INNOVATION DRIVEN BY MEANING

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To
Niklas, Vendela and Judith
- mes raisons d’être.
Abstract

Hi-tech companies that want to innovate their products use, quite often, and quite naturally, technology as a driver. But, technology is only one of several drivers of change within product development. It is becoming more and more accessible and alone, cannot serve as the only mean to stay competitive. This research sheds light on a different driver of innovation – namely, through the perspective of “meaning”. An innovation, driven by the search for a new meaning of a product, is connected to the purpose of “why” a product is used. It is not about “how” it is used.

In this sense, innovations driven by meaning, are connected to a human’s new experience of use – rather than to the improvement of an existing performance. This type of innovation builds on people and their interpretation of why a product or service makes sense in their life and therefore, it is subjective rather than objective. It represents a move, from the classic business perspectives of optimization and control to approach the unpredictable and ambiguous views of humans in a wider, cultural context.

One company that reconsidered the meaning of their product, is the Germany-based KUKA with their “RoboCoaster”. This product uses existing technology to transform an industrial robot from a powerful, efficient and accurate tool into an exciting amusement ride system, delivering excitement, enjoyment and pleasurable fear. Another example is the Da Vinci surgical system in which, instead of replacing humans in an industrial application, a robot interacts with humans by acting as a surgeon in performing invasive surgery. Through finding new applications of existing technologies (the RoboCoaster) – or through new technologies (the Da Vinci surgical system) – these products are not “better” than existing industrial robots: they are different and they have changed the reason why people use them.

But, theories on how to innovate with a “meaning” perspective, (i.e. on how to develop new interpretations for products and services) are rare. Indeed, dominant streams of innovation research have been connected to problem solving (Simon 1996; Clark 1985; Pahl and Beitz 1988; Clark and Fujimoto 1991; Teece et al. 1997; Krishnan and Ulrich 2001) or idea generation (Brown 2008; Martin 2007). This research instead, set the focus on the context. It is a move from a cognitive focus to a social one. A move from user driven innovation strategies to also embrace a wider network of actors in the process of interpretation. The nature of this innovation is different and therefore, it requires a different approach. In this Licentiate thesis, the nature of innovation of meaning is examined and its relevance and practice discussed.

Contribution

This thesis has been written as an attempt to clarify some of the dynamics connected to the concept of innovation of meaning, by leveraging theories from the philosophical field of hermeneutics. In particular, its contribution is divided in three parts.
First, by identifying and investigating cases (especially within the robotics industry) and by studying several theoretical fields, the research proposes **four characteristics** explaining the nature of an innovation of meaning as being **context-dependent, not optimized, outlandish** and **co-generated**. As meanings spur from humans and their experience in an ever-shifting society, they belong to a context. They are not fixed but always shifting – therefore they cannot be optimized. The study focus on **radical innovations** of meanings that often looks strange and bizarre, even outlandish, when a new meaning is proposed. They do not derive from an explicit demand from the market (they are not user-driven), but come from a co-operation, a co-generation, between companies and a wider network of actors, or “interpreters”.

Second, the thesis indicates the economic **value of** an innovation of meaning by proposing **four insights**. It is **always possible to innovate meanings** but the **challenge is to know when an innovation of a meaning is valuable and when it is not**. Given that meanings are co-generated, and the proposing firms have a major role in this generative process, their value **is not an exogenous variable**, but, strongly depends on the vision, actions and drive of executives who propose them.

The third result of the study is the identification of **four practices**, proposing that innovation driven by meaning is about **designing a scenario of meaning** (for example in the shape of a storyboard or an exhibition) to be able to picture products in a wider context and propose new meanings. Further, it is connected to a practice of **debates**, where different interpretations are discussed between companies, designers, users, stakeholders and other experts. When meanings are radically new, they look strange, even outlandish in relation to the dominant assumptions in an industry. They are connected to a process of questioning existing beliefs and therefore demand **a capability of being critical** in order to profit from those debates. Lastly, the interaction between companies and the surrounding world, implies the **envisioning of new meanings** - rather than finding optimal solutions to already defined problems.

With the help of hermeneutics, this research suggests that innovation of meaning calls for new theoretical frames in innovation studies: from innovation as a process of problem solving and creative thinking to innovation as process of **interpreting and envisioning**.
Sammandrag

När teknikföretag utvecklar produkter är teknik den naturliga drivkraften. Dock är teknik bara en av flera drivkrafter som leder till förändring inom produktutveckling. Eftersom teknik blir allt mer lättillgänglig kan den idag inte tjäna som det enda medlet för att bibehålla konkurrenskraft.

Min forskning sprider ljus på en annan drivkraft för innovation, nämligen den som utgår från begreppet ”mening”. Denna typ av innovation bygger på sökandet efter en ny mening hos en produkt, är inriktad på ”varför” produkten ska användas och handlar alltså inte om ”hur” den ska användas. Detta är vad som nedan avses med uttrycket ”innovation by meaning”.

”Innovation by meaning” är inriktad på en ny användarupplevelse, snarare än på förbättring av existerande funktion och prestanda. Den utgår från människors tolkning av hur en produkt eller tjänst verkar användbar och vettig i deras liv och kan därför betraktas som subjektiv snarare än objektiv. Den representerar en rörelse bort från klassiska affärsperspektiv, baserade på optimering och kontroll, mot utmaningen att möta oförutsägbara och varierande synsätt hos människor i en vidare, kulturell kontext.

Ett företag som omvärderat meningen med sin produkt, är det tyskbaserade KUKA Roboter med sin ”RoboCoaster”. Denna produkt använder befintlig teknik för att omvandla en industrirobot – från ett kraftfullt, effektivt och precis verktyg till ett spännande berg-och-dalbane-system, som bjuder på underhållning men också mer nervkittlande upplevelser, som t ex ”fara”. Ett annat exempel är det kirurgiska Da Vinci-systemet, som istället för att ersätta en människa i en industriell lösning, interagerar med människor genom att ta rollen som kirurg inom invasiv kirurgi. Dessa produkter är inte ”bättre” än industrirobotar för att de leder till nya applikationer för existerande teknik (The RoboCoaster) eller ny teknik (Da Vinci-systemet). Däremot har de förändrat anledningen till, eller syftet med, att människor använder dem.


Bidrag

Den här licentiatavhandlingen har skrivits i ett försök att klargöra något av den dynamik
som hör ihop med begreppet ”innovation of meaning” genom att använda teorier från det filosofiska området hermeneutik. Bidraget kan delas i tre delar.

1. Genom att identifiera och undersöka fall (speciellt inom robotindustrin) och genom att studera flera teoretiska fält, föreslår denna forskning fyra kännetecken som förklarar naturen hos “innovation of meaning”. Dessa kännetecken beskriver ”innovation of meanings” som kontext-beroende, icke optimerade, främmande och sam-genererade. Eftersom mening växer fram från människor och deras erfarenheter i ett samhälle som ständigt förändras så tillhör en mening en kontext. En mening är inte konstant utan i ständig förändring – därför kan den heller inte optimeras. Studien fokuserar på radiala ”innovations of meaning” som ofta verkar konstiga, främmande, till och med bisarra när de presenteras. De kommer inte från en uttrycklig efterfrågan från marknaden (de är alltså inte användardrivna), utan från ett samarbete, ett sam-genererande mellan företag och ett bredare nätverk av aktörer, eller ”tolkare”.

2. Det här arbetet indikerar också fyra insikter kring det ekonomiska värdet av en ”innovation of meaning”. Den första består i att ”innovation of meaning” genererar ett ekonomiskt värde. Den andra, att det alltid är möjligt att innovera en mening. Den tredje, att utmaningen består i att veta när en ”innovation of meaning” är värdefull, och när den inte är det. Den sista insikten, har att göra med att eftersom en mening är sam-genererad (i en process där det företag som föreslår den nya meningen har en betydande roll) är en innovation of meaning inte en utifrån verkande faktor. Istället så är den starkt beroende av de visioner, handlingar och det ”driv” hos de företagsledare som föreslår den.

3. Dessutom definierar arbetet fyra praktiker som föreslår att en ”innovation of meaning” handlar om att designa meningsscenarier (t ex i form av ett storyboard eller en utställning) för att göra det möjligt att beskriva produkter i en vidare kontext och därmed föreslå en ny mening. Vidare är den kopplad till debatter där olika tolkningar diskuteras, mellan företag, designers, användare, intressenter och andra experter. När en mening är radikalt ny kan den verka udda, till och med främmande i relation till dominerande föreställningar inom en bransch. En ”innovation of meaning” är kopplad till ett ifrågasättande av existerande synsätt och kräver därför en förmåga att vara kritisk om debatten ska bli meningssfull och fruktbar. Till sist, interaktionen mellan företag och den omgivande världen inbegriper förmågan att vara visionär och kunna föreställa sig en ny mening, snarare än att hitta optimerade lösningar till problem som redan definierats.

Med hermeneutikens hjälp föreslår den här forskningen att ”innovation of meaning” fordrar nya teoretiska ramar inom innovations forskningen: från att se innovation som en problemlösningsprocess eller en kreativt tänkande process, till att se innovation som en tolkande och visionär process.
More than three years ago I decided to jump on a boat and sail away to learn more. I could never have imagined what an undertaking this adventure would be. When I look back now, I do not really see how I managed to stay inside this boat when everything around was turning upside down. If I knew then what I know now, I would perhaps have never embarked on this challenging but also intriguing voyage. At that moment, though, I was curious and full of energy, eager to explore. When I look back, these have been the most intense years in my life. People who know me have met a many times frustrated, tired and off-course sailor, but also at other times, a cheerful and optimistic one. There have been many hard and painful moments. But also good ones.

I would never have made it if it had not been for my friend and inspiring colleague, Roberto Verganti, who has been not only my long-time teammate, but also my supervisor in the later stages of this research. Thanks for always believing in me, listening patiently to my wonderings, worries and doubts. Thanks for your faith through vått och torrt. Thanks for caring in so many ways, both for me and my family. Namaste.

Thanks also to my co-supervisors, Tomas Backström and Inger Orre, who gave me much food for thought in the later stages of this research.

An important decision I made was to move into the rooms of the research school at IDT, at Mälardalen University. I have met so much warmth, so much friendship and so much consideration there. Thanks, to my room mate Anders Wikström who has a smile that liven my spirits. Thanks, to Petra Edoff for being so inspiring, to Anna Granlund for believing in me, to Narges Asadi for her caring. Thanks, Daniel Gåsvaer for always listening, to Joakim Eriksson for helping me since day 1, and to Erik Hellström for his jokes! You have all witnessed me in my worst moments, and always supported me with all your hugs. One warm hug to each of you.

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At times during this journey, I have been extremely tired, feeling totally lost, like a sailor without a compass. In these moments, many of my friends have been there to support me. Thanks to Jenny, Anna and Camilla for all those nights of long discussions, laughter, tears and joy. You are very important to me.

An extra Thank you to Jenny Cormier for the photo-sessions in the finishing phase of this thesis. The cocktail will be yours soon, I promise you! And to Caroline Runius for your advice on the final layout. Thanks to Vic Miller for the careful editing of my text, to Olle Bergman for keeping an eye on the Swedish text, and to Ove Larsson at the printing office for being so patient. A long warm hug to Karin Höckerdal who read the whole manuscript and gave such great feed back! I am so grateful for having had you around, during both hours of work and all the running, skiing and yoga sessions. Thanks, for always hugging me. I also want to show my appreciation to the cheerfully helpful librarians at MDH in Eskilstuna and to the café girls next door for accepting me in all my absent-minded moments. I promise to be more present from now on!

A warm Thanks to my parents for your support and caring. Thanks for all the relaxing family dinners when we have been tired and hungry. Thanks to my sister Karin, for listening, for all the welcome coffee breaks and for providing me with suitable shoes for conferences. You are very sweet. Thanks to my brother-in-law, Christian, for being such a cool model, hope you like the result! A warm Thanks to my parents-in-law who always make me feel welcome, no matter the circumstances. Thanks for caring for us all, for giving me a chance to rest, for being so great grandparents for the girls.

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List of papers

Paper 1
TAKING A MEANING PERSPECTIVE – A THIRD DIMENSION OF INNOVATION
Åsa Öberg and Roberto Verganti
Bookchapter in The Highways and Byways of Radical Change, edited by
Anne Flemmert Jensen and Poul Rind Christensen.
Forthcoming.

Paper 2
WHEN MEANING DRIVES INNOVATION - A STUDY OF INNOVATION DYNAMICS IN THE
ROBOTIC INDUSTRY
Åsa Öberg and Roberto Verganti
Presented at the 19th EIASM International Product Development Management
Conference, 18-19 June, Manchester, UK.
2012

Paper 3
INTERPRETING AND ENVISIONING – AN HERMENEUTIC APPROACH TO RADICAL
INNOVATION
Roberto Verganti and Åsa Öberg
Industrial Marketing Management Journal.
Forthcoming.

Not appended papers

Paper 4
VISION AND INNOVATION OF MEANING - HERMENEUTICS AND THE SEARCH FOR
TECHNOLOGY EPIPHANIES
Åsa Öberg and Roberto Verganti
Presented at the 18th EIASM International Product Development Management
Conference, 6-7 June, Delft, The Netherlands.
2011

Paper 5
THE USE OF STORYBOARD TO CAPTURE EXPERIENCES
Anders Wikström, Jennie Andersson, Åsa Öberg and Yvonne Eriksson.
Presented at the International Conference of Engineering Design, ICED11,
15-18 August, Copenhagen, Denmark.
2011
# Table of content

## 1 Opening the box…  
1.1 Motivation  16  
1.2 Research objective  19  
1.3 Research questions  19  
1.4 Delimitations  20  
1.5 Definitions  20  
1.6 Outline  22  
1.7 Contribution  26  

## 2 My tools  
2.1 Outline  35  
2.2 My starting point - or - The strategic level of thinking  36  
2.3 Planning my research journey - or -  
The tactical level of thinking  45  
2.4 The everyday work - or -  
The operational level of thinking  47  
2.5 Quality - on validity and reliability  54  

## 3 Innovation driven by meaning – shedding light over a clouded field  
3.1 Outline  61  
3.2 Meaning as a driver of innovation  65  
3.3 Perspectives on meaning  71  
3.4 The method – exploring the nature of  
innovation of meaning  87  
3.5 Meanings are everywhere – an empirical study  88  
3.6 The characteristics to look for - the findings so far  90  
3.7 Conclusion - opening a door to a new path  96  
3.8 Reflection  97  

## 4 The relevance of innovations driven by meaning  
4.1 Outline  99  
4.2 What theory says about innovation and value creation  100  
4.3 The method - investigating the relevance  102  
4.4 Sharing stories from the empirical material  103  
4.5 Reviewing the stories – an analyses  111  
4.6 Conclusion - value is in the eye of the beholder  116  
4.7 Reflection  117
5 A thinking frame to explore the practices of innovation driven by meaning

5.1 Outline
5.2 Practicing innovation management - the struggles of existing theories and the need for a new perspective
5.3 The method - connecting existing and new insights
5.4 Blending old and new – re-discovering the empirical material
5.5 Findings - towards a new theory of innovation management
5.6 Conclusion - raking seeds for future harvest
5.7 Reflection

6 Meta conclusion
6.1 The contribution of three-fold work
6.2 Implications
6.3 A critical review
6.4 A call for further research...

References
Appended papers
Appendices

A NOTE For the one that wants a quick introduction of this research, please see Chapter 1. If you, instead, love research methodology, seek up Chapter 2. The reader who searches for theories connected to the subject of innovation of meaning, check first Chapter 3 for a broad investigation. Then visit the early parts of Chapter 4 and 5 for more specific theories related to relevance and practices, respectively. Empirical cases is not to be found in one chapter, instead they are scattered, see table in Chapter 1 for guidance. A short summary is presented in Chapter 6 while a more elaborated analysis and proposed thinking frame is found in Chapter 5.
"Wow!" said the marketing manager. This is really cool! I was attending the final presentation of a student package design project in Karlstad, Sweden many years ago. For a few minutes, we had been curiously watching the students emptying a three liter bag-in-box package of wine, glass by glass, until no more could be poured. Some wine usually remains inside the plastic bag (on an average about one deciliter) - a fact that is annoying to many consumers. Instead, this solution enabled almost a total emptying of the wine; the few drops remaining inside the plastic bag being less than a schnapps glass. The advantage of the new package was obvious and a striking example of a more efficient and user-friendly solution. The marketing manager immediately realized the potential of the product and the process of realizing it took off at once. Discussions between the students and business people were held and patents were discussed. Time passed… The enthusiasm for the new and revolutionary solution subsided. In the end, this promising concept disappeared from the agenda of the company. At this time, I was working with packaging design within SVID (The Swedish Industrial Design Foundation) and my work was connected to both the paper pulp industry, brand owners, retailers, graphic and industrial designers. Even researchers and chefs (!) took part in the projects. Our work was based on the belief that design could be useful in the process of new product development, not as a superior skill but rather as a part of a network-based product development. Many interesting and promising packaging concepts were proposed but for most of them, the realization part was very difficult. Many ideas never became reality.

And I wondered. Why are these good ideas and concepts seldom realized? Are they too advanced and way-out? Too different? Are they too technically advanced? Or is this a matter of inadequate investment? Or perhaps a matter of timing? Or of poor leadership? Of ingrained prejudices? I wondered if the design-inspired way of working that we believed in so much, was really helpful in this technical context. Maybe it was not? Apparently, it did not seem to be successful all the way from ideas and concept to real products on the market. I felt that somehow the message of the designers did not get through. When designers presented useful solutions and new ideas in product proposals, companies were positive but also, seemed to see obstacles. Could it be that design actually was struggling in a technical context such as this?

My curiosity became the starting point for this research. I wanted to know more about the dynamics behind new and radically different products, especially if related to technology. But, only if focused on humans and what makes sense to them. What feels meaningful to them. I wanted to understand if a “meaning”-driven approach (rather than one “technology-driven”) was at all valuable. Could companies really make profits from a more “meaning-focused” innovation process? And, if so, had such innovations a special “nature”? With this curiosity about meaning-driven, yet technology-connected, products, I also wondered about the role of design, as a human-related practice. To what extent - and how - did design help when taking a stance for “meaning”-driven innovation? In what way could the practice of design be useful in the innovation processes of technical companies? All these questions were eventually inte-
In the formulation and re-formulation of my research interest. In the end, the focus of my research was to be on innovation in hi-tech companies, driven by meaning, as distinct from innovation driven by technological advances alone.

When I mention innovation and “meaning” I am referring to a product or service that serves a purpose other than its original or current purpose. I focus especially on situations where the change in purpose is significantly different than the old one, in other words, I focus on the radical innovation of meaning. One example could be the “RoboCoaster”, a robot used in amusement parks. This is a type of rollercoaster that allows the passenger to design the ride with the help of software. It then moves people unpredictably up and down, swirling them around in the air to create excitement, enjoyment and pleasurable fear. The product exhibits a change in meaning by diverging from the classic, industrial purpose of a robot in delivering efficiency, high-precision and rationality, to serving another purpose, namely, to become a means to evoke human feelings. This shift in purpose is surprising when seen by a manufacturing company with an industrial point of view. From a human-close perspective instead, the meaning change can be explained differently. A human sees an innovation of meaning in comparing the unpredictable and customized RoboCoaster ride with the predictable and standardized, classic rollercoaster ride. We will return to this example several times in this work. Now, let’s move further!

1.1 Motivation

After this little story, the rest of this chapter will give you as a reader the basic facts necessary in reading the rest of this work. But let me state a few things first.

1) This work is directed to
   - Scholars within innovation management and design management
   - Executives within the same area

2) What you will learn is that first, innovation of meaning, especially in its radical form, can be characterized by the four themes of being context dependent, being not optimized, being outlandish and being co-generated (further presented in Chapter 3). Second, this type of innovation seems to take place through the practices of designing scenarios of meaning, debates, building critical capabilities and envisioning new meanings (see Chapter 5). Lastly, this research has “proved” that innovation, when driven by what is meaningful to humans, creates value. There is always a potential for (at least) one in-
novation of meaning. But the **challenge is to recognize** and envision this value from within the company. The value of innovation of meaning, therefore, is **not an exogenous** variable (see Chapter 4).

3) This research will use the theories of hermeneutics as a tool (or “lens”) to clarify how an innovation of meaning and the practices associated with it can be described.

4) It will therefore NOT use hermeneutics only as a scientific approach (which is a common way to use this field of thought.)

5) You will find theory, methods and empirical material at several places in this work. To browse the material, please see the table at the end of this chapter. For impatient readers, see the conclusions in Chapters 3, 4 and 5 as well as Chapter 6.

6) Those interested in the philosophy of science and methodology, should turn to Chapter 2.

7) For a less academic and more personal reading, see the six introductions and corresponding photos.

8) When reading the whole thesis, remember that this is my journey and my findings. Remember to relax between the chapters. Voila! Now we step onboard this ship in search for innovation of meanings.

The first thing you will find in this introductionary chapter, is the motivation for this research, both scientific and in relation to industry. Further, the research objective and research questions will be presented together with the limitations of the study. I will also provide some initial definitions, an outline of the thesis and lastly, some considerations of the choice of theory and method. The chapter concludes with some lines on the thought contribution of the work.

### 1.1.1 Motivation - from a scientific point of view

Why do we need this research? What is the usefulness of a study focused on innovation driven by the search for new meanings within products? I believe that this approach could add an alternative view of innovation. So far, studies of innovation management have often focused on one of two domains of research, namely technologies or markets
Technological innovation has been capturing most attention, especially as far as radical technological change is concerned. Indeed, in the past decades a rich stream of studies has explored the antecedents of technological breakthrough (Abernathy and Clark 1985; Henderson and Clark 1990; Utterback 1994; Christensen 1997). Later, investigations have been focused more on the applications of existing or new technologies and/or products to penetrate into new market domains (Kim and Mauborgne 2005; McGrath and MacMillan 2009).

An area still relatively unexplored, however, is innovation in product or service meanings. This type of innovation aims at introducing new meaningful experiences to the user, making changes in the purpose of the product, in the “why” rather than in the “how”. What is interesting is that this type of innovation introduces a new reason for customers to buy and use a product. The concept of innovation of meaning as studied by Verganti (Verganti 2009) has been the main inspiration for this work. Moon (Moon 2010) discusses something similar in her book “Different”.

And indeed, focusing on meaning presents innovation in a different light. A meaning is not neutral and objective. On the contrary, a meaning is based on a human perception of something. It is subjective and introduces an interpretation. It is something that is related to and therefore the nature of meaning is also context-dependent. Previous innovation studies have taken contextual factors into account by relating to, for example, the use of networks (von Hippel 2005), the focus, being however not on meaning per se, but on networks as solvers of existing problems. And, indeed, the dominant stream of innovation research has been connected to problem solving (Simon 1982; Clark 1985; Pahl and Beitz 1988; Clark and Fujimoto 1991; Teece et al. 1997; Krishnan and Ulrich 2001) or idea generation (Brown 2008; Martin, 2007). The research in this thesis, instead, does not begin with the solving of problems, but is rather related to opportunities, hidden or implicit, driven by the needs and (unspoken) wishes of humans. The focus is transferred from a pure cognitive or creative, to a social one. This social dimension has been stressed before, as in the social-technical systems and the Actor-Network theory of Latour (Latour 1987) or Bijker and Law, (Bijker and Law 1994) and Rogers (Rogers 1962). It seems, however, that the research of these scholars disregards the meaning dimension. It seems that meaning is not discussed, it is taken for granted. And, it comes as an output of the process, not as the driver.

What emerges is a field of research that seems, if not empty, at least marginally explored. Most existing theories within innovation management (Verganti’s research an exception) do not focus on the combination of meaning and innovation. They might be useful on the periphery of this type of research and other more established fields, but they do not help to explain innovation driven by meaning. In this research, we will therefore explore other theories to relate to meaning and the central act of interpretation.
1.1.2 Motivation - from an industrial point of view

Innovation capability in technology-intense companies is often focused on changes in core technologies, where radical changes are naturally less frequent. This everyday work is important to keep most businesses running and there is no doubt about its necessity. But, it is becoming somewhat of a common truth that technological innovations are not sufficient to retain a competitive advantage (one reason is that, nowadays, technologies are often easily accessible or copied). Naturally, industry must keep an eye on other ways of staying competitive. Often, this includes a search for new domains (or markets) for existing, or new, technology. In this search, I believe that a new approach might be useful. Taking innovation, driven by meaning, seriously might add an alternative view.

