and differentiator, but also a vital factor for customer satisfaction. Consequently, both the empirical and theoretical findings stress the importance of focusing on customer needs, in order to help the corporation to defend their leading position, by tying customers closer to the brand (Cooper & Press, 1995; Hallowell, 1996; Kotler & Rath, 2011; Perks et. al, 2005; Stone, Rose, Lal & Shipp, 2008; Veryzer & Borja de Mozota, 2005; von Stamm, 2011; Wilkinson & De Angeli, 2014). In addition, a majority of the respondents stress the importance of designing the products packaging, not only as a differentiator as discussed earlier, but also to ease the usage of products, further providing enhanced customer value. This is consistent with theory, which suggests the same (Borja de Mozota, 2006; Bruce, 2011). According to two of the respondents, Mölnlycke Health Care already works much with design. However, all the respondents stress that design is an aspect that should receive a larger influence in the organisation.

To satisfy customer needs when developing new products, it is beneficial to repeat what purposes R&D, marketing and design have in this process. To begin with, the R&D function's target is to develop innovations (Godin, 2006; Trott, 2012), whilst the marketing function ought to provide R&D with input regarding customer needs, in order to facilitate a development of products that satisfy customer needs (Best, 2006; Cooper et. al, 2011; Cooper & Press; Trott, 2012; von Stamm, 2011). Similarly, the empirical findings suggest that by including all functions in the

early stages of the product development process, it is more likely that the customer needs will be understood and satisfied. This is further emphasised in the design management theory, which additionally strives to provide the designer's role a larger influence in the product development process. Consequently, the possibility of creating concrete products with both good functionality and appealing aesthetics increases (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995; Lockwood, 2011). When providing designers a larger role in the product development process, they can act as the link between marketing and R&D. As a result, further collaboration can be achieved by using the designer's purpose of creating concrete innovative products. Furthermore, designers are also user-oriented and strive for functionality and visual appearance, which can be interpreted as focusing on customer needs (Best, 2006; Borja de Mozota, 2003; Borja de Mozota, 2006; Brown, 2008; Cooper et. al, 2011; Cooper & Press, 1995; Dunne, 2011; Veryzer & Borja de Mozota, 2005; von Stamm, 2011). Consequently, designers provide a common denominator between R&D and marketing in the product development process, which fosters a better collaboration. This interpretation is also stressed by Perks, Cooper and Jones (2005) and Veryzer and Borja de Mozota (2005), where the first argue designers as 'leaders of the product development process'.

The integration of designers can also be applicable on an international scale, although, the communication and collaboration between all these three functions increases in complexity on an international scale. However, if the integration is successful, the corporation will be able to leverage the advantages of both design management and international R&D, increasing the possibility of understanding local preferences on all the markets where they are active (Boutellier, Gassman & von Zedwitz, 2008). Although, the communicational factor relevant for the international scale will not be discussed further, as the implications and the importance of communication has been analysed and discussed earlier.

To shortly summarise this subchapter, implementing design management to product development processes, can facilitate better a collaboration and understanding between R&D and marketing, as designers become their common denominator. As a result, it fosters a smoother product

development process where the functions better can understand each other and collaborate. The result of this is a faster product development process, which has a ‘innovative customer- and user oriented focus’, effectively better satisfying customer needs. In addition, if the R&D has international operations, customer satisfaction can be further enhanced due to the increased understanding of customer preferences.

# 6. Conclusion

This chapter provides a conclusion that relates to the analysis and discussion, and answers the research question of this thesis. Furthermore, it presents suggestions for future research and describes this thesis' role within the specific field of research.

## 6.1 Theoretical and empirical contributions

This thesis provides answers to how MNCs with international R&D operations can benefit from the implementation of design management to their international R&D processes. Theoretical and empirical findings suggest that it is becoming increasingly important to find new ways to innovate and differentiate in the long run, and that only focusing on the development of innovative functionality to products is not enough. Consequently, it is crucial to differentiate and stand out of competition, as well as finding new ways to better satisfy customer needs.