Meanings are created by individuals, not by “markets” or inside a laboratory or a factory site. As stated before, they build on interpretations of something (a product) in a context. A meaning comes from an interaction between individuals in a particular society and culture (and sometimes in touch with technical systems). Searching for a new meaning requires broader investigation than normal company procedures. A wider context is understood when departing from these current company procedures - but, we all know how difficult it can be to introduce new perspectives in these well running systems. In industries with established traditions and a history of heavy investments in technology, this can be a challenge. To quote one of the family members behind a large coffee manufacturer in Sweden: “You do not change a coffee filling machine (a 10 million Swedish krona investment!) just because you have developed a new packaging that makes it easier to pour the coffee out. No matter how much this improves the coffee experience! Still, I think a strategy of innovation driven by new meanings could be valuable as it opens a new way of thinking about product development. This study, therefore, is intended to contribute to an increased understanding in this less investigated field of innovation of meanings, to study innovation from the point of view of how to manage the process, not how to design the product. The aim, therefore, is to give an alternative view of how radical innovations take place.

To conclude, by studying innovation management from an alternative angle, new insights have been gained. Hopefully, they contribute to the academic discussion in the field and also serve as a subject for reflection within industry.

1.2 Research objective

This research, consequently, aims at suggesting an alternative view of innovation. The study will result in an increased understanding of what characterizes an innovation of meaning, how it might be valuable to business and how technology-intense companies can approach this type of innovation.

1.3 Research questions

In accordance with the overall research objective, the three research questions have been constructed as follows.
1) What characterizes the nature of innovation of meaning?

2) Is the radical innovation of meaning relevant for technology intense companies?
   If yes, in what sense?
   If no, in what sense?

3) What are the practices that support the development of an innovation of meaning?

1.4 Delimitations
My first delimitation concerns the word “nature. When I use the word “nature” in research question 1, I use it to describe a set of characteristics. I use it to put forward the idea of a “wholeness”, to embody a phenomenon that has been observed. But, the innovation of meaning is not something that has been constructed by me as a researcher. I have observed something that other humans construct. Instead, what is constructed is the definition of innovation of meaning (see below). I describe a frame (the definition) in which I observe the world.

My second delimitation concerns the field of study. The research will focus on how technology-intense companies can utilize their technology in new domains of applications and how this is related to radical change of meanings. This will be done by the study of “best cases” (and others, less successful), mainly within the robotics industry. But, some empirical investigations were related to consumer-oriented products. The reason for a study within robotics is that it is an industry with a huge potential beyond its application in manufacturing. It is an example of a business-to-business context where meanings seem less explored than within “more meaning” related (and consumer-close) industries such as fashion or furniture. Still, - everything has a meaning. The challenge is to recognize the meaning and understand how some companies manage to move outside the dominant assumptions.

1.5 Definitions
We will soon look closer at the presence of this third dimension of innovation. But before exploring further, I feel that there is a need for some definitions.

THE PRODUCT MEANING We relate to the purpose of a product or service as perceived by a human. This is about the purpose of “why” a product is used. It is not about “how” it is used. One example:
A common understanding of the basic purpose of a car can be to transport someone from point A to point B. This can be done by an old rusty Volvo, or by a brand-new Ferrari. The function is still the same but the user-experience is different (not for all, but I would dare to say, for most people). Let’s take a look at the two cars:

The feelings associated with an old, well-used car, its somewhat shaky steering wheel and matt, sun-bleached finish, its sounds, strange movements and special “effects” might be those of familiarity, affection, reliability, robustness and pride. (I still remember my mother’s old, green Citroën when lifting before “take off” – How it fought and struggled to lift we children in the back seat up in the air!) In this case, navigating through dusk and dawn, snow or mud works fine. It might even be full of life and joy! But, the feelings for the car could, in contrast, also include indifference, annoyance, worries, embarrassment and risk (will this car really take me to point B, or will we stop before?). The reasoning, from this perspective, might be that, “indeed, old cars might have a strong personality, but how long can we really trust them, and how boring aren’t they, really”?

In contrast, when leaning down to enter a new, glittering car, sensing the characteristic new car smell and caressing its smooth leather seats, some humans would be amazed, impressed, curious, attracted and eager to drive. (Unfortunately, I have no interesting racing memories to relate here!) Feeling the breath-taking power of the engine and barely touching the ground while riding, exhilarates many humans in good spirits. It might even be a awesome ride! Other people might react differently. They might be bored, suspicious, reluctant, anxious or scared (will this car, with its sound, strange movements and special “effects”, really take me to point B, or will we crash before?). This thought might arrive from the idea that, “yes clearly, here comes a strong car with bold attributes, but it’s larger than life, unnecessarily fast and boringly predictable.”

As we see, the meanings of the old and the new cars can be really different, depending on who you are, your connection to the cars, your values and beliefs. Therefore, you will also give different purposes to the product.

The difference in meaning comes, not only from tangible values such as age, cost of operation and nationality, but
THE INNOVATION OF MEANING We focus on the interaction between a human, a product and the surrounding context to interpret a product (or service) proposal in the way that the meaning of the product changes from one purpose to another.

It can be a relatively “small” or “incremental” change of meaning, as when changing the color of a robot from orange to white (orange signaling “attention” in a manufacturing context, white signaling “cleanliness” in the food processing industry). Or, it can be a relatively “major” or “radical” change of meaning such as when a robot of a type which is used normally in industrial applications is used in an entertainment application, moving from a focus on being efficient and reliable to a focus on being entertaining (at the expense of efficiency and reliability). (See Chapter 3 for a detailed description of this example). In this study I will concentrate on the radical innovations of meanings.

As a result of these definitions, we leave the classic business perspectives of optimization and control from within a company and approach the unpredictable and ambiguous views of humans in a wider, cultural context. Remember that this study is not restricted to a pure user perspective but also incorporates a company perspective to understand humans in a context.

1.6 Outline
This licentiate thesis will be structured in six chapters. After this introductionary chapter, the basis of my research approach and methods will be explained in Chapter 2.

Theory and empirical studies, with associated methods, will then be presented in parallel, in three parts. As explained earlier, there is currently no well-developed stream of theories within the phenomena as such. There is no single theoretical base to relate to, instead there are several sources, one main inspiration being the research of Roberto Verganti (Verganti 2009). As a result, the theoretical starting point could not be described in one cohesive section.

Instead, the innovation of meaning, will first be explained and related to with the help of suitable theories (Chapter 3, see the yellow circle in the illustration), then its rel-
The three objects of study in this research: the nature of innovation of meaning, its potential relevance, the practices supporting it, and connected academic papers (see end of Chapter 1 for an enlarged picture)

evidence will be examined, (Chapter 4, see the green circle in the illustration) and finally, connected to a process (Chapter 5, see the pink circle in the illustration).

Each chapter will relate to certain theories and applied methods. Each chapter will also be connected to certain cases studies, see table below.

<table>
<thead>
<tr>
<th>Cases studied</th>
<th>In chapter</th>
<th>Main study</th>
<th>Complementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABB / RobotStudio</td>
<td>2, 3, 5</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>KUKA /RoboCoaster</td>
<td>1, 2, 3, 4, 5</td>
<td>X</td>
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<tr>
<td>Da Vinci</td>
<td>2, 4</td>
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<td>POC</td>
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<td>Electrolux</td>
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<td>Deloitte &amp; Touche</td>
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<td>Huggies</td>
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<td>Philips</td>
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<tr>
<td>Bayer Material Science</td>
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The chapters are also supported by three different academic papers, (see illustration above). The thesis finishes with a “meta” analysis (Chapter 6) of the findings in the three previous chapters, its implications and some thoughts on future research.
1.6.1 Theoretical considerations

In this section, I wish to present alternative ways of structuring this research considered. (These thoughts on alternative ways will be more thoroughly described, especially in Chapter 3, but also in the reflections at the end of the Chapters 3, 4 and 5). Here, I provide a snapshot of my thoughts.

The progress of this research cannot be described as beginning from one obvious point and then following a clear path forward. Not at all. It was not easy to discover where to begin searching for theories. An important starting point was reading the book Design Driven Innovation by Roberto Verganti (Verganti 2009) and the very first discussions with him. I had previously been examining the literature of design and design management and was, at this moment (spring 2010), about to investigate the literature of innovation management, with a focus on radical innovations. But, nothing really intrigued me. I could find nothing that involved both my background within marketing (and the interest in leading business forward) and my experience from work with designers (and the ambition to find well working and attractive products for humans). Design research was close, but it lacked the “business” mindset (at least, this was my perception). It was more about “design is valuable” (Gemser and Leenders 2001; Hertenstein et al. 2005; Chiva and Alegre 2009), rather than “how. The discussion felt far from the reality of many companies, especially the hi-tech ones with which I had been working (such as Stora Enso, Tetra Pak and Volvo). Another book that I found valuable was the Swedish “Möten kring design” (Johansson and Svengren Holm 2008) in which the meeting between design competences and large hi-tech companies figured. Fortunately, I had the opportunity to meet with the two authors and discuss their book with them. I could not, however, identify totally with the design field. I am not a designer myself, even though the practice felt very natural for me, being creative and artistic at heart. But from a professional point of view, I still could not identify with the design-discourse totally.

Roberto Verganti’s theory, though, combined the things that I wanted to explore. Especially, Chapter 4, in the book mentioned above. It included the focus on hi-tech firms, the innovation business mindset and the more designerly-close human perspective. But, there was nothing (almost) written on innovation of meaning in “hi-tech” firms (the few actual hits in the data-bases at the library led nowhere!) Theory wise, I could find no strong or well-established research findings to build on. Instead, I began by examining the sources of Roberto’s work, those relating to innovation in particular but also those related to design and culture. When I had the chance to collaborate with him, we together searched for other domains to continue to build new theories.

One important discussion at the very beginning was about hermeneutics, and the idea that everything we do or see is to be interpreted. Things that we see, cannot just be valued automatically, we must consider our own background and frame of references to understand how we see things. To understand something, in a new way, we must understand how other people see things, how they interpret. I continued to stress the value of this scientific approach as it felt so closely connected to understanding contexts, may
they be existing or proposed. I felt, the hermeneutic approach just had to be included in my research, but initially, I had difficulty in convincing Roberto of this.

Soon after, I was able to meet Marcus Jahnke at Business and Design Lab, at Gothenburg University. He had very interesting work in progress, close to my own interest. And, to my surprise, I learned that he was also immersed in hermeneutics. A very happy, satisfying moment! I read his work (Jahnke 2010) in detail and have been much inspired by his combination of hermeneutics and design practice. In addition, several researchers connected to Copenhagen Business School are active in this field. Yet, as distinct from Jahnke’s approach, mine is not built on the work of the designers, but on the work of other executives.

After the first bewildering phase of searching for, and finally finding, interesting and related theories, I began a search for other, alternative, theories. What could be used other than Roberto’s work? In addition to the study of innovation management and design, I began a thorough investigation of the concept “meaning”. I tried to use other approaches, some within philosophy and others more business-oriented but these were not sufficiently relevant to the research questions. In the end, the basic theory adopted came to be that of Roberto Verganti with inspiration from certain other fields (see Chapter 3).

The collaboration with Roberto has continued during this research. It has been a very valuable, intense and challenging but, very interesting and enjoyable teamwork! The result is visible in the appended papers to which we have both contributed with our knowledge and reflections. Roberto has leveraged theories from his background within the innovation management field but also refined his theories on networks, meanings, design and the process underlying new radical innovations. In addition he contributed with his deep and broad knowledge of methodology and analysis as well as the art of structuring and making sense of the work. I am also very grateful for his generous sharing of contacts with a huge network of scholars and interesting organizations.

My contribution is partly connected to the study of meanings in several fields. Here, I tried to make use of my background in business, especially marketing and design, and on my interest in philosophy. I also wanted to contribute from other fields I consider important such as psychology and organizational perspectives (such as sensemaking). With respect to theory I also proposed the use of the lenses of hermeneutics, introducing a theory in which I believe. The sections in the papers related to these fields are based on my work. Empirically, I feel I contributed by bringing connections to the world of robotics and by collecting and sorting the material. This work is mirrored in the papers in which I assumed the main responsibility for the empirical parts.

In my opinion, the best way to obtain new knowledge is by teamwork in which all contribute with their special interest. The different parts then assembled should be considered and elaborated in iterations. In this way, I believe, the parts can give in the
end, a coherent whole. And indeed, even if this work stems from a collaborative effort, that which you hold in your hand remains my own production, my way of organizing and putting forward the findings. I take the opportunity here, to apologize if any of these findings differ from the conclusions of my teammate Roberto.

1.6.2 Methodological considerations
When I learned that this field had not been thoroughly explored, the research methods to be employed came under consideration. As I could not use one theoretical base to mirror my empirical findings, I had to use several streams of research, each with its equivalent methods. (This choice has been shortly touched upon in the previous section, 1.6 Outline). The consideration of different methods continued as an ongoing activity as further explained in the method sections of Chapters 3, 4 and 5.

1.7 Contribution
The contribution of this thesis consists of three parts. By identifying and investigating several interesting cases, especially within the robotics industry, and by studying several theoretical fields, the first contribution came to be a model of the nature of an innovation of meaning (see Chapter 3 for an illustration). It links to the first research question:

1) What characterizes the nature of innovation of meaning?

Here, Chapter 3 proposes:

An innovation of meaning can be characterized by the four themes of being:

**Context-dependent** – meanings arise from individuals, their feelings and opinions, as part of our society and culture. Meanings are not pre-defined or isolated but come from interactions between all kind of actors, through all kinds of signals over time and across different arenas.

**Not-optimized** – As part of a dynamic and ever-shifting sphere of knowledge and opinions, meanings never stay constant. They evolve through continuous discussions, even “clashes” of minds, between different voices in known and new networks. These arguments blend and slowly grow new understanding that often go beyond thoughts in existing paradigms.

**Outlandish** – A radical innovation of meaning often questions existing beliefs in a society or market. Its proposal might surprises people by offering something not expected. Something that might look awkward, strange, bizarre and unforeseen. For ex-
ample, who would have thought that a manufacturing robot for industrial use, would be a perfect “standing still” rollercoaster ride, to be used in amusement parks? (this example is further explained in Chapter 3).

**Co-generated** – A radical innovation of meaning is “generated”. It is something new, something that did not exist before (and that would not evolve until someone began to put forward a new interpretation of a product). Yet, the final outcome, when the meaning becomes diffused, is not a sparkle of creativity of a single player. It is the result of a collective, co-generated, process of reinterpretation through a continuous dialogue in society.

**NOTE**
*The two last characteristics concern radical innovations of meaning while the two first also concern less radical changes in meaning.*

The second contribution came to be connected to an investigation of the relevance of this type of innovation. By the focus on two cases within the robotic industry, my studies resulted in **four insights into the value of innovation of meaning.** These insights link to the second research question:

2) **Is the radical innovation of meaning relevant for technology-intensive companies?**
   - **If yes, in what sense?**
   - **If no, in what sense?**

Here, Chapter 4 describes four insights that point to a positive relevance of an innovation of meaning. (A reflection of negative performances of this type of innovation is provided at the end of Chapter 4, see section 4.7 Reflection.)

An innovation of meaning can be considered relevant in four ways:

**An innovation of meaning does create value** – A company can gain business value through this type of innovation in several ways. For example by creating new interesting business areas, increasing their sales or market shares or developing unique competitive assets.

**There is always a potential for (at least one) innovation of meaning** - As meanings are not fixed, but always evolving in relation to humans and contexts, they always give room for new interpretations and thereby, new proposals, never thought of before.
The challenge of innovation of meaning is value recognition – Although it is often possible to find new meanings, the challenge is that it is difficult to understand if a new meaning is better or worse than an existing. This is because meanings cannot be optimized – they cannot be put on a scale (of better or worse) and therefore their value is not easily determined.

The value of innovation of meaning is not an exogenous variable - The value of this type of innovation, is not predetermined by an explicit market demand. It is not something “out there” to be captured. Rather, as it is co-generated, it depends both on external actors, but also, on the drive, energy and seductiveness of a firm and its executives. A meaning that has no apparent value when in the hands of a skeptical manager, may become extremely valuable when promoted by a committed and visionary executive.

The third part of the overall contribution, evolved in parallel with these two studies as I wanted to understand the practices connected to the innovation of meaning. The result of this study built on the two previous empirical studies and came to present four proposed practices, adding to the initial circular model. This proposal links to the third research question:

3) What are the practices that support the development of an innovation of meaning?

Here, Chapter 5 provides us with the following proposal:

An innovation of meaning can be described through the practices of:

Designing scenarios of meaning – When we look at things in a wider perspective by placing products in a broader context, we also open up for seeing not only details but also the larger picture of things. By including both parts but also the wholeness of a situation we can create a whole scenario of what could possibly take place. This scenario of meaning can take the shape of for example, a story told, a sketched storyboard, a movie or an exhibition… – all to stimulate discussion and propose experiences that give new meanings to products.

Debates - Given that innovation of meaning is not the result of a process of optimization, the thinking attitude of the person developing an innovation of meaning is not based on problem solving, but, rather, on critical thinking and careful reflection. In this process we should search for those who can help us embrace new perspectives, for example by engaging in different kinds of debates, be it remotely, through blogs or by physicals encounters at, for example, seminars. The more critical and heterogeneous the standpoints are, the more effective is the innovation of meanings of products.
Building critical capabilities - When attempting to propose a new meaning, a network that supports the established system of thinking might not show the best way forward. Instead, if a company wants to innovate the meaning of their product, they must dare to try new ways. They need to deliberately look for critical voices that give other directions than the dominant assumptions in an industry. When a company develops a critical capability it is more likely to find interpretations beyond those most immediate.

Envisioning new meaning – When looking for new possibilities by innovating the meaning of a product, a company is also searching for interpretations that do not yet exist. The company finds itself in a process of generating new meanings, of interpreting and envisioning them with the help of many actors in a broad network, spanning not only the known contacts but also new, unknown ones. This process does not rely on wishes from users but on insights from a much wider field of interpreters.

The findings regarding the nature and the practices of an innovation of meaning together form a thinking frame to further discuss and refine the concept of innovation driven by meaning. It consists of two circles, the inner presenting the four characteristics, the outer the corresponding practices. In the process of constructing this circular model, and in the search for answers to the research questions, the field of hermeneutics has been a trusted friend. Its central concepts, presented in Chapter 5, have significantly facilitated the analysis of the empirical material. They have helped to separate insights into categories of characteristics and practices but also prompted more detailed investigations in some of the cases. Hermeneutics also helped to frame the innovation

![Diagram of the relationship between building critical capabilities, envisioning new meanings, interpreting, and Debates.](image-url)
of meaning as a process of interpreting and envisioning.

To summarize, the contribution of this research sheds light on the innovation of meaning, from different viewpoints. It gives an indication that there is an economic value related to this type of innovation through the description of four insights. And, it also synthesizes the dynamics in a twin-circle model, including characteristics, practices and the overall process. It’s a first proposal in a field where more research is needed. For a more in-depth summary of this study of the innovation of meaning, see the first two sections of Chapter 6 and the conclusions of Chapters 3, 4 and 5.

1.7.1 Contributing to the scientific community

To begin with, this research forms part of the innovation-management discourse, especially in the case of radical innovations. It is linked to the stream of research in which more “extreme” types of innovations are in focus, for example, the “discontinuous”, “disruptive” or “accidental” forms of innovation.

But, as we will see, the innovation of meaning, to some extent, is related to design and a designer’s way of thinking. The research findings might therefore also be valuable within the design discourse, or even more, within the design management discourse. The contribution could be of interest within research about design (Hubka and Eder, 1996) as something useful for radical innovation - rather than within a research for design or through design. The connection to design comes when it is seen as a practice focused on human needs, in a more philosophic way described as to “live the situation” (Digerfeldt-Månsson 2009) to “step back” from the context (Ricoeur 1977) and to focus on meaningful experiences (Krippendorff 1989).

The insights into the innovation of meaning could also be related to learning theory. For example the “Dreyfus-model” of human learning (Dreyfus and Dreyfus 1986) which does not present a situation of “either rationality (as could be the case of some innovation approaches) or intuition” (an approach that sometimes is connected to the work of designers) but stresses the need of “both of them in their proper context” (Flyvbjerg 2001). I think that the two contexts innovation on one hand, and meaning (sometimes through the practice of design), on the other, could be reflected through this description.

This type of research is also linked to the call for a broader and richer discourse between design and management. Johansson and Woodilla (Johansson and Woodilla 2009) has already pointed to the fact that these two, design and management, need to take a wider stance, to “encompass different paradigms”. From doing this, a deeper understanding and a “richer methodological and epistemological debate” would evolve. It is my hope that this research might contribute to a broadening of this epistemological and methodological debate.
In addition, innovation research seems to find itself between two extremes, where at one, human perspectives and at the other, "guidelines" and applicability are the opposing aims. My hope is to contribute to the building of bridges between innovation, management and design. This research could therefore be seen as a stepping stone to bridge the gap between, on the one hand, the functionalistic inspired innovation research and, on the other, the sometimes radically humanistic design discourse.

1.7.2 Industrial contribution
If the focus is transferred from academic considerations to the use of this research in business, I see three main contributions to industry.

First, an increased awareness. This research has been conducted in close collaboration with several companies that have developed innovations of meaning or are in need of new radical innovation strategies. The research has provided opportunities to discuss how a "meaning-perspective" might be valuable in the innovation process of hi-tech companies.

Second, an increased understanding. In the preparation of this thesis, the research findings have been summarized in an accessible format. The three main fields of investigation, as follows, will be presented in three chapters, namely: What actually is an innovation of meaning, (research question 1, discussed in chapter three), is it at all relevant for industry, (research question 2, discussed in Chapter 4) and how the practices that support it are to be thought about (research question 3, discussed in Chapter 5).

Third, a thinking frame to guide the approach to this type of innovation and what practices seem valuable in the search for innovation driven by meaning.
This research project has been strongly supported by industry. It is not only the enthusiasm of the researchers that has driven the project forward, but also the engagement and interest of employees in several of the cases. Over time, we as researchers have shared our insights with the companies and also presented research findings. These have then been developed through joint activities such as seminars and workshops in some of the cases studied. The findings in this thesis, therefore, should come as no surprise to the participating companies. I am very grateful that I have been able to organize and reconsider them in a careful way. Hopefully this makes the findings accessible also, to readers unfamiliar with the subject.
The structure of the thesis.
2 My tools

We entered the light, small office of our supervisor. Two chapters of the master thesis finished. I felt happy for my deep diving in chapter two, on methodology and my conclusion that we should align with the “hermeneutic” tradition in interpreting our empirical material. My friend and co-author, next to me, was somewhat skeptic, but believed in me. We sat down. Immersed in silence. After some words of introduction and politeness, our supervisor, an elderly gentleman sighed quietly, “I understand you like hermeneutics, he said… but you will not be taken seriously with that approach. Your findings will be looked at as subjective. Of course, this is not wrong, but it will make things difficult.” I hid my disappointment. I believed the only way to see things was to bring yourself into the material, to interpret it with your own ability. Was being neutral, more “positivist”-oriented, at all possible? I felt confused. After some discussions we were advised, in a kindly way, to avoid taking the hermeneutic direction. We agreed, silently arranging our papers, leaving the wise man and throwing the method-chapter in the waste bin. This was 1999. We were in our early 20s. Two girls who did what they thought suitable.

About ten years later, I approached the subject of hermeneutics again. This time as a PhD student. Convinced that – of course – things are subjective. Always. Empirical material is always interpreted, influenced by the researcher. Hermeneutics intrigued me, again, as it focuses on seeing things from different viewpoints, re-interpreting and reconsidering. When I explained the value of this approach to the new supervisor, this time I was listened to. But, he also remained silent. Puzzled. “Why, he said, do you believe in this so much? I do not get it!” I explained. Many times. “The value of this approach is not to come up with the truth, the value is in bringing yourself into the material, proposing, questioning, re-considering… Trying other viewpoints. It’s a constant lingering to learn more. Exciting, isn’t it?” (I have to admit, there was more silence than enthusiasm from the supervisor’s side). I explained again. I had to sharpen my arguments. “It is not about explaining “The way”. It’s about making a proposal for the rest of the research community to react to, refine, debate…” Still no Aha-moment. One day, my supervisor called. “I am in Australia, at the beach”. A colleague talks about what you are talking about! I think I understand. Maybe.” Some weeks passed. At a research meeting in Copenhagen we briefly discussed hermeneutics again. And we began to agree upon its value. At this point, several people in research areas close to mine began to talk about hermeneutics as an interesting lens for understanding more. Suddenly, a conference was arranged. Clever people discussed. I smiled. This time my papers did not end in the wastebin. They became the basis for this chapter. And the tool for interpreting the empirical material.

2.1 Outline

The following chapter will present my epistemological as well as my methodological concerns. First, I will describe how I think my research should be framed. I will explain my starting point and how I believe new science can be created. Then I will describe the settings for my research, or, in other words, the design of the study. Further, I will
present and explain my methodological choices and some alternative ways of performing research. Finally, some lines on the quality of the research.

Visually, the text follows the model by Lindhult (Lindhult 2011) with a bottom up-perspective, beginning with the fundament on which I build my research and ending with the more hands-on and everyday issues, the tools, or the methods.

This chapter will include a number of figures and models. These have served as reminders and helped me reflect and maintain focus during my research. The figures are:
- The pyramid – Illustrating the different levels of individual research thinking (above)
- The hermeneutic circle – Reminding me to use other and different perspectives
- The triangle of “truths” - Reminding me of the connection to relevance
- The tactical model of DRM – Reminding me of the structure and design of my research

2.2 My starting point - or - The strategic level of thinking

*What is science?* The question came to me during my first course as a PhD student (in 2009) and it felt a bit odd. Why did we have to answer this question? We were a bunch of motivated PhD students, many of us with years of working experience, some of us still employed in companies. We wanted to learn more and contribute with new knowledge, valuable for our selves but also for the world around us. All of us had an idea about what we wanted to do, and what we found problematic and therefore interesting. All of us had our own research focus, but we needed to know how to act to perform good and valid research. I think we were all quite keen to start working, and seeing results. And then came this strange question. *What is science?* I thought: “It has to do
with being systematic and reflective, to question and to analyze facts on a deeper level than in the work of, for example, journalists. (No offense, I respect journalists!) To carefully show what you have done and how you did it, and to share your results with others, so that it can be further developed. In contrast to consulting work (which could be considered as a form of structured work in solving problems), research includes transparency and great awareness. Openness and refinement. It is more about building new knowledge, approaching a problem from a new angle, than suggesting solutions. This was my idea. And I still believe in this.

But, over time I have realized that even if you are clear and explicit about what you are studying and how you do this, there is something else that needs to be clarified. It is not enough to assemble empirical material (or “data”, a more clinical term), analyze it, present it and hope for a fruitful discussion with people in the field. Research could perhaps be done this way. And indeed, it is - in many fields! But, and this is my personal opinion, this type of research does not lead us so far. It takes the empirical results to a new level and we should be thankful for this contribution. But the step is no “great leap”, it is still a baby step. My feeling is, that this baby step could be expanded. If not to a giant step, maybe to the step of a five year old, stretching the concept a bit. There is a somewhat hidden potential in the things we see (or more explicitly, the empirical material collection), but it seems to me that many researchers seem to forget about this, or even, ignore it. And this potential lies in the power of self-criticism. To carefully examine and criticize research work performed to reach further in our understanding. To ask yourself; why did I do this? What prompted me to investigate this phenomenon? Do I want to prove something? Is there something that I think needs special attention? Or, do I want to learn more, without any special aim? Am I doing this for my own sake or for someone else? What would other researchers have to say about this? Could they help me to develop the research results? But then, you must be clear also with your background, your motivation, your ideas and ways of looking at things. If you are not clear about this, the discussion with other researchers will remain on a level on which methods and findings are discussed. This is all very well, but, if you want to take the research to a new, and higher level, it would probably be useful also to discuss more subtle things such as your own agenda (what do you want to prove here?), your preconceptions (is your starting point really right or even interesting? If so, why?) and your readiness to reconsider and change your mind along the way (how much time did you spend on finding alternative solutions to a problem? Did you make use of other perspectives?).

The power of this kind of criticism (or should we perhaps call it reconsideration) is great. If we actively take time to reflect upon our own starting point and regularly invest in reflecting on our own opinions, I believe our research could be more robust. More profound. And more interesting. If we take the chance to re-evaluate our research time and time again, by reflecting and going back to our basic beliefs, we can learn more and also provide more.
So, what are my basic beliefs then? What kind of research do I believe in? Do I follow the old tradition, positivism that sets objectivity, rationality and measurement first? Or, do I align with the more recent tradition, post modernism, in which everything seems to be “fluid”, nothing is for real and everything is a construction? There is something interesting in both approaches, of course. The first tradition has the advantage when it comes to finding evidence and to proving something. There is normally no, or little doubt, about the result. The second tradition, on the other hand, is valuable for its critical view of research and the questioning of the power of the researcher (who could be accused of constructing something that he or she wants to see). This scientific approach points to the researcher, and her/his never value-free mind. It is a search for the author behind the text, the scientist behind the facts.

In between these two “extreme” views of the philosophy of science, there are many approaches. An option for me, as a researcher, could be to align with the empirically based positions of grounded theory or ethnography, or with the interpretatively based, but still empirically grounded hermeneutic tradition. If the researcher is more interested in finding underlying or hidden assumptions, political power and ideology, the ideas connected to critical theory could be valuable, as they point to favored or disfavored interests that might support or challenge the research in question. All these positions provide something interesting.

But, should my research be more concentrated on the one or the other of these approaches? For me, it was quite clear that the hermeneutic view felt most natural, because here, the idea is to treat the empirical material, not as facts (“data”), but as insights (Alvesson and Sköldberg 2008). The material is considered as interpretations and not as sterile units of information. In contrast to grounded theory, in which data is considered as neutral, and to be interpreted, my strong belief is that data, from the start, comes with an interpretation. When a person tells me “yes”, it is not merely a positive word. It relates to something, it is said with a certain voice, in a certain moment. I believe that the starting point, the ground material, the first part of information, contains more than an indication (“Yes” is positive, “No” is negative). To understand the material you have to add something (what does “Yes” mean to me, being Swedish and female? What would it mean to a male person from another part of the world?) There is always a value, a direction in every piece of information. To me, it cannot be value-free as long as it relates to human beings. It is always interpreted.

2.2.1 Hermeneutics

Now, we will dive a bit deeper into the ideas of hermeneutics and the reason for me to choose this as my main field of departure. Fundamental to hermeneutics is its interpretative nature. It includes verbal and nonverbal forms of communication, presuppositions, pre-understandings, the meaning and philosophy of language and semiotics. Its origins are in the interpretation of written texts and especially texts in the areas of literature, religion and law. From the focus on sections of texts, the hermeneutic method came to be used also for the spoken word and further, for interpreting actions.
in general (Alvesson and Sköldberg 2008). A main theme within hermeneutics is that the parts of an action or situation can only be understood if placed in a context. And vice versa, the context can only be understood if the parts are understood. This duality is represented by the “reflective circle” which is the basic model for hermeneutics. It consists of an understanding of both the details of a situation and the overall picture of the same. In other words, it indicates the importance of seeing and understanding both the “parts and the whole”.

The reflective circle shows us an iterative move between understanding the overall process as well as the micro ones. This is fundamental within hermeneutics and gives us the basic idea of the building of understanding. But, it does not tell us how. We are not given any detailed instructions on how to proceed. Here, an additional second reflective circle comes to our assistance. It gives us four sub-themes to be studied within the “whole”, as well as within “the parts”. These themes, or different “emphases”, concentrate on the “sub-interpretation of the text or action, to create a dialogue with the text by posing questions and searching for answers and arguments, to study the text itself on a more detailed level by connecting it to a context (not to read it as an isolated piece) and finally to create different patterns of understanding) (Alvesson and Sköldberg 2010). With these emphases, it is clear that the role of the interpreter, and her/his subjective thinking, becomes central. Who other than she or he can "dive deep" into the material?
Being an interpreter, therefore, includes an awareness of yourself, your background and your beliefs. Because, if we, as researchers, want to fully understand something (if this is at all possible) we need to put ourselves into the situation at hand, to feel and to live it. In this way, we will gain new, but - not value-free, understanding. We will arrive at an interpretation that is affected by ourselves, and our background. What is important then, is to reflect critically on your overall pre-suppositions and the more detailed views that you as an individual bring to a specific situation. Taken together, we should be prepared to adjust our frame of reference during the process of developing new understanding.

This reflective process indicates that there will be a temporary, but no definite solution. The idea, ideally, is not to deliver an answer, but to open a discussion about different alternatives. It is interesting that when we combine our underlying knowledge as interpreters with what we see and understand, we might even reach further than the object herself and understand the situation even more clearly than the actor or actors within it.

As a complement to the two reflective circles, the French philosopher Paul Ricoeur has proposed an additional reflective approach, by bringing a critical “air” to the interpretative mode. Ricoeur stresses the diversity of interpretations (Ricoeur 1977) and the importance of allowing these different perspectives to collide and confront each other. This third way of interpreting, sometimes referred to as “triple-hermeneutics” (Alvesson and Sköldberg 2008) offers an active distancing from the situation, by the use of metaphors and by actively introducing new perspectives.

The interesting approach of hermeneutics, the reason for me to see it as my main point of departure, is that it focuses on interpreting actions by the use of different perspectives. Its value lies in carefully and thoroughly developing different arguments that, by their existence, lead to further discussions. I believe that the many ways of seeing and discussing things are of great importance in achieving a developed understanding. This approach is valuable because it proposes one way of understanding things, not prescribing the way of understanding things.

2.2.2 Relevance – is the research really studying what the research questions ask for?
So, is the choice of hermeneutics a relevant way to develop new knowledge? In what way is this approach valuable? What kind of knowledge can we expect to see as a result of this choice? Will there be knowledge of practical use? Or on a more theoretical level? Is it closely connected to real actions, or more about questioning existing beliefs? To clarify this, I have related my thinking to the model of how to apply theory, proposed by Alvesson Sköldberg (p. 49). They explain the “trilateral notion of truth” by drawing a triangle.

On the left side we find the conventional way of looking at the truth. It builds on the correspondence between what is said and the reality. For example, if someone says: The
ball is red (and it actually is red), there is a good correspondence. But, if things turn out to be more complex (the ball might be partly red and partly blue) the criteria of having a high degree of correspondence becomes harder to fulfill. There is not an either/or answer to whether the ball is red. The question is both yes and no. This indicates that there are truths that can be true in some dimension, but perhaps not in others. When we deal with more complex objects we certainly need another way to see the truth. On the base line of the triangle, there is the notion of truth as relating to practice. This is a pragmatic approach in which the truth lies in what is applicable. The two positions, the correspondence-oriented and the practical-oriented are not contradictions, but they do not involve the meaning of what is being studied. Instead of asking: What does this relate to? (correspondence) or How can we use it? (practical use) we could also ask What does this mean? The purpose of this third dimension is to accommodate a (hidden) meaning, something behind the obvious and visible.

Research, apparently, could relate to truth in different ways. A strong empirical focus would align well with the left side of the triangle (correspondence), as there would be clear “data” to structure and measure. A more interpretative approach, such as the hermeneutic, would instead align with the right side of the triangle (meaning). I do not think that my research could be either the one or the other, belonging on just one side of the triangle, but it relates more to the right side, with the objective of revealing something new and understanding by intuition and empathy. This then, implies to bring an interpretation that could be “more or less” true. Following this reasoning, the relevance in this research must be connected to “understanding more” and introducing a new perspective rather than “telling the truth”.

What does this mean then, in practice? The objective of the research is to introduce an alternative view of innovation. The study will result in an increased understanding of
how technology-intense companies approach radical innovations of meaning. This objective seems compatible with the right side of the triangle and is also mirrored in the first research question (What characterizes the nature of innovation of meaning?). The second research question (Is the radical innovation of meaning relevant for technology intense companies? If yes, in what sense? If no, in what sense?) seems, instead, to be related more closely to the left side of the triangle, as its objective is to measure or value something. The practices, which are the third way to look at the notion of truth, are in focus in the third research question (What are the practices that support the development of an innovation of meaning?), and consequently, relate to the bottom of the triangle of “truths”. The research study therefore begins on the right side, move toward the left side and finish in the bottom of the triangle. In this way, this research tries to look at “truth” from different points of view.

Following this structure, the purpose of the study is not to deliver new theory from an empirical data collection, as in the case of induction (starting only from the bottom of the triangle). Neither is it to test an existing theory or hypothesis in a selected empirical setting (beginning from the left side), as in deduction. Instead, the insights gained would be best described as a constant oscillation between existing theories and new findings, or as a method of abduction. The objective is to deliver a new understanding of a relevant phenomenon, marginally studied and by these early findings, hopefully, inspire further research. In this sense, the research comes close to the right side of the triangle, by understanding something behind the “obvious” and explicit.

2.2.3 Some thoughts on alternative approaches

Having chosen hermeneutics as the basic platform for my research, I still find it useful to consider alternative ways of approaching a research study. The closest related fields, as I see it, are the empirically close approaches, such as grounded theory, ethnography or phenomenography. I also see links to critical theory and will now briefly present some thoughts on these directions and on a post modernistic approach.

Grounded theory is a position that is built on empirical findings. It is, in a way close to hermeneutics, but without the fundamental idea that data is always an interpretation of something. As explained earlier, my belief is that data can never be value free, or free from interpretation. It would be hard for me, therefore, to take this approach. I have also departed from both theory and own experience, and have therefore not derived new knowledge with the help of data alone (as would be the case with grounded theory that leaves “old theories” behind). The other empirically close direction, ethnography, could have been interesting, but I find that this approach would not have been the most suitable method for understanding the dynamics of a large company. This approach would have been more useful in studying a smaller group of people that stays together most of the time. I think it might be difficult to describe the rich and large collection of data that would accumulate when doing these types of study. How would it be possible to present the findings without reducing them too much?
Another empirically close approach is that of phenomenography, another descriptive way of doing research. This view stresses the importance of many different perspectives and also embraces the experience of the researcher. But, rather than viewing a phenomenon in relation to the surrounding world, its cultural context, this approach focuses more closely on the subjective experiences of the objects (people) studied, in relation to the phenomenon. The focus would, in my case, be towards the employees and their experiences, rather than the process concerned. Clearly, this is a more human-close perspective, which I find very interesting. But, my feeling is that it is without the dimensions of the wider sphere of action, which I wish to study. I believe that this method would not be able to capture dynamics outside a specific group of humans.

When it comes to the ideas of critical theory instead, it seems to me that this approach has considerable value. I find it inspiring to try to find the underlying powers and assumptions in the material. But this requires much and wide knowledge on a macro level. My feeling is that in the early stages of a research project this approach might be too demanding. However, in one way, I have embraced certain elements of critical theory during my work. For example, as in the idea of “triple hermeneutics” (described above), where the double hermeneutics takes a third turn, including also an interpretation of the processes of the interpretations of both the subject and the researcher herself/himself. To be concrete, time has been spent in considering why the subjects of the study (executives of different kind) have interpreted things the way they did. Most of these reflections have remained reflections, but some have been incorporated in the conclusions of the papers. I feel that there is much more to study here which could be the basis of a whole new study! The idea to re-interpret also relates in many ways to Ricoeur’s proposal to supplement the hermeneutic circle. Namely to introduce many different perspectives into an interpretation, to be explicitly critical and in this way creatively reconstruct reality (Ibid 270). In fact, this “critical turn” took place many times during the study, for example when presenting the findings to other research communities, outside the innovation and design arenas. One example is the discussions that took place at the Qualitative Research in Management and Organization Conference in Albuquerque, US in April 2012. The findings were then examined and considered by scholars from many other fields such as cognitive phycology, organizational science, communication and education. Another example is the Workshop on Hermeneutics and Action in Gothenburg, Sweden, in 2011, at which academic philosophers entered the discussion connected to my work. The comments and insights from other fields of research have been very helpful, even if sometimes difficult to accept. For future studies though, it would be of value to return to the viewpoint of critical theory to further develop the findings of this research.

Finally, some thought on post modernism, a direction that is much related to texts, their structure and their “own life”. This belief puts the text and how it is constructed by the author, in the front seat. It is a study of how different texts connect to each other and the analyses of these should be free from input from the “real” word. It seems to
me that this view ignores or at least undervalues the reality and the physicality of the situation. Instead, the discussion is focused on a theoretical and more abstract level. I feel that my research is closely connected to humans and therefore in need of more pragmatic and subjective approaches. But, still, the idea that things are (more or less) socially constructed is interesting and valuable. It could probably help in reviewing the findings in a future study.

Considering different scientific approaches is a way to really think through what, as a researcher you believe in and how knowledge is constructed. Clearly, the findings of a study largely depend on the scientific approach chosen. My starting position has been within hermeneutics and the aim has been to give a first hint of what has taken place in the cases I have studied. The outcome might serve as a stepping-stone to more specific and deep-diving studies (such as quantitative research/surveys, ethnographic studies) or broader ranging and meta level ones (such as critical theory or even post modernism approaches).

**NOTE**

*Despite my faiblesse for hermeneutics, I hope I have made it clear that I do not believe that a research study should be totally dependent on one way of thinking. I do not think that there is only “one way” of performing research, and that this way, in the end, will present the “truth”. Instead, I believe that several perspectives should be used. I believe that, even though it takes time and energy, actively adopting different stances, deliberately seeking other viewpoints, and critically reviewing your own findings and methods, is worth the effort.*

*After reflection, I always return to the same fundamental ideas (and maybe this is my weakness…). I always end up in finding the hermeneutic tradition and its circles as a natural and reasonable starting point. But, I have also taken inspiration from the critical theory dimension during the process of interpreting the different sets of empirical material. First, when processing the analyzed material for publication, but also during the revisions of the same and, especially, after the publication, in discussions with other researchers. A more pragmatic, experimental approach was applied in some of the cases studied, in the form of workshops in which early findings were tried out and revised.*

*With the combination of these two, possibly three, approaches, I believe that I have managed to discover more than might have been expected from the material collected. I have gained interesting insights, some of which, due to time constraints, have not been used in this thesis. Still, I hope, that with these mindsets, my contribution will be more valuable, more robust, and hopefully more interesting than otherwise.*
2.3 Planning my research journey - or - The tactical level of thinking

2.3.1 The design

Due to the relative paucity of research material relating to the innovation of meaning, this research has been of an exploratory nature. It has involved searching for hidden patterns within both best cases and those less successful. This was a retrospective, qualitative research approach that began in the stories told by employees in two robotic companies but which also incorporates studies of several consumer-oriented products, within for example furniture, personal protection and household appliances. Not only interviews have been taken place, but also different documents and information material have been studied. Several cases are also connected to common projects including workshops and working meetings.

The design of the study has taken inspiration from the DRM-methodology (Blessing and Chakrabarti 2009). This gave me a way to approach my research subject in a careful and respectful way, slowly defining the research questions by a continuous and reflective process. The DRM-methodology is a four step process that begins with a research clarification, a phase that consists of several steps, such as mapping up current understanding, performing literature studies, arranging dialogue seminars with people connected to the research field (within industry but also within academia) and setting up a research plan. The research question is reviewed several times and fine-tuned with the help of different inputs during this phase. The areas of contribution are identified and discussed.

In my research this part was a long and sometimes difficult journey, moving between books, academic papers, scholars, supervisors and company executives from different departments. I used a so called “snowball” approach, beginning from the seminal works of Verganti (Verganti 2009) and Jahnke (Jahnke 2010), that had already explored innovation of meaning. In parallel, I interacted with scholars from several different fields. My early research interest was discussed and related to the field of design with Ulla Johansson and colleagues at Business and Design Lab at Gothenburg University, in the course Design management 2010 and in relation to technology management with Alberto Di Minin (Scuola Superiore Sant’Anna di Pisa) and participants in the 20th European Doctoral Summer School on Technology Management, in Volterra, Italy, 2010. I also interacted with the community of Creativity and innovation management at their Community Workshop in

The Research Methodology, modified from Blessing & Chakrabarti, 2009
Paris, 2010. My early findings were also discussed with for example Armand Hatchuel (Mines ParisTech) on problem solving and Victor Seidel (Said Business School, Oxford University) on design methods at the 18th EIASM International Product Development Management Conference, in Delft, 2011, with Don Norman on theories of user-centered design (and radical versus incremental change) at Copenhagen Business School, 2011 and with Mats Magnusson and the participants in the course Innovation Management at the Royal Institute of Technology in Stockholm, 2011, on interpretative management.

I was engaged in interesting discussions with and gained insights from the scholars participating in the workshop on hermeneutics (arranged by Gothenburg University 2011) and, with respect to "affordances" from Mark Johnson (University of Oregon at the Qualitative Research in Management and Organization Conference, in Albuquerque, 2012). In addition, the discussions with the editors of the journal Industrial Marketing Management, 2011 and 2012, on marketing perspectives and communities of practice contributed to the improvement of the findings. The fact that my home base, the School of Innovation, Design and Engineering at the Mälardalen University, is a multidisciplinary environment has also greatly helped me to reconsider and re-think many early thoughts. My team of supervisors has consisted of both professors and other seniors within engineering, innovation management and media communication as well as an industrial designer. With all these interactions and interesting perspectives, the research clarification phase has, in a way, been constantly ongoing, as the research question has been iterated and changed over time.

The next step within DRM is the descriptive study, in which the empirical data is collected. The methodology suggests different ways to work, mainly by pointing to different methods. The main product of this step is an increased understanding of the problem at hand. In my research, this phase included meetings, interviews, discussions and workshops with the companies participating as well as an analysis of the material.

The DRM process might also include a third and a fourth step. In my case, the goal has been to develop an increased understanding, and therefore my study concluded at the second phase, this being a Licentiate thesis. A third prescriptive study would be that in which assumptions and early hypotheses could be tested and support for the research question might evolve. The fourth step, finally, would include a second descriptive study to enrich previous understanding and evaluate the suggested support. The third and fourth steps may be a direction for further developments toward a PhD thesis.

The DRM-methodology is valuable because it provides a structure for the effective organization of research. It helps frame the research on a tactic level, opens it to new thinking and discards distracting ideas that normally exist at the beginning of a research project. Its great value is therefore in its focus on finding “the focus”, and its creation of a well-defined path between the beginning and the conclusion of the research. In my case, the methodology was useful especially at the beginning of the research project.
2.3.2 Some thoughts on alternative approaches
I have been aware of but have not deliberately considered other methodologies in designing my research project. But I have used my experiences, as a project manager, of the different phases that occur during a project, the first enthusiastic period when everything is possible, the phase of not knowing that you “do not know”, the constraints that suddenly pop up, the time pressure, the need to look for the right resources. The negotiations to create space to deliver. The insights. The painful insights. The crashes when realizing that the project is far off the plan. The need to re-energize. The need for good people to help out. The successes and mile stones, the appreciation from peers, the criticism and skepticism from colleagues or other stakeholders, the need to convince, persist, take in, ignore – in short “navigate” - alone. The difference between the world of business, in which I have my previous experience, and the world of academia, is in the pace. Feedback and results are much faster in a business setting. Still, the experience from leading projects connected to product development and design helped me organize my work. I do not know how I would have managed without that experience.

2.4 The everyday work - or - The operational level of thinking
So far, I have described my field of departure (my background) and my philosophical platform for this research, as well as its design. Now, the attention will be drawn to the way research has been organized on an everyday level. Here, I will explain the parts of the method that concern the overall research, the fundament upon which several analyses have been performed. These general parts relate to a) the selection of cases and b) the collection of empirical material. When it comes to the analyses of the material, that work has taken several forms. Therefore, in the following three chapters, the analyzing part of the method will be described in relation to each research question. Additional data collection methods will also be described there.