To begin with, design management favours an holistic integration of an organisation's functions, with an emphasis on designers. As a result, all functions of a corporation can be utilised and provide input. As presented in the analysis and discussion, design management can help MNCs to differentiate and better satisfy customer needs by facilitate collaboration between marketing, R&D and designers. Fundamentally, the different functions serve different purposes, where R&D strives to develop innovative products, whilst marketing provides information regarding customer needs. As a result, innovative and demanded products should be developed. However, to further improve the product development process, designers ought to be integrated, in order to leverage their expertise in the development of concrete products with appealing aesthetics, good functionality and user-friendliness. Therefore, designers can be described to provide user-orientation. In other words, the design function is a common denominator between the R&D and marketing, due to the fact that it has similar objectives as the latter two. As a result, a better collaboration between R&D and marketing can be achieved, facilitating a smoother product development process with the outcome of 'innovative customer- and user oriented products'. Furthermore, the integration of designers to the product development process can assist in a MNC's strive towards differentiation, where the visual design can provide another way of

distinguishing from the competition. This interpretation is also consistent with earlier research (Borja de Mozota, 2006; Veryzer & Borja de Mozota, 2005), where Perks et. al (2005) describe designers as 'leaders of the product development process', implying that it is more likely for future research to provide similar conclusions. When adding the perspective of international R&D, it is even more likely that customer needs on a local level can be understood and satisfied. Furthermore, differentiation can also be facilitated as the possibility of developing even more innovative products increases due to the leverage of local know-how.

To achieve a successful holistic integration as discussed in the paragraph above, only providing designers a larger influence in the product development process is not enough. It is equally important that all the employees of a MNC fully understand the advantages design management can contribute, when designers receive a more central role in the product development process. If not, it is plausible that the different departments will prioritise differently, but also be less willing to collaborate with the more emphasised designers. This scenario is likely to result in limitations and inefficiency to the product development process. Therefore, when collaborating with other departments, it is crucial to have united objectives and goals. For this reason, design thinking is a characteristic of design management, which ought to receive a central role, in order to ensure that the advantages of design management are fully leveraged. Design thinking emphasises good communication and knowledge exchange within a corporation, but also a common understanding and 'design mindset' between all the employees. Therefore, if the employees of a MNC do not grasp and truly believe in the benefits of design management, it is unlikely that design management will gain importance as a competitive tool, due to the fact that the holistic integration of an organisation with emphasis on designers will be difficult to achieve. Consequently, it is crucial that design thinking sheds through the entire organisation, in order to ensure that design management can be successfully implemented.

When adding the complexity of an international organisation, communication becomes an even more important factor due to geographical and cultural differences. As analysed and discussed, an integration of various functions in a MNC's product development process can simply not be

effective if the communication and knowledge exchange is not functioning well. The different functions need to focus on their main tasks, whilst still be able to closely communicate with each other in order to exchange ideas and information. In an MNC, more employees from dispersed departments are involved in the product development, making it even more complex to communicate and exchange information and know-how. Furthermore, if design management ought to be truly leveraged internationally, creating a common understanding of the concept as discussed earlier, can further facilitate communications because of the strive towards common goals.

Finally, it is important to point out that design management is unique in each context and that it might not be equally beneficial in all industries. Nevertheless, the scientific approach of this thesis strengthens the credibility of this thesis' contributions. With the complement of theory to the empirical findings, discovered to be relevant in the analysis and discussion, it is possible to apply the contributions of this thesis to more situations and perspectives. As a result, an analytical generalisation has been developed. In addition, it is important to conduct further research of design management, both within the area of product development where international R&D processes have a significant influence, but also in other perspectives. Consequently, an outlining of suggestions for future research awaits next.

## 6.2 Suggestions for future research

Fundamentally, this thesis has focused on the innovations of tangible products and has overlooked design management within the service industry. In addition, design management can facilitate improved outcomes for other functions such as finance and engineering in the product development processes, although not focused on in this thesis. Moreover, insights regarding the implementation process of design management and how it should executed optimally are yet to be discovered. For example, it is vital that the communication is effective in a MNC if cross-border collaboration is to be efficient. This aspect needs more concrete and deeper research as this thesis mainly has identified it as a challenge, when striving to implement design management to international R&D processes. Adjacent, further research of design management as a business strategy could clarify how it can prosper and be leveraged throughout the entire

organisation. Also, building brand with design management is an aspect extremely challenging on an international scale, as it requires consistency in the development of an international brand. This aspect has only been slightly touched in this thesis. Furthermore, the empirical findings showed that this thesis lacked theory to analyse decision making. Therefore, the decision making process requires further research. Consequently, we would like to end this subsection with a statement by Alvesson and Sköldberg (2008), who argue that results from case studies ought to be compared to new case studies and their relevance tested, in order to develop the field of research. As a result, more studies are needed to 'uncover' all possible advantages of design management.