2.4.1 Step 1 Selection of cases
To investigate the field of innovation of meanings within the robotic industry, certain cases from different companies had to be selected. Instead of choosing cases “heard of”, or, product/service cases that might be of special interest to a company, a specific method with some different research protocols was developed to allow for a selection of the most valuable cases (see below). The method was prepared as a workshop in which one of the major players in the industry, ABB Robotics in Västeras, Sweden, participated with ten employees. Four researchers with experience ranging from innovation management, marketing, information design, visualization to industrial design took an active part in the planning and execution of this workshop and a fifth observed the activity. This workshop was conducted in October 2010.

Given that we looked for radical innovations, the first step of the workshop was to ask the managers, in advance, to think about “revolutionary” cases (or products) within the industry (from both their own company and competitors.) “Revolutionary” – was not a pre-defined term, we wanted them to interpret the meaning of this word themselves.
These cases were described with the help of predesigned forms that allowed for text to be written and graphics to be inserted or drawn by hand (See Appendix A). The robotic cases (represented by printed A4 sheets) were then presented by each employee to all the other participants in the workshop. They were discussed by all the participants and arranged on three activity maps, according to their field of application. This enabled the whole group of employees (mainly related to product development of hardware or software robotics or to research and development) to comment and point to the most interesting cases, from a radical innovation point of view. Among the 16 proposed cases, three were commonly agreed on as subjects for a more thorough discussion. This more detailed investigation took place using storyboarding, a method in which the employees, in small groups, told the story of the case from beginning to conclusion, (as they perceived it) simultaneously drawing a storyboard. With the help of a facilitator (one of the researchers), the group focused on different issues, such as the persons involved, the crucial events and the environment in which the case developed. See (Wikström, Eriksson et al. 2011) for a detailed description of this method. In this way, the cases were described by several persons and from several perspectives and with both oral and visual means. At this time, the same method was used by the same researchers in a separate study at another high-tech company.

The different parts of the workshop (the general discussions and the group work on activity maps) were recorded and then transcribed by three of the participating researchers. These recordings were also listened through by several of the participating researchers. What emerged were two things. First, a broad overview of revolutionary cases in the robotic industry and second, a deep and multifaceted understanding of a few of them. This understanding was enriched within our research group, by discussions and the comparison of field notes and photos from two to five researchers.

The analyses of the material laid the ground for developing a comprehensive map of innovations in the robotic industry (See section 2.4.2 and Appendix B for an enlarged version of the map). It was developed in December 2010, the cases being placed according to time, on one axis, and to meaning on the other. It also indicated the technology used and helped the group of researchers to sort out the different meanings in the cases and to determine what cases were more revolutionary and those that seemed more incremental. “Revolutionary” in this sense was related to cases that offered something new (a new meaning), that opened up new markets and that created significant sales. (To clarify this, the term “revolutionary” was used from a business perspective rather than a pure user perspective. Cases that might have been “revolutionary” on an individual level, but not on a business level, have not been investigated. However, the common perception among researchers and employees was that, in the map of meanings and technology, the “revolutionary” cases seemed to be also of great benefit to users.) What is “revolutionary” to an individual could always be discussed further, but it is not in focus for this research.

The map was then discussed and validated with two managers at the company and with
other researchers at Mälardalen University and Copenhagen Business School, in early 2011, before deciding which cases were to be studied. Central to the discussion was to what extent a case could be seen as revolutionary, not from a technology perspective but from a “new meaning-perspective”. The selection came to be two cases, one within the participating company, and one from a competitor’s range of products. The first case, a software case, the RobotStudio, was from ABB Robotics, the company that participated in the workshop. The second case, designated the RoboCoaster, is a combined hardware and software case from a competitor, KUKA Roboter GmbH, based in Germany.

2.4.2 Step 2 Investigation of cases

Case 1, The RobotStudio at ABB Robotics

The workshop mentioned above yielded valuable information material about the RobotStudio, provided by employees who had worked closely on the case. On the other hand, we did not obtain the views of the managers responsible for this product, simply because they did not attend the workshop. The next step was, therefore, to interview these. A semi-structured interview questionnaire with five questions was set up, discussed and refined by the two main researchers engaged in the research project (See Appendix C for the questionnaire protocol). The purpose of the questions was to learn more about the early stages of the case and the events that took place before the case was officially a project within the organization. The hope was to capture hidden or less
articulated practices that affected the case and that differed from the normal procedures. To be able to compare the case with the normal structure, we also collected empirical material on the general innovative strategies of the firm. An additional questionnaire was prepared to cover the official routine of product development projects (See Appendix C). During spring 2011, three managers within pre development, software development and product management were interviewed. Two of them were engaged in the case in driving roles and one helped to build a richer picture of the product development process in general.

After analyzing the material during the first months of 2011, (see first the following section 2.4.3 and then Chapter 3 and 5 for details) together with the material from KUKA and other, not robotic, but consumer oriented, cases, and comparing with the literature we found closest related to the research, some first, preliminary proposals were developed. These were presented academically in the form of two papers, one of them submitted to the journal Industrial Marketing Management in April 2011 (Paper 3) and the other presented at the IPDNC conference in Delft, Netherlands in June 2011 (Not appended). These findings explained how the nature of an innovation of meaning could be characterized (see also the framework in Chapter 3). The conference paper was refined and yielded an additional paper. This is the paper designated Paper 1 in the appendices which superseded the conference paper. Some of its findings have been incorporated in the Paper 3.

The findings led to a second workshop, in October 2011, at which the results to date were presented, discussed and reflected upon. The interest of both researchers and ABB, led the workshop to a second phase, concentrated on the “how” of an innovation of meaning. Building on the results presented, the implications for the practices of working with an innovation of meaning were discussed and new approaches proposed (See Appendix E for the structure of the workshop and the fields of investigation the practices). These developments were the result of close teamwork between the ten participants and the two attending researchers. This continued during the following months as an ongoing discussion between mainly three managers and the researchers.

After the workshop, ABB Robotics decided to increase their activity in the field of innovation driven by meaning. In December 2011, the formal decision to begin a project dedicated to strategies for innovation of meaning was taken by the ABB Robotics executives. During the spring of 2012, more detailed work on innovation strategies was planned in several telephone and physical meetings between the researchers and ABB. The plan has been to involve the very top management in workshops to define the connection between innovation of meaning and management vision.

Case 2, The RoboCoaster at KUKA Roboter Gmbh / RoboCoaster Ltd and the Da Vinci system by Intuitive surgical

The information provided by managers at ABB Robotics, in the first initial workshop created interest in this case. But it was also studied through documentations on the
Internet and as commercial material. The first step was to meet executives of the company concerned. Two interviews took place during spring 2011, one physically with the CEO at the Swedish subsidiary and one by telephone with the Future Lab manager at the head quarters in Germany (same interview protocols as in the ABB case were used, see Appendix C). Secondary sources such as sales and marketing material and media coverage, were studied prior to the meetings. KUKA was very interested in the ongoing research and wished both to share their knowledge and to learn and to develop new knowledge by participating in the research more actively. In June 2011, discussions led to the scheduling of a meeting in Germany in early July.

Unfortunately, the meeting was canceled but new discussions by telephone and e-mail made possible, a full day visit to the head quarters in Augsburg in November 2011. The manager of the Future Lab and employees within product development and R&D were interviewed, making use of the questionnaires used previously at ABB Robotics. The experimental workshop for developing new sensitive robots was also visited and we, as researchers, were able to experience what KUKA calls “intuitive” robots and feel the almost human like movements enabled by the robot.

The visit led to the discovery (and empirical investigation) of an additional case within robotics, the Da Vinci system designed by the company Intuitive Surgical in partnership with KUKA. The study came to include two master theses by three students at Mälardalen University and directed our interest toward research question 2, the relevance of an innovation of meaning (details about this additional data collection and analyses can be found in Appendix E). Since November 2011, meetings for further sharing of insights between KUKA and the researchers have been discussed without concrete results.

The complementary study - a compilation of cases studies, mainly within the consumer goods field
In addition to the main study of robotic firms, the research has also tried to identify other interesting cases, which have involved innovation of meanings. Some cases were partly studied, by Robert Verganti before this research began. These included the Nintendo Wii game console, the company BayerMaterialScience (see Verganti 2009) and the Philips ambient experience (see (Verganti 2011). Others were the “mini-cases” of the helmet company POC and the home appliance company Electrolux, both in Sweden.

There are also studies of the furniture company Vox in Poland, the consumer goods company Procter and Gamble, focusing on its emerging markets in Venezuela, Unilever, focusing on a multinational issue and finally the accounting services company, Deloitte & Touche, both of the latter in the United Kingdom.

In these cases, the methods for collecting empirical material have differed from case to case. Most of them have consisted of interviews, recorded and sometimes transcribed, and in the four latter cases (Vox, Procter & Gamble, Unilever and Deloitte & Touche)
of workshops concentrated on refining the nature of this type of innovation, testing early hypotheses and proposed practices (See Appendix E for the structure of workshops and Appendix G for some of the forms used in the workshops). In addition, secondary data has enriched the understanding of the companies. For reasons of confidentiality, some of the extensive collection of material could not be used in this thesis or explained in the Appendices.

**Conclusion, on empirical material**

The collection of material described above has been designed to serve two purposes. Firstly, and related to research question 1 and 3, to learn the stories of the two robotic cases from several perspectives (by interviewing several employees) - and to learn the stories of companies in other industries to enrich the study. Secondly, and related to research question 2, to learn about the impact of this type of innovation in business terms.

**2.4.3 Step 3 Analyses of cases – hermeneutic inspired**

After the selection of cases and the collection of the empirical material, three different analyses were performed.

- The first related to understanding the nature of an innovation of meaning, see Chapter 3.
- The second, to understand the impact (or relevance) of this type of innovation, see Chapter 4.
- The third, related to practices that seem important when taking a meaning-driven innovation approach, see Chapter 5.

The overall approach, in all three analyses, has been to compare the “revolutionary” case in a company with the “normal” routines in the same company. It was hoped that differences would be observed. In addition, the material has been exposed to a pair analysis. The behaviors of two different firms within the same industry (ABB Robotics and KUKA), confronted with the same opportunities/challenges, were compared to detect differences and similarities (See Appendix F for the structure that supported the analysis).

The following process is common to the different analyses:

1) Interviewing – taking field notes - recording - transcribing - listening through, with different perspectives in mind - making notes.
2) Reading transcribed material again - making notes with different perspectives in mind.
3) Discussing patterns with other researchers- reflecting - analyzing

In general, the material has been interpreted in accordance with the hermeneutic tradition by using several perspectives. To begin with, I have noted down my pre-understanding and pre-conceptions from my working experience. This is to remind myself of the biased view I bring into the research study and to be able to restrain myself from
building only on this view. I have also tried to re-analyze the material with “new lenses”, by the use of different research questions (see also section 2.5.1 and 2.5.2 on Validity and Reliability)

2.4.4 The empirical material – an overview
To sum up, the empirical data collection, consisting of several steps was performed at several companies. The main focus has been on three cases connected to the robotic industry, ABB Robotics, KUKA / RoboCoaster and the DaVinci system. In the first two cases, both workshops, interviews and collection through secondary sources have been performed. The third case has been studied through secondary sources. See left side of the illustration, below.

In parallel, several complementary cases have been studied. These are the cases of Electrolux, and POC where physical meetings have taken place as well as the cases of Procter & Gamble, Deloitte&Touche, Vox and Unilever, all including workshops and discussions. All cases have involved a collection of data through secondary sources. See center of illustration.

In addition, the study has been supported by the study of some cases exclusively through secondary sources. Theses are the cases of BayerMaterialScience, Philips, Nintendo Wii and Huggies (right side of illustration).

For a more chronological orientation of the activities connected to the empirical investigation of cases, see illustration in the end of this Chapter 2.

2.4.5 Thoughts on alternative approaches to everyday methods
This research could certainly have been designed in other ways. A questionnaire to all the employees involved in a case could have been prepared to capture, retrospectively, the dynamics and practices relating to a case. It would probably have given several
interesting insights into how employees perceived the project. But, it would not be able to capture “hidden” things. How could you ask for something of which you had no knowledge? Nevertheless, a questionnaire would have been useful to create a more comprehensive picture of the case. When designing the study though, my feeling was that this option would not give enough depth to what I wanted to study.

On the contrary, another type of understanding would have been attained by really immersing oneself in the company. By being a participant in its business activities, and over time making observations, building a clear picture of the company culture, getting to know people and creating many interactions would have engendered a deeper understanding of the material. This would probably have revealed many concealed issues, but would have required much time and trust between researchers and employees. It would have demanded a well-established relationship from the beginning of the research. Despite a cordial and open dialogue, unfortunately, this was not the situation.

A third way, close to that described above, would have been to become even more action research oriented. Indeed, knowledge has in fact been co-produced with ABB Robotics, especially in Workshop 2 and proceedings, so, clearly, this research has some characteristics of action research. Also, the workshops with Vox, Deloitte&Touche and Unilever had a cooperative approach. This was not however, a deliberate starting position for the research design. The idea was to study, retrospectively, rather than interact in real-time activities. (In the case of ABB Robotics, the level of interaction has advanced from questioning and learning, to assisting and supporting.) But, a common issue when aligning with action research seems to be the question of quality. Can co-produced knowledge, really, be scientific? Isn’t it very close to consultancy? My answer here would be that despite the interaction and the risk of being biased by the employees, there is still a value in learning from each other. To ensure scientific quality, the findings have been iterated in all many different ways, for example by interacting with employees, acquainting them with existing theories in academic contexts. In addition, many valuable insights and questions emerged during cooperation with several companies. This was very valuable in contributing to the refinement of the findings (see also the coming section on Validity and Reliability).

2.5 Quality - on validity and reliability

How do we know that this research is of good quality? How can we separate it from subjective thinking and consultancy work? A first important issue is to be clear about what the research is focused on and the background of the researcher. Further, the research methods should be explained. I have tried to do this as thoroughly as possible in the earlier sections of this chapter.

2.5.1 Validity

To be valid, it is important to show that the empirical material gathered is actually focused on the research questions and that the conclusions are “unambiguously drawn
from its premises” (Christensen 2006). In this research, the methods chapter you have just read tries to sort out the link between the research questions and the empirical material collected. I have tried to explain how data was collected and why (see also the Appendices). This will also be further explained in the coming chapters.

Validity also comes from ruling out other explanations. When the phenomena and the findings are examined by as many competences and parts of a company as possible, the internal validity is strengthened. In this case, executives from many different disciplines and companies took part and examined the ongoing research in iterations intended to increase its internal validity. In this way, research builds “correctness”, by achieving an acceptance of the interpretations studied by the actors/executives (Johansson 2003, p 114). In addition, I have endeavored to increase its internal validity by critically comparing my study with the work of other scholars from different disciplines (see section 2.3.1. above and the illustration below on research as an iterative process).

Validity also concerns the generalizability of the findings. Can these be trusted? And applied to different contexts? In this sense, we talk about external validity (Yin 1984). I believe, just as Christensen believes, that this condition is difficult to fulfill to 100%. Firstly, because, regardless of how many contexts you apply your findings in, there will always be “yet another” context to be tested. And secondly, because findings always build on what took place, it builds on history. With respect to the future, we can never “prescript” what will happen. It would be more appropriate to say we can propose a scenario, more or less likely.

Nevertheless, the research findings emerge from several cases in the robotics and other industries (see thing) is deliberately re-interpreted by myself, as well as other scholars and experts (a third round of interpreting.)

**Multiple perspectives** - When it comes to the empirical data, it has been collected from employees holding different positions within the companies but related to the same case. In this way, I hoped to get several perspectives from different viewpoints. Further, I also examined other sources such as reports and other written material connected to the cases. In addition, the material has been discussed by employees and managers as well as several independent experts from an association working with more radical robotic initiatives, (the network of the “Robot Valley” in Sweden).

**Critical perspectives** - To ensure my critical approach and further validate the findings, it has been important to maintain discussions with other researchers in the field. Here, my colleagues at Mälardalen University - as well as the network of researchers at other Swedish and International Universities have been very helpful. Attending conferences and presenting papers has also been an important factor in this process. In discussions with other researchers within the field of innovation and design I have come in contact with different theoretical frames that have helped me to shape and lead the study further. In addition, the early findings have been reviewed and discussed by the editors of
one journal paper and one book (forthcoming).

**External influences** - In addition to applying a structured and organized way of developing new insights in research, I have tried to complement my research with my own creativity and tried to keep my interpretation open to new and possibly unexpected constructs or ideas. To be able to do this, I have searched for inspiration and creative flow outside academia, as I believe insight can come from the most unexpected situation. This inspiration has come to me through many, many sources, magazines, tv, nature, my children, books, movies and creative work such as sketching, painting and dancing. But most of all by meeting people. It has been important for me to try to alter different thinking, getting immersed in different “worlds” and finding new metaphors to enrich my understanding and expression.

2.5.2 Reliability

A traditional scientific understanding of the term “reliability” requires data to have been measured in “the right way”. It would focus on objectivity; it might build on numerical “evidence” and it is often seen as more “trustworthy” than subjective data (Christensen 2006). I think that this mindset of objectivity becomes somewhat misleading when considering humans in social contexts. How can we “objectively measure” what takes place, and even worse, how can we tell what is “right”?

When performing case study research, especially in its early stages, therefore, reliability becomes a tricky issue to handle. My aim with this Licentiate thesis, has been to present an exploratory study rather than confirmatory one, and as a consequence I gave priority to validity rather than reliability in this stage of the research. In later phases, towards a PhD thesis, a more robust analysis may evolve.

Nevertheless, reliability has been a significant concern throughout the research project. To be reliable, I deliberately designed an in-depth study (and empirical analysis) of companies within the same industry, industrial robotics. This allowed me to compare companies faced with similar challenges in similar contexts. It also reduced the “noise” in the data collection (that could possibly arrive from other cases, in other industries). I kept my main focus on robotics, continuously going deeper into the dynamics of the industry, through the discovery of new cases and by iterative meetings with executives and experts from within the industry. This strategy helped me to compare “apples with apples”, not “apples with pears”!

This in-depth study of the robotics industry consisted of several elements. Data has been collected from different sources and compared. Managers from both ABB Robotics and KUKA departments in Germany, Sweden and the United Kingdom have participated (See Appendices). Different perspectives could be double-checked by this use of multiple informants. As described earlier, written material also was collected and experts, independent of the companies were engaged. In addition, I revisited the com-
panies several times to discuss my interpretations of the material with the managers.

To permit confirmation of the reliability of my findings, I have provided the names of the companies studied. This makes it possible for other scholars to examine the data and hopefully add new insights to the research findings. I also include the research protocols (see Appendices) to enable other scholars to replicate the data collection in the same or other cases.

2.5.3 A last note
In this research, I have tried to show where data comes from (see table in Chapter 1 on empirical cases and Appendices on interviewees and research protocols). I have also tried to show how it has been treated (see earlier sections on investigation and analyses of cases as well as the Appendices). To supplement this, I have also tried to incorporate my own considerations of alternatives. This is done under the headline “Reflection” at the end of each chapter. Of course, these personal thoughts take up some extra space, but result in a more transparent and multifaceted text that, hopefully, stimulates discussions that can improve and refine the findings.

The search for alternative explanations has been a constant journey. Sometimes it has been like navigating a small boat on a rocking sea while other moments have been like sailing through a fresh breeze. The cruise between these changing conditions can be seen in the illustration in the end of this chapter. It also shows where research has been presented, discussed and criticized.
3 Innovation driven by meaning – shedding light over a clouded field

Silence. A hand in a skeptic face. A moment of hesitation. “But, this is just marketing”, he says. “There is no real new technology here”. “I know”, I say. “But isn’t this interesting? How come this company invented this product? What made them create something so radically different?” “It is not so different”, he says. “From a technology point of view”.

I stand side by side with a designer with more than 20 years of experience of robots, next to a laptop showing a movie clip of a huge orange robot. It moves its large arm around - up and down, back and forth. It is located outdoors, surrounded by cheering and laughing people. At the end of the robot arm, we see two people in a seat that, in addition to the movement of the arm, is constantly swirling, lifting and swinging the passengers through the air. They appear to be enjoying the ride, exhilarated but also fearful.

What we are looking at is a standard robot (the KR 500) produced by the German company KUKA Roboter Gmbh, a company that normally serves the automotive industry. It is designed and normally used for lifting and moving objects in a precise and efficient way. But, instead of its classic task of replacing human workers along an assembly line, the robot is performing other tasks in a new environment, in an amusement park. We learn that this is the “RoboCoaster”, a “standing still” rollercoaster. It saves space with its limited envelope of movements at a fixed location and saves the costs of building a real rollercoaster. It also allows the riders to design their 90 seconds ride to suit themselves. With the help of a software application, the user can choose, before entering, between different motion profiles and levels of speed, from an easy and gentle ride, to a wild and crazy ride. The system offers more than 1.4 million combinations, if you also include your age and level of “courage” in the selection. In this way every ride is a new ride, according to the preferences of the passenger.

Looking at this robot, we see that it is serving another purpose than that of its siblings in the car factory. Its movements are in fact the same but in the case of the RoboCoaster they provide the user with a totally different experience. Instead of delivering efficiency and control, the output is entertainment, enjoyment and thrills. Instead of lifting components for cars, it lifts humans around. Humans are included in the concept – not excluded, as would be the normal case in an industrial operation. There, robots are considered “serious stuff”, they can be dangerous if you move too close – they could even kill you with their movements that are insensitive to unexpected objects interfering with their work. The RoboCoaster is not there to create efficiency, but to create emotion. As a product, it does not fit into the current assumption in the robotic industry of what a robot “should” be used for. Still, it exists and seems to be a successful product, with over 200 systems sold to amusement parks all over the world.

I show the robot to other robot professionals in the industry. The reaction is reserved. None
is overwhelmingly excited. “Yes, indeed, KUKA has a reputation for being innovative”, they say. “But it is just a marketing trick”. The movements are nothing to talk about, nothing new or fancy. No new technology around. And - it is not an important product, no big sales. I am amazed. The reactions from the industry are not what I expected. I find it a very intriguing product, because it is doing something radically different. The RoboCoaster system, without competitors, is installed in amusement parks all over the world, but after ten years of its existence, there is no great enthusiasm for this product in the robotics industry.

I contact the company and go there with my research teammate Roberto Verganti to learn more. Even these people see the product as “marketing”. They are happy and proud but there are no big sales, they say. We ask what this means. About 150 or so systems in the world, says the CEO of the Swedish subsidiary.

In the robotics industry, this is not a large number, especially as the margin in manufacturing robots is relatively small. But I learn that in the amusement park industry, this product renders a much greater return. The system is more advanced than many other amusement rides and has about ten times the margin of an “ordinary” manufacturing robot. The volume might be low, but the sales and profit of this product are significant and make the RoboCoaster an interesting case to study.

The product cannot be explained by traditional mindsets. It is not an innovation that is technology driven, nor could we describe it as only market driven. This is not a product
that offers new technology to an existing industry. The movements are the same and the
capacity is the same. Instead, “the existing” (technology) is definitely moving into “the
new” (market). The product is clearly segmented into a new market, but cannot only be
classified as “marketing”. It is not a matter of exposing and offering the product to a
new audience, retaining the purpose of efficient lifting or assembling. No. It is about
offering something else. With the technology remaining the same, the offer changes from
“efficiency” to “emotion”. It is about creating a user experience that contains something other than would be expected and considered “common sense” in the industry.

For the manufacturer, the purpose of the product (the robot) has changed. But, and
perhaps more interesting, from a user perspective, what has changed is the purpose of
tertainment rides. For an amusement park visitor, the change in purpose comes from
a change in the experience. The customized and unpredictable attraction, (the Robo-
Coaster) is seen as an interesting alternative to the standardized and predictable attrac-
tion (a normal roller coaster). There is a change in the purpose for the manufacturer,
indeed, but this change has to make sense for the user as well. In some way, KUKA
managed to understand this user, despite belonging in a totally different world.

When we look closer at the user experience we can conclude that the KUKA product
is not intended to create efficiency (for the manufacturing operator) but to create enter-
tainment for the rider). It seems that the producer of this robot has been focused on
less obvious values within the existing paradigm of industrial robotics. KUKA seemed
to have driven the product toward creating emotions rather than the values that seem
to be commonly agreed upon as the “right ones” within the robotic industry such as
precision and control. They challenged the mainstream thinking focused on industrial
efficiency, productivity and optimization by concentrating on the experience and per-
ception of the user. And it seems that these more subjective values are not commonly
of interest (and therefore not captured) within the robotic industry. The professionals,
largely, do not see them. Or, at least, they do not express interest. These values originate
in humans and their experience of interacting with a product. They have to do with
perception and how the user sees the meaning of the product. Within this industry,
dense in engineering and technology, a strong tradition has been created and more hu-
man related values seem to have remained unobserved.

When the producers of the RoboCoaster created and launched such a radically different
product – one could wonder if they used a more radical strategy than the normal? Hav-
ing looked at the case, the quick answer would be – “No. They did nothing strategically
well planned. “Crazy people, crazy management”, says the R&D vice president when
we meet him and his staff at the head quarters of KUKA Laboratories in Germany.
But, this is not necessarily the whole truth (if there is one). On looking closer, we have
come to see signs and activities, thoughts and stand points that underlie their process.
There are a few characteristics that appear in this case (and in others that we have in-
vestigated) that seem to depart from the “normal” procedures of innovation strategies.
What we see is that innovation, in this case, is not a result of new technology, nor a
purely market driven approach. Instead, the innovation seems to have been stimulated
by an interest in a meaningful experience for the user. It is an innovation driven by the search for meaning. It’s a move from the existing and dominant meaning of robots as substitutes for humans in heavy duty operations (for example in an automotive context) to a new (not necessarily better, but different) meaning of entertaining humans by interacting in a surprisingly and unpredictable way (in this case, in an amusement park).

Later on in this chapter, we will draw attention to the dynamics of this unusual type of innovation, driven apparently, by more subjective than objective factors. What are the characteristics of this innovation of meaning? And what does its nature look like?

But, before illuminating this somewhat clouded field, we will study this type of innovation in relation to other approaches, within the innovation field but also in relation to other fields of thoughts.

### 3.1 Outline

As previously mentioned, this thesis will present theories, relating to innovation of meaning, in three parts. In this chapter, we will concentrate on the nature of this type of innovation in the search for an answer to the first research question: What characterizes the nature of innovation of meaning? The first part will explore existing and related theories. It will be a deep dive into the usual ways of discussing innovation and the many approaches to creating meaning. In this section several parts consist of so called “naked” theory – not used later on when coupling theories to empirical material. Still, I found it necessary to relate to several different fields to show where meaning is discussed, before arriving at the chosen theory of hermeneutics.

After this, the specific method for investigating this part of the subject will be described before entering the empirical material, which will be presented in a descriptive format.
through a few selected stories from the cases studied. The chapter ends with the proposing of a model of the characteristics of an innovation of meaning.

3.2 Meaning as a driver of innovation

**The technology - market discussion**

A classic way to relate to innovation is, as previously mentioned, by making use of the dimensions of technology and market. Either, technology (or “technological opportunities” as stated already by Schumpeter (Schumpeter 1934) is identified as the driver of innovation and “pushes” new offers out onto the market (the so called “technology push effect), or the market (as in “user need”) is seen as the driving force. In this case, technology is “pulled” forward through demands from the market and the efforts of, for example R&D departments (also called “market pull”). Within these two dimensions, innovation can take place in an existing, or new market with the help of an existing, or new, technology. They can be described as incremental innovation (with existing marketing or technological means) or as radical innovation (with a new element introduced, technological or marketing-related (see figure below).

The discussion of the parameters of technology and market has resulted in many different frameworks. See for example Ansoff (Ansoff 1965) with his matrix of products and markets, Burgelman et al. (Burgelman, Maidique et al. 2004) on technology and market applications and McGrath and MacMillan (McGrath and MacMillan 2009) with their matrix of technologies and market segments.

And indeed, if we turn to the RoboCoaster case this can be partly explained as a market driven innovation. In this case, we see that a standard product moves from the field of automated manufacturing to the field of amusement parks. We cannot talk about technology innovation (or “technology push” or “technology breakthrough”). As described earlier, no new technology is involved but we could talk about market in-
novation. We could relate to thoughts on finding new markets, what Moon describes as doing something “different” (Moon 2010). We could also relate to theories such as the “Blue Ocean Strategy” (Kim and Mauborgne 2005), focused on finding new markets by swimming into a blue ocean (new markets) instead of staying on the battlefield in a red ocean (existing markets).

These theories, however, do not capture the dynamics of the RoboCoaster case in its entirety. It cannot be explained only as a market driven innovation because, it is not merely a move of existing technology (and user experience) from one market to another. It is not “lifting capacity for efficiency” that finds a new market to serve. The revolution is not to move from one context (car industry) to a new one (amusement parks). The move includes more than this. The answer to the question “Why do we use this product”? is no longer “Because we look for lifting capacity to create efficiency and control”. Instead, the answer would be: “Because we look for lifting capacity to create emotions”. The movement, delivers something new: the freedom of selection that makes every ride different and unique. To sum up, the move to the new context includes a change in the purpose. Innovation, in this sense, then involves the “why” of using a product (its meaning), not only the “where” of using it (the market) or the “how” of using it (the means, functions or technology).

The existing language
In considering the RoboCoaster and the discussions with industry professionals, we observed that the spheres of technology and market seem to constitute a “domain” in which the professionals navigate. The thoughts of these professionals in this particular context are expressed in a special language. They refer to technology to indicate (and measure) that there was “nothing new” (as in new technology) and used expressions such as “just marketing” to further underline their opinion about finding “no news”. “150 robots? This is peanuts!” was the way an employee of a competitor expressed his perception of the “small” number of sales of the RoboCoaster. The language used by him and his colleagues when talking to us, appeared to be derived from this frame of either technology or market as the accepted way to understand the dynamics of the industry.

The new dimension
The language of technology and market belongs to the current paradigm of the robotics industry, and therefore, explanations derive from this existing frame or references. But, when we introduce the dimension of “meaning” we also introduce a new “thinking frame”, moving from a two-dimensional to a three dimensional construct. We expand the scope of the debate about radical innovations, from the traditional view of technology or market-driven innovation to also include a meaning-driven approach.

As stated above in Chapter 1, the dimension of meaning is connected to the purpose of a product or service, as perceived by a human. It is about “why” a product is used. It is not about “how” it is used. The meaning, therefore, comes from her / his perception
and interpretation of a product when interacting with this. Within innovation research, this meaning dimension has been introduced by Roberto Verganti who explains that meanings result from an “interaction between user and product” (Verganti 2009). A company, he explains, may think about the possible meaning of a product, but a meaning cannot be designed. Rather, the company can provide a platform, on which the user can provide her/his “own interpretation”. He also puts forward the cultural dimension of products and introduces the value of a network of “interpreters”. These are people who either belong to the world of cultural production (such as artists, sociologists, anthropologists, marketing people and media) or to the world of technology (such as scientists, suppliers of technology, retailers, designers and users). To innovate meanings, he clarifies; a company needs to take an active part in the ongoing debate in this network. By listening to the discourse, companies can interpret gained knowledge and then address new visions and propose new meanings. In this process companies must ask themselves “why” a product is meaningful and what is its deepest meaning.

Verganti suggests that the creation of meaning takes place on different levels. It does not originate within a human being but in relation to the world around him/her. Creating meaning, consequently, can be described as a context-dependent process, building on the dynamics within a society and culture and associated with technology. It comes from a vast amount of actors, signals and signs.

On leaving the wide and society-connected context aspect of creating meaning and examining the close relationship between the product and the user, we can see that creating meaning stems partly from several other sources. It comes from emotional and symbolic values, as in the product language and messages sent from the product, as well as from utilitarian values connected to the functions of the product (see the example of cars in Chapter 1, where both feelings, features and functions influence the perception of the car). As a result, when a human sees, feels or in other ways experiences a product, she/he uses many different elements to build her/his own understanding of it and create a purpose.
An example
If we take the RoboCoaster as an example, the meaning comes from, on one hand, the visual appearance of the robot itself, from its unexpected movements, from the perception of its functions. On the other hand, this perception creates emotions that are different for every spectator. The product language gives signals that are interpreted by every single person with her/his own frame of references. The meaning therefore will be different for everyone. In addition, meaning continues to evolve when the spectator steps closer to the product and touches or even more so, embarks on it. The physical experience of riding the RoboCoaster impacts the perception and a new, or refined meaning will be developed. Again, this is a personal matter, and not to be determined before hand by another (for example the product owner). Further, when leaving the focus on the product and taking on the wider perspective again, meaning also comes from the context. In the RoboCoaster case, the robotics and amusement parks industries see different purposes (and consequently, different meanings) in interpreting the product. The meaning, apparently, is never constant, but changing, building on many signals and unique to every human. It develops when moving from discussing the “what” (pure functions and messages) to the “why” (also including purpose and meaning).

Another example
The process of creating meaning does not reduce the complexity of innovation. It introduces more parameters and questions. Meaning is not only focused on the color of a product, a faster movement, a lighter material or a new business segment. It embraces deeper, less obvious and more subjective values but does not exclude the technology or market dimensions. Both new and existing functions (enhanced through new or existing technology) can include a new (sometimes hidden) meaning. And certainly, meaning could also be innovated with the help of a new market approach. Innovation of meaning, therefore, applies both to existing and new technology and concerns both existing
and new markets. If we return to the RoboCoaster for example, we see that this is a product that moves with the help of an existing technology to a new market, bringing new meaning. But, meaning can also appear on existing markets with a new technology.

One example is the RobotStudio, a software product developed by ABB Robotics in the early 80s, to better predict the movements and efficiency of the robot. Instead of designing, building and trying a robot out in real life, on the factory floor, this application enabled car manufacturers to optimize the performance of the manufacturing process in a “virtual world”. This simulating capacity made it possible to visualize and predict the operations of manufacturing before constructing the robot. The meaning, therefore, moved from selling an efficient robotic arm (hardware) to selling knowledge on how to use it (software). This meant, for example, that the (at that time) current views of robots as “fast movers”, diminished a bit. Instead, the new meaning indicated that even a slow robot could be more valuable than a faster one - if it was used in an effective way (see also the map in Chapter 2 for changes in meaning over time).

So far, we have concluded that innovation of meanings concerns both existing and new markets and technologies. The RobotStudio is targeted at traditional robotic clients, such as industrial manufacturers but it implies a radical change in the reasons for buying robots, from buying speed and efficiency, to buying knowledge of how to use them. The RoboCoaster instead brings robotics into a totally new arena, transforming roller coasting from a ride that is predictable and standard to an experience that can be varied by individual passengers (turning it into something unpredictable and customizable). The park’s visitors do not merely get in the seat and sit there, but instead take an active, creative role in the experience. In both of these cases, whether an existing or a new technology is applied or an existing or new market is targeted, the innovation of meaning is present, but not highlighted, by the manufacturers.
Innovation of meaning and other constructs…

We have now come to see how the two-dimensional construct of technology and market, related to innovation, can be enriched to include also an additional lens, the meaning perspective. It is a proposal built on three parameters, the technology, the market and the meaning, with subcategories of functions, languages and context. Having this three-dimensional proposal at hand, we can relate to additional ways of thought. One perspective that shows similarities to the one presented above, is the three-dimensional construct by Abell (Abell 1980) on defining business. Abell’s contribution is to point to the “what” of products (technology, market functions and product functions). It is a definition model. His third dimension in particular, points to different “product functions” to fulfill customer needs, but without mentioning the meaning of the product. The purpose of the product seems to be a “given”, and therefore is not questioned or discussed. In contrast, the innovation of meaning, does introduce meaning with the question “why”. It brings products into a wider perspective, beyond visible and tangible functions. Another difference with Abell’s model is that, while this business model is static (on business definition) the perspective of innovation of meaning is dynamic (on innovation). In other words, Abell’s model is about positioning rather than innovating.

Another way to describe the perspective of innovating through the radical change of products’ meanings, is through Verganti’s notion of a “design-driven innovation” (Verganti 2009). This, because the word design (from the Latin de-signare) is etymologically related to “making sense of things” (Heskett 1985; Krippendorff 1989). Design, by definition, includes bringing meaning. It is a matter of “why” (to use a product) rather than in the “what” and “how” (to use it). Moreover, from a marketing perspective, products are again discussed in relation to either market or function. Kotler, (Kotler 1984) for example, shows that existing market share and low market growth are usually associated with “old products” with no “news” (functions). On the contrary, new
markets and strong market growth could be related to new (and sometimes unsure) functions (that could come both from technologies, or a new market approach). The concept of meaning is not explored here. The focus is on the strategies for positioning existing or upcoming products, not for discussing the meaning of the product, what its purpose is today and if it could be changed.

Even if innovation of meaning relates to several frameworks within technology management and marketing management (for example by embracing a discussion about function) they do not explain this type of innovation in its entirety. The clearest sign of this is that in these theories, meaning is a “non-issue, it is not discussed but given. The identification of this “non-discussion” within the field of innovation research is therefore a reason to further study innovation of meanings.

Note, that when we add a third dimension to the technology and market related discussion of innovation, we do not add another scale to measure what is worse and what is better. We do not talk about good or bad meanings here. And we do not talk about improvements. Simply, the third dimension is a scale of difference. The technology axis, indeed, shows a movement from good to improved technology (moving upwards), but both the market and the meaning axes’ show a move from one position to a different one, be it incremental or radical. This, because neither market nor meaning can be judged as “better” or “worse”. It is simply a different position (Moon 2010).

3.3 Perspectives on meaning
As indicated earlier, it appears that the concept of innovation of meaning has not been extensively researched to date. But, if we take the words “innovation” and “meaning” separately we find much of interest. “Innovation” is a huge field. We took notice of it in the previous section and we will investigate it further in the next chapter). The term “meaning” is an even wider concept. It brings us beyond contemporary business language to several streams of literature outside the field of innovation. Actually, if taken into its widest context, “meaning” brings us to a discussion on life. Every human has her/his own interpretation and answer to what makes life meaningful and therefore what meaning is. Meaning, consequently is subjective and built on personal thoughts.

Many are the fields in which the meaning of life has been defined. We find it discussed within philosophy, theology and ideology, within different cultures and of course, within science. If we leave the “classic” sciences and consult a more recent (and by individuals constructed and constantly up-dated) source, the Wikipedia on-line dictionary, we see that meaning is defined as something that brings us to reflect over “existence, context, happiness, value, ethics, afterlife - almost everything that could be connected to life”. When consulting other English dictionaries, we learn the following:
Meaning, clearly can mean (!) a lot of things. Either, it relates to ideas or things communicated in different ways through objects or other means, or to the importance of something or to the purpose of something.

The Online Oxford dictionaries summarize the three main meanings as follows: “what is meant by a word, text, a concept or an action… implied or explicit significance… important or worthwhile quality, purpose…”

Here we see that the explanation contains the words “implied”, describing “something” not directly expressed and “explicit”, something directly expressed. The Merriam Webster Dictionary\(^4\) indicate this in their explanation:

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\(^2\) Wikipedia, 2011-11-01

\(^3\) The Oxford dictionary (http://english.oxforddictionaries.com, 2011-11-08)
To summarize, we can see that explanations of “meaning” are of two main types: Firstly, semiotic explanations using the words “word, text, concept, action”. (Semiotics is the study of the way in which people communicate through signs and symbols). More precisely, it relates to semantics, a subdivision of semiotics, (as this is the study of the relation between signs and the things to which they refer, their denotata, or meaning. In short, semantics is the meaning of words and phrases).

Secondly, explanations which include a philosophic, less tangible and visible concept by including the words “implied, explicit, important, worthwhile, quality and purpose”. These terms suggest a personal involvement and judgment and could be connected to philosophy (defined as the study of theories about the meaning of things such as life, knowledge, and beliefs, and as the study of general and fundamental problems, such as those connected with existence, knowledge, values, reason, mind, and language). From this, we understand that philosophic views, in short, bring more than signs – they also bring reasoning.

With these two different ways of seeing the word “meaning” in mind, we return to this study. We have already stated that it is concentrated on meaning as in “innovation of meaning” and as connected to “a user, the product and the surrounding context, to interpret a product or service proposal in the way that the purpose changes”, This implies that we refer more to the second definition, the philosophic perspective rather than the seman-

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5 Macmillan English Dictionary for Advanced Learners
6 Wikipedia, 2012-02-16
7 Ibid
8 Macmillan English Dictionary for Advanced Learners
9 Wikipedia, 2012-02-16
tic. We focus on the purpose of a product, on the “why” rather than on the “what”. We will discuss meaning and how it has been considered in the world of philosophy in the following, but before this, I feel the need for a note on meaning connected to the Swedish language.

NOTE
The word meaning has, as we just learnt, several connotations. Being a Swede, and knowing that this text will be read also by a Swedish audience, I want to relate meaning to its Swedish equivalent. Meaning, as it is used in this study, should be translated as “mening” in the Swedish language. But what does “mening” mean then, in Swedish? When consulting the dictionary of the Swedish National Encyclopædia, we learn that “mening” is explained as:

Mening
1) Åsikt (opinion)
2) (Åsyftad) innebörd (intended) content, bemärkelse (sense), betydelse (importance, significance)
3) Planerad följd av visst handlande, avsikt, syfte. (Planned consequence of a certain action, intention, purpose), med svävning mellan syfte och innebörd (on the border between purpose and content)
4) Största språkliga enhet vars delar står i ett väldefinierat syntaktiskt förhållande till varandra (A complete linguistic entity whose parts are assembled in a well-defined syntactical relationship)

(The Swedish National Encyclopædia)
(English translation Åsa Öberg and Vic Miller)

Worth noticing, in comparison with the English explanations, is that the first Swedish explanation of “mening”, is “åsikt”, (opinion). This way of using the word is, indeed, very common in Swedish. Many Swedish people understand “mening” as opinion. But, this is not the definition that this study is referring to. Instead, meaning, or “mening”, should be understood as in the second and even more, the third Swedish explanation, as “innebörd, avsikt, syfte” (content, intention, purpose). Note also, that the Swedish explanation expresses an unclear border between syfte (purpose) and innebörd (content) and indeed, it is difficult to clearly separate these two.

Again, to clarify, to Swedish readers, this study focuses on “meaning” as “purpose” (syfte). In Swedish this is one way of explaining “mening”, but not the first and most obvious one. In addition, “mening” is also used in a linguistic context but this is not in question for this study.

We will now relate meaning to three different ways of thought. We will do this in three sections in which 1) meanings and life, 2) meanings and artifacts and 3) meanings and business will be considered. These different ways of thought will be related to three central constructs of this study, namely:
- meaning
- innovation (and business)
- product and users

We will see that all three ways of thought relate to the meaning construct, the second way of thought (meaning and artifacts) relates to product and users but less to innovation and business and the third way of thought (meaning and business) relates to innovation and business but less to products and users. The relation between these ways of thought and the central constructs is shown in the table below.

<table>
<thead>
<tr>
<th>Central constructs</th>
<th>Meaning</th>
<th>Innovation (and business)</th>
<th>Product and users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ways of thought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meanings and life</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Meanings and artifacts</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Meanings and business</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Innovation of meaning</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The conclusion is that these different ways of thought relate more or less to meaning, sometimes to innovation and business and sometimes to products and users. But, none of them embrace all the three central constructs. It is within this gap that this research is intended to be a contribution. Because innovation of meaning relates to both meaning, innovation and business as well as product and users.

The following section is the result of a study of the literature built on the so-called “snowball” effect (see also Chapter 2, section 2.3.1). Theories in this section are based on the seminal works of Verganti (Verganti 2009) and Jahnke (Jahnke 2010) and their sources. These led in turn to further studies of other scholars. In parallel, I have encountered some of the theories through a continuous interaction with different research communities (see illustration in the end of Chapter 2).

NOTE
Meaning is a widely used concept. In the field of concept analysis this would be considered, not a one-dimensional concept, but a multi-dimensional one. Being aware of this field of expertise and the complexity of the concept meaning, I want to clarify that my studies refer to the definition of meaning as in innovation of meaning, stated above (see Chapter 1). Meaning in this research is what makes sense to a human and is connected to the user, the product and the surrounding context, to interpret a product or service proposal in the way that the purpose changes. It relates to the purpose of “why” rather than the “what” or “how”.
Meaning and life
In this section we look at meaning from a broad perspective, without reference to the perspectives of innovation and business or product and users.

Philosophic views
Historically, meaning, as the meaning of life, has had many definitions, explanations and directions. Plato argued that meaning comes from “attaining the highest form of knowledge”; Aristotle spoke of the “highest good”, Epicurus stressed “happiness and freedom from fear”. Those within the enlightenment movement put forward “freedom, equality, and citizenship” as the most meaningful values and the thinkers of liberalism pinpointed the “freedom of the individual”. In the 19th century one extreme form of perceiving meaning was to abandon it, as in nihilism that deals with the process of “de-valuating the highest values”. Over the centuries different philosophies have sought to give a clear definition of meaning. More recently though, meaning has come to be discussed as something that every individual has to find out for herself / himself. This view can be connected to the advancements in modern science over the last decades, which have changed dramatically the relationship between human and nature. (see for example (Bunnin and Tsui-James 1996) for an overview of the Philosophy of science). The meaning of existence is no longer examined only from a functional, biological and scientific angle but on a meta-level, where meaning ”making” has become an activity per se. Over the last decade, the discussion of meaning has therefore, been increasingly connected to the individual, as in essentialism or secular humanism. Kierkegaard, one of the major essentialists, stressed the human and her/his struggle to find her/his own way in a world that remains indifferent to the individual. Secular humanism, and its later forms, believes in people (not supernatural sources) as the determinant of human purpose. The well being of humanity comes from happy humans who interact in a social context and build valuable personal relations - and in this sense, create meaning. Yet another form of seeing meaning comes from the field of hermeneutics that originally found meaning through the study of texts, by interpreting the text and the author behind it. Later, this interpretative practice has come to be used also for understanding actions in general (Alvesson and Sköldberg 2010). In contrast, the thoughts on logical positivism would argue that the act of defining something should relate to objectivity and facts. Therefore, the question of meaning would be considered ”meaningless” as it relates to an individual and her/his subjective thoughts. Similar thoughts can be found in post-modernism, where the definition of meaning, as such, is not in focus. Instead, the underlying powers that constructed it, and how language (but also society) actually limits individuals when they want to construct something is important.

A glance at Psychology
If we then move to a more human-related perspective, within psychology (defined as the study of the mind (Gross 2003) the explanation of “what meaning is” has been constructed and modified during history - as within the field of philosophy. And indeed, these two fields have been related over the centuries. At the end of the 19th century however, something happened. New, and scientific, methods began to be applied to the mental processes of humans. Investigations took place under “controlled conditions”, in which, in the same physical surroundings, the same “stimuli” and the same verbal instructions were given. These thoughts, emphasized measurement and control, they belonged in the field of structuralism and they separated psychology from its parent discipline of philosophy.

What happened is that, when comparing the more “modern” psychology with philosophical thoughts, the new psychology showed greater “modesty” in its explanations. It also appeared to be more conservative in its speculations (Robinson 1995). With this background, current psychology is more practical than philosophical. It begins its endeavors in the details and concentrates on elemental processes. It avoids addressing complex phenomena before solving these fundamental processes. It is, in this sense, more “scientific”, which earlier psychology was not (ibid). As a result, the psychology of today is less speculative and only deals with problems that can be settled “experimentally” (ibid) in a particular context. As a consequence, many highly specialized fields have emerged (such as the psychology of personality, memory, psychotherapy and genetic psychology).

It seems that the focus is not on defining or questioning but on investigating an existing something. Meaning, therefore, seems to be of less interest - instead, the scientific approach to human focuses on investigating what is already there.