## 6.3 Implications for practitioners

This thesis can be of value for MNCs within mature industries, where it is becoming increasingly difficult to differentiate with innovative functions. Furthermore, it can be of use for managers when working with an implementation of a design- and customer oriented focus in an organisation. In addition, this thesis can assist with emphasising important factors that are crucial, in order to successfully implement a design- and customer oriented focus in an organisation. As for MNCs, the thesis identifies the benefits of using design as a differentiator and how it better can satisfy customer needs, but also improve the efficiency and smoothness of the product development processes on both a national and international scale.

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# 8. Appendix

This section includes a table of the participants in the study, as well as the interview questions to the different managers.

## 8.1 The participants in the study

| **Employees of Mölnlycke Health Care** | | |
|---|---|---|
| *Name* | *Position* | *Interview held* |
| Elisabet Lundqvist | R&D Manager | 15 April 2015 |
| Camilla Johansson | R&D Manager | 23 April 2015 |
| Anders Husmark | R&D Manager | 23 April 2015 |
| Tanja Lindermeier | R&D Manager | 4 May 2015 |
| Anonymous | Marketing Manager | 6 May 2015 |
| Anonymous | Head Designer | 11 May 2015 |

## 8.2 Interview questions for the R&D managers

**Introduction**

What position do you have at the company?

What are you working tasks?

How long have you worked with research and development?

**Mölnlycke Health Care's R&D organisation and its role**

How is the R&D organisation structured?

How are decisions made within the R&D organisation?

How does Mölnlycke Health Care work with global R&D today? How is your research and development divided and set ut?

How much contact do you have here in Gothenburg's R&D department with organisational functions?

How much contact do you have with other R&D departments within Mölnlycke Health Care?

How do you analyse and identify customer needs and preferences? How much focus does this have at Mölnlycke Health Care?

What do you see as the biggest limitations in your management- and organisational structure today, in order to develop products in an optimal way?

Is there anything you want to add regarding R&D?

**Innovation och Design Management**

Have you ever heard of the concept of design management?

What is your opinion regarding the importance of design, and how much do you work with it in the product development process at Mölnlycke Health Care?

What is innovation for you, and what attributes find most important regarding innovation?

How do you think that the R&D will come to develop in the future, in order to satisfy customer needs?

What do you think are the most important attributes for a successful research and development?

Do you think that there is potential to leverage design management at Mölnlycke Health Care?

## 8.3 Interview questions for the Marketing Manager

**Introduction**

What position do you have at the company?

What are you working tasks?

How long have you worked with marketing?

**Mölnlycke Health Care's marketing organisation and its role**

How integrated is the marketing with research and development?

How well do you find that the communication works with R&D?

How do you analyse and identify customer needs and preferences? How much of this work falls on the marketing and R&D respectively?

Do you think that the analysis of customer needs works well today? Do you focus on both customers and end consumers?

How much of the customer analysis occurs on an international level?

What do you see as the main limitations in your management- and organisational structure today to optimally develop products that satisfy customer needs the best way?

Is there anything you would like to add concerning the marketing department's role in the product development process?

**Innovation och Design Management**

What is your view on the importance of design, and how much do you work with it at Mölnlycke Health Care?

When does a designer enter the product development process, and how much do you work with design?

What is innovation for you, and what do you think are the most important characteristics?

How do you think the cooperation between R&D, marketing, and the designer will develop in the future?

Do you believe that there is potential to use design management at Mölnlycke Health Care?

## 8.4 Interview questions for the Head Designer

**Introduction**

What position do you have at the company?

What are you working tasks?

How long have you worked with design?

**Mölnlycke Health Care's design organisation and its role**

How deeply integrated is your role in the early stages of product development process?

How closely do you work with R&D and marketing?

How well do you feel that communication with the various departments is working?

How do you analyse and identify customer needs and preferences? How much of this work falls on the marketing and R&D respectively?

Do you think that the analysis of customer needs is working well in the current situation? Do you focus on both customers and end consumers?

Is it always someone with knowledge and insights within design that is involved in the initial stages of the product development process where the customer preferences are analysed?

What do you see as the main limitations in your management- and organisational structure today, in order to optimally develop products that meet and satisfy customer needs the best way?

Is there anything you would like to add regarding your role in product development process?

**Innovation och Design Management**

What is your view on the importance of design, and how much do you work with it at Mölnlycke Health Care?

When does a designer enter the product development process and how much do you at Mölnlycke Health Care work with design?

What is innovation for you?

What do you think are the most important characteristics for Mölnlycke Health Care, in order to differentiate?

At what level within the company do you think that design should be addressed and worked with? Which departments should, and need to be involved?

How do you think the cooperation between R&D, marketing and designers will develop in the future?

Do you think there is a need to use design management at Mölnlycke Health Care?