This somewhat reductionist perspective has been criticized by Frankl (Frankl 1995). He explains how the many different sciences attempting to explain human behavior have created a scattered picture of how to understand a situation and as a consequence, it becomes difficult to create a “fusion”, or a common picture. Specialists within the different disciplines concerned, tend to generalize and simplify facts instead of embracing the complexity of a human being. As a contrast to a “given theory”, Frankl emphasizes the human individual, her/his character and capability to reflect upon herself/himself. This awareness, connected to a person per se, is what makes it possible to understand the meaning of a certain situation. Stressing a dimension higher than the biological and psychological dimensions, he belongs to a school of thought within psychotherapy designated logo therapy (“logos” in this context is a reference to both “meaning” and “spirit”, but without the religious association). This branch concentrates on this “higher” dimension, called the “noologic” dimension. Meaning, in this view, comes from the individual’s capability of self-transcendence, to use intuition and empathy and to be open to the world. Humans are not machines, or closed systems - instead they can fulfill themselves by reaching out in the world and aim to complete a meaning. On the con-
According to this subfield of psychotherapy, meaning is never found when a human is isolated from her/his ability to be human, as when being studied clinically and out of context. To use Frankl’s own words, the “humanity of a humane human” (my translation from Swedish) is what creates meaning. Similar thoughts are also put forward by Mark Johnson who has discussed meaning from both a cognitive, and an aesthetic perspective (Lakoff and Johnson 1980; Johnson 2007). Meaning-making, according to Johnson, includes images, qualities, emotions and metaphors (Johnson 2007). Meanings that are unconsciously created within us, even before we are aware of them, come to full expression through the arts. Johnson is studying meaning at the border between psychology and philosophy and closely connected to the human per se. It is, indeed, a very interesting approach, but he does not consider the dimension of the “outer” context, that which is not immediate, a business setting or an innovation context.

Meaning and artifacts
From fields in which meaning is discussed on a more or less abstract level or with a human perspective, we will now enter fields where it is central in relating to a product. But, as we will see, in these fields also, the innovation and business perspective is not embraced.

Cultural and symbolic perspectives
When discussing meaning, we must introduce its cultural dimension. Meaning is constantly constructed by humans within the culture of their social environment and in interacting with and experiencing artifacts of different kind. A product, for example, can be seen as a cultural artifact. When launched, it contains connotations, or “markers (Holt 2003) such as its name, its design and a company logo. Over time, the experience of people in interacting with the product, seeing it exposed in magazines, movies or sports events or discussing it with friends, creates different ideas and beliefs about the product. These “fill” the markers with content and create meaning. Over time, these meanings become conventional, they create “truths” and become widely accepted in society. Through these interactions, a product culture is created.

Despite this clear connection between society, culture and product, understanding culture is normally something that is “sorely lacking” in the agenda of managers (Holt 2003). Culture, (as being “the ideas, beliefs, customs, skills, arts and sciences of a given people in a given historical period” (Buchanan 2001)) constitutes a complex system of interactions and beliefs that are constantly shifting. Buchanan points to the value of this complexity and states that instead of accepting, considering, mixing and even re-using thoughts and ideas in this cultural system we tend to “dismiss them”.

He describes a lack of understanding in the way humans construct beliefs and he regrets the absence of a philosophical signification to this understanding. What he calls for is an “ecology of culture” in which “collective life processes allow individual thoughts, actions and passions to mingle with those of others”. The mix of different minds in a society therefore plays a vital part in creating meaning.

Clearly, meaning is created “out there” in society, not always visibly but instead entangled in a complex cultural system of signals and actors. Hirshmann (Hirschman 1982; Hirschman 1986) describes this system as a “culture production system” consisting of four different subsystems; the creative, the managerial, the communicative and lastly, a fourth, the humans or “consumers” subsystem.

According to Hirschman, in this culture production system, the creative subsystem (including artists, musicians, architects, directors, or car designers) creates ideas that are intangible and internal, “in their mind”. These are then turned into external and tangible proposals for the managerial system to process, to examine, discuss and modify for the market. (For example, a musician may record a demo tape to express an idea that is then evaluated in different ways). In this translation phase, many symbolic values are “filtered out” and new values are added to suit the requirements of the manufacturing and marketing systems. From here, the third, the communicative system attempts to shape a message and bring meaning to the product through, for example, advertisements. As a reaction to this, the consumers then create their own ”symbolic” interpretation of what the product is - through both intangible and subtle messages (put forward from the creative subsystem) but also with the help of formal and more obvious messages (stressed by the managerial and communicative systems).

Hirschmann outlines a complex way of creating meaning in a system of actors. She points to the role of consumers as “active contributors” of “product symbolism”, instead of as “mere recipients” of product meaning. Becker (Becker 1974) has also described the connection between the actors in a cultural system or “creative industries” and how they contribute to the creation of culture by proposing symbolic elements. This is also done by Hesmondhalgh (Hesmondhalgh 2007) discussing “cultural industries” and Tuomi (Tuomi 2006) in describing innovation and change of meaning through networks. Instead of proposing “technology” Toumi stresses the technology in use when looking for the source of an innovation. He refers to a “heroic user” “instead of a “heroic inventor“. Meaning, in this sense, comes from the user in interaction with a product and innovation results “when a group of people reproduce a specific social practice”. He states that information and communication technologies make sense only in a cultural context. This thinking, that meaning originates from the human and her/his interaction with something, is also supported by the philosopher and anthropologist, Claude Lévi-Strauss when he states that meaning has to do with the ability of any kind of data (be it through arts as Johnson proposes, or through cultural production systems as in Hirschman’s proposal) “to be translated in a different language”… not “such as French or German, but with different words on a different level” (Lévi-Strauss
To be able to “get the meaning out”, though, we need some rules, or some kind of order according to Lévi-Strauss. A system in which we can navigate. Here, Lévi-Strauss touches upon the interesting thing, that there will never be one single frame, in which to translate, or explain the world around us. What we can do, however, is to increase, “very slowly” the number and the quality of the answers”. We therefore need to embrace many perspectives to increase our understanding.

**Product language, Semiotics and Product meaning**

If we follow the idea of bringing many perspectives, and now move from discussing meaning in a cultural system to a more tangible level, we will see how meaning is also connected to the artifact as such, to its “product language”. Here we can relate to the field of semiotics where we find a whole world of signs, symbols, metaphors and languages that all help to construct meaning. One part of semiotics, semantics, actually covers the relations between signs and the things to which they refer, their meaning. This field also relates to identity and to branding (see for example Toni-Matti Karjalainen on the connection between brand identity and product design references, (Karjalainen 2004)). Describing products based on meaning is not however the most usual way to segment products. It is more usual to describe products according to function, as in old original classification schemes that described the product as a “bundle of utility”, allowing solutions to problems or taking control of situations (Copeland 1923; Kotler 1984). Or, according to consumption experiences, such as pleasure, enjoyment, comfort and warmth (Hirschman 1982; Myers 1985).

Nevertheless, a holistic picture of the relation between products and consumers would also include an understanding of the dynamics behind the relations between consumers and products. This is presented by Fournier (Fournier 1991) in offering a classification based on meaning in relation to three dimensions, first - an objective-subjective creation of the relation, second - a shared (or cultural) versus a personalized view of the relation and a third dimension - built on high or low emotional response to the product.

This framework is helpful in putting products in a new light and in a wider context, connected to both the culture and the individual. It introduces more than pure functional or experiential values when adding human perception and interpretation to the discussion of the product (and its language). With Fournier's own words “the semiotic motive” comes to play.

Fournier's classification puts forward both emotional and symbolic values in addition to utilitarian values and this makes her proposal close to the focus of this research. If we return to the definition, an innovation of meaning concerns: “the process between a human, the product and the surrounding context to interpret a product (or service) proposal in the way that the meaning changes from one purpose to another”. Here we can clearly see the similarities between Fournier's approach and this research. Both include the importance of human perception to interpretation (as in introducing feelings), and both stress the role of the product (as in introducing symbolic but also, utilitarian values). Another way to see the similarity is to return to the example of the cars in Chapter
Here, we see the perception of the human in the feelings of, for example, affection, memories or anxiety and we can also see the connection to the senses such as shaky movements or strange sounds (emotional values). Then, there are the connections to the product language and social identity: A luxury car can symbolize being wealthy but also unsure and conformist – and the old car can symbolize having small finances but also being humble and contra-culture (symbolic values). In addition, there will always be functions, like for example an ABS systems in the new car versus drum brakes in the old car (utilitarian values). To conclude, Fournier’s theory brings an interesting dimension to this research, even if her work does not include a rigorous investigation of the interpretative process.

Designerly ways
When meaning is related to design, many might wonder what we actually “mean”. Is design about meaning? Or is design about something else? Isn’t design about “designing”, about making things, which look, feel and work great? About communicating something? Indeed, but why then do we design the way we do? What is the underlying idea of an artifact?

There is definitely no clear answer to what “design” is, but I believe it includes meaning. Others feel differently. And, due to the many different understandings of this word and its practice, design has been used and is discussed in many different ways (see for example (Margolin and Buchanan 1996) on the idea of design). From the 60s, when design was mainly about product design and about exploiting the possibilities of new materials to the 70s, when designers were looked upon as “helping” humans get a better life. (Designers were even considered as the meaning providers, the “stars” (Schutte 1975)) And even if Simon (Simon 1982) considered design as connected to “making” and “objects”, when stating that design is about “the creation of artifacts”, in the 80s, design came to play a wider role. It gained a more integrating function in companies, as a builder of bridges (Gorb 1988). In the same era, Schöönn also put forward a more communicating and conversing level of design, seeing it as a “reflective practice” (Schön 1983). To arrive at a meaningful output, Schöönn pointed out the importance of “reflection in action” while designing. He stressed the value of distancing yourself and reflecting on the ongoing work to be able to refine it.

The value of design came later to be raised to a strategic level (Svengren 1995; Walsh 1995; Borja de Mozota 2003). Promoting design on a strategic level has resulted in several models for the understanding and use of design, as The Danish Design Ladder (Danish Design Center) and the Design Management Staircase (Design Management Europe). Both these models are focused on design as a problem solver but unfortunately; leave out the organizational context of the company. Several scholars also see design as connected to problem solving (Buchanan 1992) or a practice-based activity (Cross 2006; Lawson 2006), based on reasoning. This is, of course, a useful perspective, but it seems that, in this case, design efforts remain “in a bubble”, or to quote Sabine Junginger, design remains “disconnected rather than working in unison towards a com-
mon purpose or vision” (Junginger 2009).

As a contrast, or perhaps more as a complementary view, design has also been seen as “making sense of things” (Krippendorff 1989) and as creating meaning (Heskett 1985; Krippendorff 1989; Verganti 2009). Here, design has an even broader stance, from the one extreme of being product- and material-focused to being related to humans and contexts. In addition, this meaning is not only something that is being created, it can also be “proposed” because people also buy “meanings” (Levy 1959; Csikszentmihalyi and Rochberg-Halton 1981).

The meaning dimension is still not yet a well-established field within design research. There are studies, which analyze the value of design that appear to be more closely related to a meaning perspective. For example, studies that analyze the strategic relevance of design and its impact on industry dynamics (Roy 1994; Trueman and Jobber 1998; Wallace 2001; Rich 2004; Bedford et al. 2006). These studies have however, mainly an anecdotal character. There are also quantitative analyses of design, which fall into the category of classical analyses of performance improvements (see also Chapter 4 on innovation and value creation). These studies are valuable, but only partly cover the many possible instantiations of innovation of meanings.

To conclude, we can say that design studies touch upon the intrinsic value of meaning, but it seems, without strong linkages to innovation and strategy.

Meaning - from a Design Management perspective

Even if research on design has been trying to demonstrate its monetary value, (Johansson 2006; Candi and Gemser 2010) a major problem has been its implementation. As an answer to this, the field of design management has evolved. Early studies within this research attempted to structure the function of design on different levels within an organization (Borja de Mozota 2003), but still kept a normative, structured and rational view, de-contextualizing design to a static process, rather than a dynamic one. For example, design is described as a differentiating, coordinating and transforming force that seems valuable in all parts of a company (Borja de Mozota 2003). On an operational level, design holds the power of changing the activities in the value chain (as in brand marketing, production and communication). On a functional level, design can participate in changing support activities (as in technology and innovation management). And, finally, on a strategic level, design can change the value chain of an entire industry (when working with strategy, knowledge and networking management). Clearly, this description gives design a unique role in an organization. With this description, Borja de Mozota even states that design must “educate” the other departments. In this field, managing design is not about reflection and meaning making, but about execution.

To nuance the importance of designers, Gorb and Dumas (Gorb and Dumas 1987) argued more than 20 years ago that we must pay attention to parts of the company other than the formal design-departments. They underline the importance of “silent design”,

82
design activities of people who do not recognize their job as a design function. They stress cooperation in teams, working together, being sensitive to problems, being equal members in a team - but also avoiding too much harmony. This is a more human-close approach to managing design. It recognizes the human capability of cooperating, but it does not stretch as far as creating meaning.

The notion of “design thinking” has emerged as an additional answer to the difficulty of implementing design in management. It is a more “popular” and to management-connected version of design (Boland and Collopy 2004; Brown 2009; Martin 2009). In this discourse, “design practice and competence are used beyond the pure context, for and with people without a scholarly background in design” (Johansson, Woodilla et al.) But, within this business perspective, design still appears to be more operational than philosophical, more focused on execution than on the creation of meaning. As a consequence, design thinking has been criticized as being too shallow, using arguments built on experience (see for examples the books from the well-known design firm IDEO, (Kelley 2001; Kelley 2005; Brown 2009) rather than academic references or methods (Johansson, Woodilla et al.).

Nevertheless, the interest in design thinking in the business media has contributed to design appearing on the agenda of many companies. It has been a way to “open up” to a field that has looked strange and “costy” to managers. In addition, the idea of bringing “designerly” thinking to companies and their innovation strategies has intrigued several researchers. From a meaning perspective, Jahnke for example (being both an engineer and industrial designer himself), investigates the intersection of design and innovation. He points to the importance of bringing external and critical views to an ongoing design project. In this sense, he is close to the creation of meaning through the use of an outside context (Jahnke 2010). In his research, design and management therefore move closer to the meaning perspective.

Managing design is a complex task. One way to understand the process is by the use of narratives rather than models (Johansson and Woodilla 2009) or to look at it as something “in between” rationality and intuition” (Palmäs and von Busch 2008). Design management can also be described as an artistic process, based on the dynamic between seeing, doing and ”bodily being in the world” (Digerfeldt-Månsson 2009), or in the use of intuition (Thornquist 2005). These studies, clearly, move closer to meaning creation. Yet, they emphasize meaning making on an individual level - rather than connecting to larger contexts as in the innovation strategies of hi-tech companies.

Discussing design as “meaning” with companies that have just embraced a “light” version of design - as a result of the “design thinking” debate - is a challenge. This is not because of ignorance, on the contrary, many companies are aware of meaning, not in relation to products or design, but to the organization as such and how organizations create meaning that may lead to economic values. We will take a closer look at meaning in an organizational context in the next section.
Meaning and business
We began by glancing at meaning from an abstract level, the field of philosophy. Then we briefly looked at meaning in a somewhat less abstract and more human-oriented field by taking in the perspective from psychology. We have obtained a notion of meaning connected to the artifact, by including cultural and symbolic views and semiotics to finally reach the practicer-based field of design and the more structure-design-management-related discourse. We will here consider meaning in the world of business. Here, there is awareness of meaning, but not on a product level, connected to design, as in the previous sections. Instead, the business and innovation perspectives are stronger.

Organizational perspectives on sensemaking and sensegiving
One stream of organizational innovation studies concentrates on issues such as the employees, the leaders and the organization and how they relate to the creation of meaning in different ways. This stream includes studies of sensemaking (Weick 1995) and sensegiving (Gioia and Chittipeddi 1991), of the context and the network surrounding the organization (Van de Ven 1986; O’Reilly and Tushman 2004) and the capacity to see and reflect upon changes (Ocasio 1997; Ocasio 2010; Weick and Sutcliffe 2006). Meaning, in these studies, comes as a part of the process of making sense of things, or from a context that needs to be understood or, from changes in this context. It seems that seeking explicitly for meaning (such as the meaning of a product and service in the context of its use) is absent from these studies. They point, however, to activities and individuals, connected to meaning, inside and external to organizations. They provide a common ground for grasping the complexity of the study of meaning, introducing perspectives from many different viewpoints into this research. They do not address, however, products or services directly, nor how humans make sense of them, and especially not how to innovate them. They address instead more organizational and networking aspects.

Organizational perspectives on Human and social context perspectives
Another stream of research concentrates on individuals in an organization as participants in an innovation process. It sheds light on how humans interact through conversations (Brown and Duguid 1991) using a common language (Boland and Tenkasi 1995). In this common context, sometimes also called “communities of practice”, we can learn new things, and thereby create meaning (Wenger and Snyder 2000). Here, meaning is considered “a way to talk about our changing ability - individually or collectively - to experience our life and the world as meaningful”. In this sense meaning comes from a collective action. Not only from one sole individual.

Related to this research are studies on the importance of values and norms (Leonard-Barton 1992) and the social construction of the environment of employees (Smircich and Morgan 1982). They focus on institutions and their roles in making sense of things (Van de Ven 1986) and on social settings (Nonaka 1994). This part of innovation research introduces the moment of reflection and the individual’s reaction to a research field, previously related particularly to technology and organizational issues (Crossan
It clearly links to the concept of meaning, but this time with a more human/social dimension.

**Entrepreneurship**
Meaning is also present within the entrepreneurship discourse, for example through the creation of stories intended to legitimize entrepreneurs to investors and visionaries (Lounsbury and Glynn 2001; Hjorth 2007). The stories seem to support decisions and strategic directions when interpreted by these executives. Also, entrepreneurs seem to be able to envision future scenarios through their stories and thereby manage to set up goals that “evoke public, social and moral concerns”. In this way, entrepreneurs seem to be able to deviate from their stereotypical image as striving solely for independence, freedom and profit (Clarke and Holt 2010). Entrepreneurs, in this view, act in the same way as designers, presenting future scenarios by different means such as stories and storyboards.

**Brand management and marketing**
Close to the organizational perspectives related to meaning is the discourse relating to the identity, or the core values that constitute the brand of an organization (Design Management Journal 1998; Tripsas 2009). Within this field of brand management, focus is directed towards the product concept more than the product features. It is an activity of communicating core values, not always with physical objects, but rather, with abstract associations. In this way, brand management is close to a philosophic, meaning-related perspective. Because, a brand is a bundle of symbols and identity to which people give meaning. Yet, a brand is not a product or a service. Instead it is given meaning by people, not being “used” (as a product or service). Therefore, at this point of my study, I will not elaborate on these theories but this interesting field remains a source of inspiration for future research.

In relation to brand management, marketing is more closely connected to the product concept. It is, in addition, also about understanding the needs of users. (Vredenburg, Isensee et al. 2002; Veryzer and Borja de Mozo 2005). The focus seems to be on understanding, capturing and then spreading an existing meaning - rather than creating and changing it. Marketing also applies user-analysis to understand how to steer activities and segment products (as in the classic 4P marketing mix by Kotler, (Kotler 1984). These analyses however, often stop at the “what” (what to communicate and how) and rarely seem to ask “why” (why should we communicate this?). See for example Abell’s three dimensional model for business definition (Abell 1980) discussed earlier. There, the meaning is to be “marketed”, not to be questioned or changed.

The construct of meaning is present both within brand management and marketing - but not deliberately searched for or questioned.
Service innovation

Yet another research stream in which meaning is discussed is in the field of service innovation and the concept of the “value in use”. This concept, coined by Vargo and Lusch (Vargo and Lusch 2004) begins from the user and her/his experience. It is the situation of the user that determines the value of a product or service, not the different parts and content of the value chain. It is a change from using a purely company perspective when creating value, to introducing the external user-context situation. This is the so called Service-Dominant Logic which is close to the practice of design as it involves a user perspective in addition to the business perspective (see Wetter Edman 2011) for a extensive comparison between these two concepts). This stream of research is interesting as it introduces the concept that the user constructs value (or meaning) in a context, exactly as the innovation of meaning also begins from the user perspective.

The notion of value in use focuses on the experience of a human in action. It is about the “how” and “what”, rather than the “why”. Typically, it focuses on the user in interaction with a service, or product, via an interface and is facilitated by the use of IT technology. In this way it becomes a very technical and “hands-on” discourse. The service innovation perspective is, indeed, very close to this research and can give valuable insights, but it is still more of a pragmatic rather than a cultural and philosophical perspective.

The focus of the study – a review

When we relate the above theories to our perspective, we see that meaning, more or less explicit, is always present. Consequently, meaning could clearly have a plethora of definitions. Philosophers relate to the meaning of life and within psychology meaning is sometimes ignored. Meaning can be found within the practice of design and within branding, in organizational research and within entrepreneurship - but it seems disconnected from the main innovation strategies. As in the case of design, meaning is not a topic of great interest in many organizations. It is a given, taken for granted. Not questioned. Not even the dictionaries give a simple and clear answer to what meaning is. To quote Lévi Strauss again, there is nothing more difficult than to define what “meanings mean” (Lévi-Strauss 1979, p.12).

Being aware of this complexity, I still want to use the concept “meaning”. I will, and cannot, adopt the entire theory in any of these fields, instead I will relate to them from the definition of meaning, defined in this research. To conclude, the focus is on the purpose of a product or service as perceived by a human. This is about “why” a product is used. It is not about “what” or “how” it is used.

A meaning is not always explicit and obvious. It is based on the experience and activity of a particular individual but is also a product of a particular society, technology and culture. Because of this, an individual alone cannot construct a meaning; rather, it is a co-development between an individual and other actors in a context. It is a value
created in - and over - time and therefore, not constant. A meaning, in this sense, is something that is partly a personal interpretation but also socially constructed (Berger and Luckmann 1967).

To conclude, the study of innovation of meaning cannot be placed - and does not belong exclusively – in any of the above theories and streams. It relates to a combination of the three streams of philosophy, design, and innovation management.

3.4 The method – exploring the nature of innovation of meaning

This research began in mid spring 2010, with an examination of “current theories”. But, as there was not one, clearly suitable stream of research, many fields were entered, passed through and related to. Theoretically, there was no obvious direction in which to focus attention.

The process, in this early stage of research, began with a reading of Roberto Verganti’s pioneering book, its references and some other of his later publications (Verganti 2003; Verganti 2008; Verganti 2009). The next step in searching for further theories implied a full range literature search through ordinary databases such as Web of Science. But this proved unfruitful since the concept “innovation of meaning” was hard to find. Even with the help of a professional librarian, I could find no robust and relevant material. I found material relating to organizational change, to learning and to cultural meanings but this did not really address the innovation part of innovation of meaning. The next approach in the strategy of searching for relevant theories was to apply a snowballing process (see Chapter 2) beginning from Roberto’s work and ongoing discussions with him. Each new theory was then discussed and examined from the perspective of how an innovation of meaning was defined. Different theories were examined as sketches on paper and whiteboards. This search for theories was an ongoing work, spanning about 12 months and concluding with some early indications in the form of a conference paper in spring 2011 (Öberg and Verganti 2011). The work was then refined over the next 12 months and is now presented in a more compact form in a book chapter, submitted in early spring 2012 (Öberg and Verganti, forthcoming).

The empirical material from workshops and interviews was transcribed, structured in different patterns and analyzed in parallel (see Chapter 2). We used whiteboards at MDH in Eskilstuna and CBS in Copenhagen, and prepared all kinds of models and sketches. Pyramids, circles, tables, dichotomies, hay-men, arrows, colors. Sad faces, happy faces. The material was also assembled in digital formats. It was exchanged via e-mail between the two researchers, reanalyzed and refined. A few patterns emerged, but we could find no suitable theoretical frame explaining these.

My interest in hermeneutics and its interpretation and reflection function, always felt valuable but remained in the background. We began referring to meanings as a circular move, available for reconsideration, over time, never constant. Using tables, as we did
in early work, felt too static, but it also helped us compare our work with other theories. It showed its value in the third paper, see (Verganti and Öberg, forthcoming). A meaning seemed to be something not fixed, very personal but also something that could be affected by larger events in society as well as smaller – such as like the details of a product. Suddenly, but also, with great inspiration from the work of Marcus Jahnke (Jahnke 2010), hermeneutics became a very interesting way to describe meanings, especially when they were to be subject to innovation. We tried using the hermeneutic circle in different ways, with different levels of detail, but what felt most useful were the basic conditions of the parts and the whole, the interpretations and the reflections that raise the awareness and prompt reinterpretations and the adoption of new perspectives. By mirroring the empirical material (mainly from the two robotic cases but also from others) in relation to the hermeneutic circle, we began developing a model of what characterizes an innovation of meaning. This model is presented at the end of this chapter. The model has been iteratively refined since it was first proposed in mid spring 2011.

In the previous sections we learned that meaning is a multifaceted construct, more or less present in many different fields of study but apparently not particularly so in the field of innovation. After examining the phenomena through the two cases at the beginning of this chapter we will now return to how we can understand innovation of meaning in some other companies.

3.5 Meanings are everywhere – an empirical study

So far we have learnt about two robot products, the RoboCoaster and the RobotStudio. They are both examples of innovations of meaning. One with the help of existing
technology in a new market, the other with new technology in an existing market. One shows the change from achieving control through lifting accurately to creating emotions through lifting unpredictably. The other example shows the change from buying hardware and lifting capacity (a robot) to buying software and knowledge (an application system). We will examine these more closely below but will first turn our attention to other examples of innovations of meaning. Innovations of meanings, occur not only within the field of robotics. They can be found in any industry, to develop new products and achieve competitive advantage. One example is the personal care company Kimberly Clark and the development of diapers. Another one is the accounting services company Deloitte & Touch and their search for new meanings in a market that appears more and more complex.

**Huggies Little Mover Jeans Diapers**

In 2007, Kimberly Clark released the “Huggies Little Mover Jeans Diapers”. The blue denim design was launched as an amusing and stylish fashion for babies during the summer months and allowed children (and parents) to feel relaxed even when strolling around without pants. The diaper had a printed pattern resembling blue denim jeans, with simulated stitched seams and pockets at the rear. This was due to a new technology that produced a clearer and less transparent print than the one normally visible on diapers. The new diapers retained, obviously, the core values of leakage protection and freedom of movement for toddlers who crawl and scoot around in their surroundings.

But, more than just a fun and colorful way of dressing a child, this also connected to the life-style and preferences of parents, especially mothers and their interest in fashion. Jeans have long been a “Mummy-fashion – must-have”, according to the company, arguing that it was about time for the small ones to “steal the style” of their mothers). But, the diaper was not developed for the child per se, not only. Instead, the deep blue diapers have become a way of expressing your personal style, as a parent. Instead of using arguments as “feeling safe”, “giving your baby the best” and allowing movement and fun (by taking assistance from famous Disney, or other, commercial characters), this appealed to the “needs” of parents, far from pastel prints of teddy bears and children toy patterns on the diapers. This product talked to parents in the search for self-fulfillment, not only as a caring parent, but also as an “up-to date”, playful and fashionable one.

As a result, the meaning of diapers has moved, from a practical and functionally necessary support, bulky and less glamorous to buy, to becoming a self-expressive and prioritized fashion item. But this new meaning is not to be seen as a shallow superficial statement. Children with “fashionable” diapers can move around and play without the necessity of wearing clothes (pants) on top. This allows more freedom to the child. And it is a convenient situation for the parents. In fact, it is a more open, “no frills” attitude in parent-children bonds. And due to the higher engagement among parents, the value of the brand hereafter, has come to incorporate a more affective connection between customers and the product, more similar to the engagement of a loved and attractive
fashion brand. This is an example of a meaning changing from being very practically oriented, to include feelings of affection and good spirit.

**Deloitte & Touche: The world of accounting**

Innovations of meanings can also be found in service contexts. When meeting the accountant firm Deloitte and Touch and their Australian top management in London, we together identified several steps of change in meaning within accounting services. In the 60s an accounting consultant was the financial guru for small business companies. He kept a good eye on everything related to the economics of the business. Naturally, he was the first person to talk to regarding all financial issues, from investments to loans, from insurances to deals. But increasing speed and complexity of the environment made it impossible for the accountant to keep track of everything. With increasing technology in the 70s, the accountant came to be the informatics-expert, delivering loads of numbers and statistics to company managers. Holistic analysis and control is an extremely tough exercise, if not impossible, so instead the accountant was forced to develop expertise in certain particular areas. He or she had to become more specialized and therefore, morphed into one piece in a jigsaw puzzle of stocks, insurances, taxes, finance- and risk management. In this case, the meaning has changed significantly. From a “whole-picture” Godfather delivering peace and calm to top managers, to instead, a well-informed advisor, an expert in specific subjects. Deloitte now works on finding new meanings of accounting by capturing what is happening in the world of accountants. Not only on the computer screen but - at their desks, in their offices and in their private lives - with the purpose of transferring accounting services from a specialized commodity to high level holistic consultancy.

**3.6 The characteristics to look for - the findings so far**

After a preliminary investigation of several cases of innovations of meanings (a few of them described above), the empirical material was analyzed in iterations (see the method section in Chapter 2). Many different ways of sorting the insights gained were tested, but the final result came to be the categorization in four segments, inspired by the fundamentals of hermeneutics and constructing a circular model. This proposal explains an innovation of meanings in four characteristics, as being *context dependent, not optimized, outlandish* and *co-generated*. We will now take a closer look at these four characteristics. Please, not that this discussion is reexamined in Chapter 5, where I analyze some fundaments of hermeneutics and how they relate to the practices of innovation of meaning (see the table in Chapter 5). The *italics* in the coming sections highlight the key concepts of the nature of this type of innovation and mirror the structure of the discussion that will be further developed in Chapter 5.

**Being context dependent**

Let us begin by returning to KUKA and the case of the RoboCoaster. In the robotics industry, innovation implies searching for solutions that can (almost exclusively) be technically described. The focus is on finding a solution with a better performance.
But, as we have learnt, in this case, the focus was not on the details of the product or on a technical problem but belonged to a new, cultural and social context. This KUKA robot delivers entertainment and human emotions rather than technology and physical performance.

Innovation of meaning, therefore, works on a higher level and with a broader scope than the solving of a technical problem. It implies moving from a narrow focus on the problem to, instead, considering the overall user experience - beyond the specific interaction with a product. When a company reinterprets a product in relation to its surrounding context its purpose and utility is also reinterpreted. In this way an innovation of meaning, actually, redefines the purpose of the product. This novel interpretation emerges when the company manages to embrace not only the parts, i.e. the product, its services, packaging and other things that constitute the product and what it offers, but also the wholeness (the user experience).

This is visible in both the KUKA and the Huggies cases. They show that radical innovations of meaning belong in a context. It is not about designing a product, but about the

![Diagram](https://example.com/diagram.png)

*The nature of an innovation of meaning.*
identification of many different signals, the parts, blended into one coherent message, and the whole.

**Being not optimized**

Another major characteristic of an innovation of meaning is that it cannot be optimized. It belongs to an ever-shifting sphere of knowledge, opinions, news and proposals and therefore, can never be constant. Its nature is not compatible with the dominant theories that see problem solving as a process of progressive reduction of uncertainty (the earlier in the process the better). (Clark and Fujimoto 1991) and that assume that there is an optimal solution out there only waiting to be recognized (Terwiesch and Ulrich 2009). In this process of information gathering and processing, external actors, naturally, become an important source of new arguments. They contribute by expressing different ideas, using different voices and thereby helping to picture other perspectives. Their thinking is blended with the ongoing interpretation process, leading to new unforeseen interpretations.

Let us return again to the KUKA company. They began their work with the RoboCoaster after hearing a proposal from an internal entrepreneur with insights from the amusement park business. The first product presented on the market was a standard product, adapted for the use of private persons with the help of suitable software. During the years, the company then carefully listened to what the external actors looked for and progressively refined their product, which emerged as an advanced entertainment and educational device (see also Chapter 5)! Beginning as an adapted assembly robot, the RoboCoaster now offers a totally new experience. This was possible through an iterative development process in which different actors added new knowledge and proposals along the way, and in this way, helped to reinterpret the meaning of the product. The move is similar to the iterative hermeneutic circle, in which understanding is a continuous process of introducing new perspectives, re-interpreting and re-reflecting. In the same manner, the KUKA strategy has been to listen and adapt the product - continuously.

In short, this second characteristic suggests that instead of focusing on convergence towards an optimal solution, innovation of meaning is based on a continuous and iterative discussion, in which firms take an active part.

So far, we have examined the two themes of context dependency and no-optimization. These two themes add new implications to the theories of innovation. The discussion, however, does not involve innovation in general. Instead it considers a specific type of innovation. Namely, the radical change of meaning. In the next two sections, therefore, I will describe the nature of this radical change through two more characteristics.

**Being outlandish**

We have now seen that developing a radical change in meaning implies the abandonment of dominant assumptions about what a product is meant for, questions the existing socio-cultural paradigm and reinterprets the surrounding context. A proposed new
meaning can therefore appear quite strange, even *outlandish* to people, because it is different, unforeseen.

Making radical changes indeed, can have considerable positive results. It might be the key to success. Quite naturally, the literature on radical innovation includes a great amount of research. In the studies of radical change concerned, though, the research is not connected to radical changes of meaning, but rather to changes in capabilities. For example, the use of external networks is considered crucial in providing access to new competences. (Chesbrough 2003). *Developing new capabilities* with the help of a network is, indeed, very important. To complement this view, this research stretches the concept a bit further by introducing not only a helpful network, but in addition, one that questions, even criticizes existent norms. As a consequence, it seems that companies interested in innovating through meaning, need to develop the ability to *take a critical stance*.

Consider ABB Robotics and the development of the RobotStudio. When some employees suggested working on software development (instead of hardware), the proposal met with opposition within the organization because it meant that some of the competence engaged in designing robots and their movements, the hardware, would be handed over to the clients through this new service. A group of believers in the idea persisted however and continued working with the new software application. They were supported by competence from external partners in the software industry, not normally involved with robotics. When the product was launched it was so radical that it was in advance of explicit client demand. Clients were threatened instead of being thrilled! For example, car manufacturers have internal experts whose expertise is in understanding how to use robots. These experts within client organizations interpreted the simulator as a threat to their expertise and therefore to their standing within the organization. The whole idea looked bizarre, strange and different. Almost outlandish.

This third characteristic, being outlandish, is one aspect of the nature of an innovation of meaning. It stresses the importance of proposing new unforeseen products, and that these benefit from external input, through networks. The “radicalness” of innovation of meanings, therefore, does not originate in a closed and secret corner inside a firm, but is linked to a more open and embracing attitude. In the next section, we will dive deeper into the last of the proposed characteristics.

*Being co-generated*

The three characteristics described above tell us that a radical change in the meaning of things is not necessarily an *answer to a clear market need*. On the contrary, it implies a step back from current needs and proposes a new vision, not apparent to the market (Verganti 2009). This makes the insights about innovation of meaning contradictory to most theories of innovation, that advocate a closer look at users in order to realize innovation (such as studies on user-centered innovation, design thinking and crowdsourcing).
This new vision, though, is not a one-man work, but comes from a combined effort to see and interpret new things, involving both internal, external and “outlandish” networks. Therefore, an innovation of meaning is also co-generated. The common act of interpretation is not based on the discovery of what is already there, but on a deliberate creation of new interpretations that do not yet exist. It is not simply about generating ideas and solutions, but about conceiving a new possibility and creating a completely new vision.

Consider the sports gear company POC. This is a company that is most famous for their ski helmets, combining new technology with a strong visual appearance. Through my fieldwork I realized that POC is another example of a company that, by reflecting on and understanding several signals, developed a new meaning, in this case for downhill ski helmets. Instead of just offering supportive gear to avoid injuries the company has added a playful, seductive touch to this life-saving equipment. Instead of dealing only with reason, they also play on emotions. When visiting the POC head quarters in Stockholm or the company website the visitor enters a world of protection, where helmets can be personally designed in colors, sizes and in relation to ski goggles.

Helmets can be combined with body armor, gloves and clothes. On the web, the visitor can virtually meet the team of athletes behind the products and check the latest news. If relevant medical aspects are of interest, the visitor can meet the special team behind the new semi-hard shell technology and learn that the company works within biomimetics (the science of adapting biological structures and functions to the purposes of engineering). Visitors are also offered tips on movies, competitions and links to the partners of the company. For the most extreme users there is also a local talent program, both within ski and bicycling. The website is a source of inspiration, inviting interaction and giving a deeper meaning to the idea of protection. POC is clearly not offering just a product; they propose a scenario of meaning in a market that did not ask for the use of helmets (the meaning associated with ski helmets was indeed that of a device for fearful inexperienced skiers). Yet the firms worked on four different contextual signals that contributed to proposing a new scenario of meaning. First, new technology in the industry sport, namely, carving skis, has encouraged higher speed for both ski amateurs and professionals. This, in turn, has resulted in a greater number of severe accidents. Secondly, new materials used in the equipment of professional skiers has resulted in more advanced and dangerous tricks, again signaling an increased rate of injuries. A third signal is connected to the fact that the general lifestyle is constantly changing. Skiers at resorts tend to ski at higher age and therefore become more exposed to accidents. Fourth, the interest in fashion connected to sport has risen significantly. The founder of POC worked together with sports medicine experts (back specialists) and brain scientists, neurologists, material specialists, experts in social media and graphic design, industrial designers, professional athletes and top gravity athletes to elaborate on these signals and create a new scenario. The result is that POC now have changed what personal protection is all about - from being “a boring must” to a fashionable and attractive feature. POC uses a broad network of interpreters to create this atmosphere.
of protection as “cool stuff”. They are not relying on users only (who, it is said, were actually avoiding the use of helmets).

From this example, we see that the radical innovation of meaning seems require the

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**Got kids?**

The POCito helmets and body armor are made of the same high quality materials and provide the same outstanding protection as the adult versions. The products are developed specifically for children’s anatomy and behavior, and the bright colors and reflectors make them more visible to avoid the most frequent accidents.

Superior comfort and protection for kids. Nothing less would be good enough.

POC is a Swedish company with a strong mission to do the best we can to possibly save lives and to reduce the consequences of accidents for gravity sports athletes.

*Used and preferred by 21,000 kids around the world, so far.*

Some of the products of POC.
involvement of a broader range of interpreters to develop new understanding. This then leads to the generation of new interpretations and further, to proposals of new visions. This proposed characteristic of meaning as being co-generated can be linked to the emerging literature on market creation, but also connects to the field of service innovation. It is related to the proposal that new markets (and new innovations) come from a co-construction of understanding (Vargo and Lusch 2004; Santos and Eisenhardt 2009).

3.7 Conclusion - opening a door to a new path

This chapter began with a deep dive into many fields of research, more or less related to either innovation or meaning creation. Some of these fields (such as the cultural and symbolic perspectives, the discussion of product language and semiotics and product meaning, the brand management and marketing perspectives and the service innovation discourse) seem related more closely to the concept of innovation of meaning (the way it is defined in this research). Other fields seem further from the focus of this study. When moving from theories to investigating the empirical material instead, we learned, (through the lens of hermeneutics), that this type of innovation of meaning can be described according to four different characteristics.

First, we learned that an innovation of meaning is context dependent. The central concept of hermeneutics, as a lingering between the parts and the whole, helped us to clarify this characteristic. An innovation of meaning must be understood both as part of something larger but also with attention to the details.

Second, this notion of a constant lingering helped to explain that innovation of meaning cannot be optimized. Instead, it includes an ongoing process of interpretation and reinterpretation of both the details and the context.

Third, the focus on introducing new perspectives, even, perhaps, “strange” ideas, showed the way to consider an innovation of meaning as something outlandish, something completely different from the “normal”.

Lastly, by considering the awareness of the interpreter and the value in merging your own interpretation with others, the fourth characteristic emerged, as an innovation of meaning as being co-generated. It arises both from companies, users and many other actors in a network, immersed in a socio-technical-cultural context.

These four characteristics have been exemplified through the cases of the jeans-patterned diapers by Huggies (Kimberly Clark), the search for the new role of accountants by Deloitte & Touch, the RoboCoaster by KUKA, the Robot Studio by ABB Robotics and the helmets of the sports gear company POC. These cases indicated that innovation of meaning can be found anywhere, in any industry, even if they might be neither frequent (see the map of the meaning changes in robotics) nor easily understood.
3.8 Reflection
In this chapter, I have tried to give a picture of what an innovation of meaning can be and its characteristics. The findings here serve as a possible answer to research question 1, “What characterizes the nature of innovation of meaning?”

The study has been performed with inspiration from hermeneutics, as a way to interpret and understand the material (see also Chapter 5 for a more elaborate description of the link to hermeneutics). Certainly, the analyses could have been performed in many other ways. If a more critical perspective had been adopted, the material could have been used to find “gaps”, or missing parts in the stories. The interviewees have told the stories of their projects, as they remember them. Indeed, the material builds on their interpretations - from the past, in relation to the practices and mindsets of today. It is possible that important facts may have been omitted, for different reasons. A failing memory might be one, reluctance to disclose sensitive information might be another. On top of these interpretations comes my own interpretation that, again, “filters” the material. We need to be aware that these double interpretations steer the findings in certain directions. A second, more critical study of the material would be of value but this remains to be performed in the future.

Another approach to the research performed could have been to act as a more participative researcher. To penetrate further into the business cultures of the companies. This would possibly have revealed sensitive hidden information, and helped to identify “unspoken” things, maybe even taboos. One interesting approach could have been to look for patterns in the use of power by different persons or company institutions, outside the “official agenda”. If this alternative were to give valuable information about the practices of today, it would be less likely to improve the picture of a case in the past. This approach is also worth considering for future study.

Nevertheless, the proposal to categorize the nature of an innovation of meaning as four characteristics, serves as a possible answer to research question 1. The proposal (illustrated through the circular model at the end of this Chapter 3) also functioned as a fundament in the search for answers to the two remaining research questions, regarding the nature of the practices of an innovation of meaning (research question 3, see Chapter 5) and the relevance of this type of innovation (research question 2, see Chapter 4). In the next chapter, this question about value and relevance will be further examined.
4 The relevance of innovations driven by meaning

“This is peanuts”, says the man in his early 40s and points to a picture of the RoboCoaster. “The hero in our company is the one who sells 300 robots to BMW”. I have heard the story before. People, even experts, judge innovations driven by meaning as strange and non-profitable. And indeed, such innovations are often viewed as being bizarre – even outlandish. I have frequently encountered this type of skepticism during my research work. One day, for example, I met an important manager at a big Swedish hi-tech operation, who had been a researcher himself. He asked me about my research interest. I explained my search for a deeper understanding of innovation driven by meaning (not purely by technology!) and the idea that innovations can be developed from a meaning-driven perspective in which the user experience is at focus. “Hmm…”, he said, a bit unconvinced. “Radical innovations. And driven by meaning? This is not for us. We do not try to be the leader of development in our industry. We do not aim at being number one in the market, rather number two or three”. With this somewhat skeptical man and many other curious questions from interested executives and scholars in mind, I will in this chapter, attempt to shed some light on the potential value of an innovation of meaning.

4.1 Outline

In the previous chapter, four characteristics of the concept of innovation of meaning were presented. To obtain an understanding of “meaning” we investigated the literature relating to subjects ranging from philosophy and psychology to entrepreneurship and marketing. We encountered some ideas more or less closely associated with meaning and innovation, but these did not indicate how innovations driven by meaning could be of value to a company in real “business terms”. They did not relate to performance measured in terms of monetary values (for example as in sales or market shares).

When faced with an innovation of meaning, companies, must ask themselves the questions “Is this type of innovation really valuable?” “Does it make sense?” “Can we make any profit on this?” The second part of my research was to explore this field and determine the relevance to technology-intensive companies of the innovation of meaning. The study moved its focus from the nature of an innovation of meaning to its relevance as a business value.

In this chapter, we will begin by examining theories of innovation related in particular, to economic value. I will explain the method of performing this part of the research before turning to the empirical material that consists of the studies of two robotic cases, the RoboCoaster and the Da Vinci system. The focus on these two cases is the result of a process of selecting and investigating cases (described in Chapter 2). In short, the case of the RoboCoaster was discovered in the first workshop with ABB and the case
of the Da Vinci system through the discussion at a visit at KUKA. The study of these
has resulted in two stories that will be told in section 4.4. This chapter makes use of
what we have learned about innovation of meaning and value. The green circle below
shows visually the structure of the chapter.

This chapter contains the core and a concentrated version of the findings, while Paper
3 (Verganti and Öberg, forthcoming) and, in particular, Paper 2 (Öberg and Verganti
2012) provide further reading.

### 4.2 What theory says about innovation and value creation

Much effort has been applied within innovation research in demonstrating the value
of innovation for business competition. Incremental innovation, as in continuous im-
provements, is discussed in both innovation literature (Tidd and Bessant 2009) and
engineering literature (Pahl and Beitz 1988; Clark and Fujimoto 1991). Innovation, in
its more radical forms, is a subject that is also frequently discussed, whether called dis-
ruptive innovation (Christensen 1997), or discontinuous innovation (Utterback 1994).
(See Garcia and Calantone 2002 for a discussion of the many different typologies of
radical innovation). Despite the extent of this research, most studies relate to innova-
tion through technology. Of course, other less technology-intense perspectives exist, a
minority of researchers stressing for example, the value of social innovation or user in-
novation (von Hippel 2005). From a system-theory perspective, one could also say that
there are different levels of value depending on where and who you are in the system.

Many studies show the connection between technology and productivity – between
improvements in product functions/systems and the growth of businesses. These in-
clude studies demonstrating the use of *technologies and its differentiating power* (Abernathy and Utterback 1978; Porter 1985; Utterback 1994; Tushman and Anderson 1986; Christensen 1997) or research stressing the link between innovation and the growth and wealth of economies (Kendrick 1961; Rogers 1962; Mansfield 1968; Terleckyj 1974). These are valuable in showing the important role of technology, and indeed, they are helpful as arguments when considering large investments in new or refined technology but, they build on the notion that technology (delivering increased performance) automatically gives increased value to the user. Value, in this sense, stems from a concrete function and utility for the user. Indeed, the value of a function is a very central and important point, but, value can also be the product of other factors. Value can come from emotional and symbolic meanings, less rational than visible and utility-close functions.

The proposal that increased performance can give a higher value might work well when it comes to innovation of technologies. But, for innovation of meanings, this assumption does not work smoothly. A change in meaning is not necessarily associated with an improvement in performance. Rather, it stems from a change of purpose. It relates to a redefinition of the performance dimensions, not an improvement of the existing. The theories mentioned, therefore, do not capture the value of innovation of meanings. They focus on a better performance, not a different one.

Another stream of research within innovation management stresses the use of *networks*. Value is created by understanding the context in which companies compete and solve customers problems (Christensen and Rosenbloom 1995) as well as identifying gaps, or “structural holes” in this network (Ahuja 2000). Nevertheless, these studies focus on the capabilities of a company, not the innovation per se. They discuss value, indeed, but in a given context in which meanings remain the same.

Studies that analyze the value of *design* seem to be more closely related to innovation of meanings. Some scholars consider design as the activity of “making sense of things” (Krippendorff 1989), in other words, giving something a meaning. The design process could therefore, potentially, be a process of finding and re-defining meanings through the designing of products and services. Unfortunately, notwithstanding a growing stream of literature on assessing the value of design, the strategic relevance of design and its impact on industry dynamics are still mainly anecdotal (Roy 1994; Truemman and Jobber 1998; Wallace 2001; Rich 2004; Bedford et al. 2006).

Design studies, approaching quantitative analyses, return to the “classic” way of measuring by showing performance improvements (Swan et al. 2005; Chiva and Alegre 2009). Another stream of design studies underlines the aesthetic dimension of design, (Gemser and Leenders 2001; Creusen 2004; Hertenstein et al. 2005; Rindova and Petkova 2007; Talke et al. 2009). This stream stresses “form and style” which is only one of many possible dimensions of innovation of meanings (for a comprehensive review of issues related to research in design, see (Ravasi and Stigliani 2012), and for a specific review and research agenda on measuring the value of design see (Candi and Gemser...
Design studies touch upon the intrinsic value of meaning, but without strong linkages to innovation and strategy (see table in Chapter 3 for an overview of how different theories relate to, but still mismatch this type of innovation). Thus, many studies discuss the value of innovation from different perspectives - and a few also relate to the value of meaning, as in the design research. But, as design studies only partly cover the interest of this research on innovation of meaning, the conclusion must be that there is no well-working framework that can help us understand the value of the phenomenon. To understand if and how an innovation of meaning is relevant to competition, we need a thinking frame in which we can navigate our observations. A structure in which to place the observed values and see in what way they might be connected to this type of innovation is needed. An example of a frame that relates to innovation of meaning and value will be presented in the following sections.

4.3 The method - investigating the relevance

Curious about the possibility of “measuring” an innovation of meaning, I returned to the cases studied, now seen through a different prism. The empirical material used in this part of the research was that used in Chapter 3, when we explored the nature of an innovation of meaning. But now the focus was on trying to understand the value of this type of innovation, its relevance.

A new research protocol was set up to determine what kind of information was already captured and what was missing when adding a study of the value to the ongoing research. (See Appendix F for the research protocol). This made it easier to get a clear picture of the cases and to compare them.

The new protocol was designed with the help of the map, constructed previously (see Chapter 2), and was based on the dimensions of meaning and technology on the one hand, and value, on the other. The first dimension focused on the innovation of meaning per se, (from one meaning – to a new one) and also on the technological and social changes associated with it (as relating to society and the business context). The second dimension came to be connected to the new curiosity on relevance. It therefore focused on value as measured by competitive performance, (successfactors such as sales, margins, competitive advantages and market share). The protocol was used to review parts of the material, restructuring and then complementing it with additional interviews/check-ups with the companies, meetings with independent experts and searches for secondary sources.

One important decision was taken at this point. Only the case of the RoboCoaster by KUKA, was to be further investigated. The RobotStudio by ABB was indeed, an interesting case but it seemed less successful than the RoboCoaster. This was due to the fact that the RobotStudio had had met with challenges from within the company and was, as yet, not widely used by clients (it is still an innovation of meaning and delivers good
value to clients but not on a sufficiently large scale). Thirdly, the appearance of a new case within robotics, not ABB related, pointed to a much stronger meaning change, moving the capability of a robotic arm into totally new areas. This was the Da Vinci system (developed in cooperation between KUKA and the company Intuitive Surgical), used within human surgery and first discussed during the company visit to KUKA in Germany in November 2011. This third case looked more promising than the ABB case and it was decided to continue its investigation if possible. The new case was introduced into the research project with the work of three students at Mälardalen University in their Master theses in innovation management, using a new research protocol set up. The investigation of the Da Vinci system in late 2011 and the beginning of 2012 contributed, not only insights into further additional innovations of meaning within robotics, but also helped broaden the overall knowledge of the robotics industry as such. (The ABB Robotics RobotStudio case study was not concluded here. It took new turns, moving from an investigation of the past to a focus on current practices and the implications for future strategies, further discussed in Chapter 5.)

The empirical material, collected by the use of the protocol and connected to the RoboCoaster and the new case (The Da Vinci system) was now organized in the two main dimensions, described above. It was separately analyzed by researchers and students. The students delivered their analyses in the form of a Master thesis, while the researchers constructed a sub-division of the two main dimensions. The two analyses were then compared and discussed in iterations and finally merged into one overall structure, consisting of three categories:

The meaning change
The value
Social change and Technology

These subcategories emerged as a result of analyzing the material and sorting it in different patterns. Not all the material could be related to value “in business terms”, but all provided important new insights into the dynamics surrounding an innovations of meaning. We will now study the empirical material, following the structure of the four categories. From this description we will then move to the analyses, and then the findings, to obtain indications leading to an answer to research question 2: Is the radical innovation of meaning relevant for technology-intense companies? If yes, in what sense? If no, in what sense?

4.4 Sharing stories from the empirical material

4.4.1 The RoboCoaster
To be correct, the story of the RoboCoaster began from the perspective of an employee in the German factory of KUKA, Gino De-Gol. After 30 years within the same industry, he wanted to do something else. He found himself in a very stressful career
path and he made a conscious decision to change his life and approach to business. At this point, he merged his professional technological knowledge with a personal passion. Since childhood, he had been a theme park enthusiast. He had always enjoyed looking at the structures of rollercoasters and other attractions. And, he had come to understand that the new trend of amusement rides pointed toward interaction with instead of surrender to the power of “G”s (force of gravity). In parallel, he had also found that the existing technology of attractions such as rollercoasters seemed passé. Taken together, his interest in amusement rides and knowledge of robotics formed an idea of an interactive passenger-carrying robot that could move humans around in an exciting, entertaining and unpredictable way. With this idea in mind, he carefully studied both the market for robots and the amusement park industry. But, nowhere was this type of solution to be found. Robots were simply not used on the field of amusement parks. Filled with his ambition to create a new roller coaster, a robo-coaster, he left KUKA in the late 90’s and started his own business. RoboCoaster Ltd. was a dream coming true, but it was not a one-man work. It came to be a close development project with his former employer, KUKA.

The meaning change
The RoboCoaster is, from a technological point of view, nothing remarkably new. It is as described already, an adaptation of a standard robot, the KUKA KR 500, integrated with a software application and with a two-person seat mounted at the end of the robot arm. Normally, this robot can be programmed for different car manufacturing operations, but in this case, the passengers themselves can program their own ride in three dimensions before entering. Every ride becomes unique, be it easy and gentle or fast and violent, depending on personal taste, courage (and degree of daring!) Connected to the robot is a whole range of add-ons, such as a cover over the seat, laser guns, screens, sound, LED-technologies etc. (for a more detailed description see Öberg and Verganti 2011).

From the traditional role of robots as “substituting for humans in the performance of heavy labor” (such as in the repetitive lifting and moving of components in car assembly) the RoboCoaster instead, uses its power to move humans around in space in amusement parks. From a company perspective, the old meaning of a robot as an efficient, reliable and predictable industrial tool has been supplemented with a new meaning as a provider of unpredictable excitement and amusement. It does not follow the conventional conception of what a robot should be used for but instead, offers something completely different. It involves interaction with humans instead of substituting for them and it plays on emotions rather than on being a tireless, efficient slave. From a user perspective, the meaning change introduces another difference. The user, in the amusement park, experiences a change in the attraction per se: from a predictable and standardized ride (a classic roller-coaster) – to an unpredictable and customized ride (a robo-coaster). The meaning change is two-fold. It must be understood from both a company point of view and from the user point of view.
The value

The RoboCoaster company has been in business since its launch in 2003 with increasing sales and significant margins. But, to competitors, the concept did not follow the dominant argumentation of “high speed”, “capacity”, “stamina”, “reliability”, in purely industrial applications, and as a consequence, no other company recognized the value of the unorthodox application of this type of product. RoboCoaster is therefore still without competition. The meaning change, if only looked upon from a robotics company perspective, might look strange, even ridiculous. Nevertheless, the concept of delivering “emotions” has proved valuable in several ways. From a user perspective (the users in the new business, being visitors to amusement parks), the meaning change made sense. The RoboCoaster was different, strange, exciting, even ridiculous, and has been a success as a result.

Growing sales

The RoboCoaster has been showing growing sales since its launch in 2002/2003 when the first ten RoboCoasters were delivered to LEGOLAND, Billund in Denmark. In total, over two hundred systems will be sold by the end of Q4, 2012.

Rendering high (-er) value

Although sales are rapidly growing, the potential size of the market is still small compared with that for traditional robots. KUKA, for example, sells about 10 000 -12 000 robots a year, while only about 50 RoboCoaster systems are sold. The margin in the case of a general manufacturing robot is very low though. Sometimes, it can even be negative, as robotic companies sell robots at a loss to penetrate a market. The RoboCoaster instead, derives a significant margin. This is due to the embedded safety systems and know-how that makes it possible to deliver customized and high-tech solutions without involving, and paying for the services of, a system.
integrator (something that is often the case when selling general manufacturing robots, and as a consequence increase costs and lower margins). One RoboCoaster represents approximately ten times the margin of one general manufacturing robot and therefore generates a much higher value per unit (when discussing value in this study, I refer to gross profit unit margin, that is before for example financial costs and taxes).

The growth margin (as in the additional sales of end-of-arm devices such as grippers, press tools or painting or welding guns) is close to zero (about 2.3%) for a “normal” robot while the potential sales of additional system elements are significant for a RoboCoaster (there are many applications and add-ons possible, such as media systems, complex transporters, customized safety elements and software systems).

Mastering additional sales Thirdly, as distinct from many other robot manufacturers, the company (RoboCoaster Ltd) is fully in charge of a range of applications for their product. They manage to deliver adjusted solutions that are well integrated with the external systems of the clients. In the majority of cases of traditional robotics, these services are provided by so called “system integrators”, companies external to the manufacturer. But, in the RoboCoaster case, the delivery of key embedded technologies and customized solutions are all under control of the mother company and therefore generate additional sales.

Rendering value to new fields In addition, forecasts in the amusement park business indicate that investments related to the RoboCoaster (such as 3D solutions and software/hardware combined systems) will increase significantly, from 8 to 15 %, over the coming years (TEA/AECOM 2011) while the investments in the constructions of conventional rollercoasters) will decrease. The appetite of amusement park visitors seems to be toward so-called “Media Based Solutions” (and water based rides!) rather than toward classic rollercoasters, for which interest is declining.

With this information in hand, the RoboCoaster cannot be dismissed as trivial product. It has a proven value from the perspective of the robotic industry (as in sales, margin and additional sales) and contributes to the attractions (and sales) of the amusement park industry.

Social change and technology
The birth of the RoboCoaster was not the result of a single moment of inspiration nor of intense brainstorming. It was not an answer to an explicit need or to a stated problem. Instead, it emerged through several streams of investigation. First, being a roller-coaster fan, the KUKA employee, Gino De-Gol followed the trends of amusement parks and could see that the demand for interactive attractions was increasing. Simultaneously, he found that the technology of the attractions had not moved with the times. In addition, the “bigger, faster, higher” mentality (that had been dominant among amusement parks in search of new attractions) seemed to be losing ground in favor of more human-centered attractions. Investments in attractions competing with
the amount of “Gs” (such as “big, scary rollercoasters that only the “Die-hard” would dare”) were declining and no longer at a peak. De-Gol was open to and embraced several social dimensions external to his background in robotics. Technology-wise, nothing new to be investigated was visible but concealed in the existing technology was the capability to create pleasurable excitement rather than industrial efficiency.

What happened, is that while technology *within* the industry remained static, social and cultural changes emerged, as they always do. In this case, they were connected to amusement rides and to advances in technologies in other fields such as media/software and screens. De-Gol recognized these changes, and interpreted them within his field of expertise. Moreover, he managed to convince his former colleagues of the importance of these social changes – to the extent that they were prepared to invest in the development of the coming RoboCoaster project. But, how was KUKA able to recognize the potential value of swirling humans around in a heavy-duty robot? While competitors did not?

At KUKA in Augsburg, Germany, much happened at this time. Instead of the dominant perception in the industry that “people and robots should be kept safely apart” a new more human-oriented strategy was under development. Instead of separating humans and robots, the new approach at KUKA’s headquarters was “the more integrated the interaction, the better it is”. Through the development of embedded software systems, KUKA was trying to create safe robotics while retaining optimal efficiency. In addition, KUKA had a very progressive management board after an influx of young people with knowledge of robotics - not necessarily from within the industry itself. This management was very “German” (quote from the founder of the RoboCoaster, himself British-Italian!), they were “meticulous about detail and obsessive about safety”. Aware of this, De-Gol presented a comprehensive and rich proposal to the management board. The business case of the RoboCoaster included all possible dimensions. It was strategically, technically and commercially “correct”. It presented a viable strategy with upcoming costs, market penetration, risks and certification issues fully detailed. And of course, no one had ever heard of a seat connected to the robot! The proposed “RoboCoaster” was at first considered a joke. (One of the major competitors preferred not to develop a similar robot, arguing that such a product was too dangerous. Potentially, if something went wrong, such a robot could kill people. This competitor chose to avoid the risk to be associated with severe accidents. They made a clear decision not to invest in this direction...) But, as KUKA was already “half-across” the bridge with their work on safe robotics connected to humans and software, and as the business case was so rich in its coverage, the management board was persuaded that the RoboCoaster would be accepted on the market. And so, the development of the RoboCoaster could begin.

With a mindset that was already “open” to connections between human and robots (a “no-no” to many competitors) KUKA not only had the capability to recognize the potential of the RoboCoaster project but also used this faculty in approaching coming projects. Today, the most important value of the RoboCoaster, is not in the robot
itself, but in the impact it has had on the strategy of KUKA as a company open to new thinking and to other industries. Starting from serving the amusement park business ten years ago, KUKA is now working intensively in, for example, the medical domain. We will now take a look at one of these cases, the Da Vinci, a robot intended for use in surgery of the human body.

4.4.2 The Da Vinci system
In the early 2000s, KUKA focused on the human-machine relation not by improving the technology of movement (a very expensive exercise) but by further developing software technologies. The vision was to make robots “safe”, not only interesting existing customers, but also appealing to manufacturers of domestic applications and to hospital managements. This human-close vision gave a new language to the robots. If their heavy construction gave earlier robots accuracy and stiffness, the new and smaller robots came to express a lighter, more flexible and less accurate, more intuitive feeling. They came to be used for completely different production systems, for example, for the delicate mounting of the gears in the new generation of Mercedes.

The RoboCoaster had managed to fulfill very demanding safety certifications, and these now led KUKA and their new human-close strategy, towards new applications. One is the Da Vinci system, developed in cooperation with the company Intuitive Surgical. This system, used for endoscopic surgery within the human body, consists of a combination of a robot, several cameras, a remote connection and, of course, a surgeon. By means of a high-speed connection, the knowledge and expertise of a surgeon can now be mobilized through the “hands” of a robot. The surgeon, actually, does not need to be physically present but can operate from a distant location. In the majority of cases, the surgeon is in the same building but operations have been performed by a surgeon as far as 620 kilometers from the patient).

This remote surgery procedure might appear to be dangerous at a first glance but it has several advantages. First, the expert specialist surgeon can perform more operations as she or he can work at a distance, without being forced to travel to the patient (or vice versa). Secondly, the career of the surgeon is extended since the robotic systems helps to counter any shaky movements (tremor) of the hands of the surgeon, a problem that can develop with aging surgeons. Third, on the “orders” of the surgeon (by voice control), the robotic system performs with the same precision, time and time again, thereby increasing patient safety. In other words, the risk of mistakes due to the “human factor” is lowered.

The meaning change
When KUKA began delivering the new, more sensitive robots (mainly for the automotive industry), their robots gained a new, additional competitive position: from accuracy (within traditional application fields such as welding), to possibility (handling different systems connected to client) to sensitivity (precise and detailed assembly). A new
emerging meaning of sensitive, almost intuitive, robots was under development. This meaning grew even more profound when the sensory skills of the robot evolved in the context of surgery. The meaning, from a company perspective, changed from sensing “hardware” (as in the gearbox of a car) to sensing the flesh and tissue of a human body. Suddenly, the meaning of a robot changed radically, from the extreme notion of replacing humans to the more humane approach of interacting with them, even to the saving of human life. But, from a user point of view, such as that of the patient at a hospital, the meaning change tells something else, from the surgeon being considered as the most reliable and first choice, to the robot as being the most safe and efficient option.

By recognizing the context and the meaning change for the user, not only the manufacturer, and adopting new and/or different technologies, KUKA innovated the meaning of their technology, in this case by introducing the idea of remote surgery.

The value
The Da Vinci system could be considered by a patient as a very dangerous and unpleasant idea. Only the idea of surgery, as such, creates stress in many humans. Knowing that the surgeon will not operate herself/himself, in person, perhaps not even being in the room, understandably, raises the level of anxiety. From the surgeon’s point of view, the change in the meaning is significant. The surgeon retains total control over the procedure while the robot performs the movements commanded.

Despite placing surgeons in a new, perhaps weaker position, implying that a robot can perform surgical operations more effectively than a human, the Da Vinci system has been widely accepted. It is up and running since it was approved by FDA (The Food and Drug Administration) in 2000. It is used for cardiothoracic surgery, gynecology, urology, pediatric and general surgery - by hundreds of surgeons all over the world. It also serves the purpose of training future surgeons. In one domain, prostatectomy, the Da Vinci system has been of particular value as the waiting time for surgery is significant. Within this field the number of surgeries has increased from less than 10,000 in 2003 to more than 70,000 in 2008, with the help of the robot assisted system.

The Da Vinci system has performed an increasing share of prostatectomy surgeries in comparison with other methods. From a non-existent position in the early 2000s, the system has dominated the “market” from 2004 and on. From a business perspective, the idea of bringing robot technology in contact with and even, within, the human body seems to have resulted in several advantages.

Social change and technology
The interest of KUKA in medical systems did not develop by chance. Instead, it was compatible with the evolution of surgical technologies. The company entered the field as a new player in cooperation with an established company, Intuitive Surgical, with the right know-how. In contributing to the work of surgeons, KUKA itself, had to learn the basic conditions and reasoning behind surgery. They had to consider both technological
Surgeries performed with the Da Vinci system (Source Intuitive Surgical)

Treatment Evolution, Da Vinci system
At Metropolitan Hospital, California

Different types of surgeries within Prostatectomy (Source Intuitive Surgical)
changes and social changes associated with modern surgery. One basic understanding was of the necessity of focusing on improving the cameras used for endoscopy. The great advantage with this procedure is that the surgeon can operate with long, thin instruments and a small camera – avoiding major incisions and thereby minimizing patient stress. The disadvantage, though, is that a surgeon needs an assistant to control the camera presenting a picture on an external screen. The surgeon thereby loses control over the camera and also over her or his hands when examining the screen. Understanding these basic conditions, KUKA could begin comparing their robot technology with the existing surgical equipment systems. Taken these technological conditions into account, they also took time to investigate the social dimensions of surgery. These included the fact that more and more people were in need of surgery, that surgeons were under constant time-pressure and that the career of some valuable surgeons was shortened by hand tremor with increasing age. In addition, KUKA also had to address the attitude of patients towards non-manual systems in contact with humans. Would a robot-based system really be accepted within surgery?

KUKA learned that solutions already existed for steering and controlling the camera with high precision and endurance by the surgeon using pedals or voice control. Equipment to control the incisions was also available but there remained room for improvements. The certified movements of a robot could, indeed, improve surgery by making available even higher precision and a more intuitive feeling than the existing systems. In addition, the technology also enabled remote control of the robot that permitted surgical operations with a distance between surgeon and patient. With these possibilities available, and despite internal doubts and struggles, KUKA was able to develop a robot of considerable value to the science of surgery. They did it by carefully relating to and leveraging both technological and social changes.

4.5 Reviewing the stories – an analyses
The following section is the result of a search for factors relating innovation of meaning to business values as sales and market shares. Four insights will be presented. I hope they help shed some light on the economic value to businesses of innovation of meaning and that they might constitute a first preliminary thinking frame.

Innovation of meanings creates value
First, the cases of both the RoboCoaster and the Da Vinci system show that innovation of meaning can be of significant value to businesses. In the case of the RoboCoaster, the change in meaning has generated a totally new business. The economic value is not only in terms of sales, still relatively small, to established markets, although with a steep and steady growth), but also and especially, in terms of margins.

The value created also include competitive assets, as this innovation enabled KUKA to appear as a forerunner in the applications of safe robotics outside traditional markets. This brand identity made KUKA interesting to clients looking for partners open to
unconventional pioneering applications outside the usual (indeed KUKA robots are increasingly used in various fields, from trash sorting for recycling purposes to handling printed circuit boards).

Innovation of meanings therefore has a significant effect on the ability of firms to remain continuously open for new opportunities, outside existing trajectories. The advantages are even more evident in the case of the Da Vinci system, where the new application has been extremely successful and is almost totally replacing previous procedures in certain fields of surgery.

It is interesting that innovation of meaning seems to redefine the dynamics of competition even in business-to-business relations involving, for example, industrial or surgical robots, in which the clients are institutions, not end consumers. Not all new proposals of meanings result in success. There are also failures in understanding meanings, for example, early attempts to introduce robots into household applications, have not as yet been successful.

**There is always a potential for (at least one) innovation of meaning**

The previous section indicated clearly that innovation of meaning can create economic value. But, when this type of innovation takes place, is a question that requires a deeper reflection. Why did the two innovations discussed occur? Is there any contextual factor that explains their success?

The answer is not immediate. By looking at those two applications, and by complementing this with a broader view of the evolution of industrial robotics in the last 30 years, we can observe that (1) there have been several changes in meanings in the industry. These changes are limited in number (innovation of meaning does not happen frequently). (2) there has (in this study) been no clear contextual factor related to those changes.

Most of these innovations do not come from an explicit market need, but are the result of a vision put forward by a company. There was no explicit external request for a RoboCoaster, and the meaning that robots can be better than a surgeon was an outranding statement in healthcare.

With this observation in mind, my conclusion would be that there is always a potential for an innovation of meaning, and therefore, always a potential value to be captured. Even without a specific condition at stake. It seems that there are no special circumstances that prevent a particular innovation of meaning to be more or less fruitful.

Instead, the potential is always there. Most innovation studies disagree with this statement, especially those related to technological innovation. Because when considering technology, investments are related to a maximum, where the optimal and most “hi-tech” solutions can be reached. And this approach, suggesting that things can be opti-
mized, do not work well with the exploration of meanings (not-optimized as they are!) To conclude, there is a profound difference between investments related to technologies and investments related to meanings. It can be illustrated by the use of two metaphors: “climbing hills” and “searching for islands”.

“Climbing hills” is a metaphor for technological innovation. It resembles technological innovation in the way that it strives “upwards”, as in improving performance by finding a better solution to a specific problem. In other words, this type of innovation can be described as a process of climbing a hill in which the height of the hill represents (a better) performance. In this process, the solver knows when a solution is better: it happens when the solution allows moving further up the hill.

But, “moving upwards” is associated with a process of saturation: at a given point you reach the top of the hill. This is not a new phenomenon, it has been described before, with other metaphors or illustrations. One of them is the S-curve which shows the saturated (s-shaped) relationship between investments in technological research and improved performance. At a given point, optimization reaches a limit (a local maximum). To achieve a better solution, a company needs to begin again on a new s-curve, moving slowly upwards until a new local maximum is reached. In the metaphor of hills this would mean to jump to another hill.
Another way of relating to this “moving upwards for better performance” phenomenon is through the Kano-model (Kano et al. 1984). The relationship between performance and value is pictured here. When in the early days of a product, a new performance usually acts as a major “delightful” differentiator. A small improvement results in a significant increase of value. Later however, the relationship between performance and value approaches a linear line and eventually flattens out. This is because the feature becomes a “must-have”, not something “extra”. Improvements in performance are no longer associated with increase in value.

In both these approaches, optimizing performance is by finding better solutions – in the metaphor of the hill, by moving further up. Unfortunately, this mindset is unsatisfactory because there may always be a better solution within reach. It is difficult to determine if a company has reached the top of the hill (technology) or if there is another higher hill further away.

In contrast, the metaphor of the hill cannot be applied to meanings. A meaning is not to be innovated from “bad” to “better”. Who can tell and judge whether a meaning is better? This means, that meanings cannot be put into a scale (see also the paragraph on “The new dimension” in Chapter 3). The innovation process of meanings does not move uphill in a process of optimization. Rather, it moves from one purpose, to another. From one value, or structure, to another. It is not a move from a low position on a hill to a higher. Instead, a more suitable way to describe this move of meaning could be to compare it with a move from one “island” to another.

Furthermore, meanings are not subjected to saturation. Even if a person is satisfied with what she/he has, a new meaning may always emerge and be proposed. This implies that there is always the potential for a new meaning. In our analogy, there is always space for new islands, even if the one currently occupied feels comfortable.
This also means (!) that several successful meanings can coexist - without one necessarily becoming dominant (see for example research on the fashion industry – (Cappetta et al. 2006) - and in furniture (Dell’Era and Verganti 2011). In terms of the metaphor, there can be several islands, each with its own “inhabitants”, structure and ideas.

The challenge of innovation of meaning is value recognition

As said above, there are always one (or more) potential innovations of meaning. This does not imply, however, that any (or all) investments in innovation of meaning lead to an increase in value. The reason for this is that even if the meaning may be changed for “the better” the value of the proposed new meaning may be difficult to appreciate. With a change toward a new attribute (as in the Kano model) it is difficult to predict the relationship between that attribute and its value. In short, as distinct from technological innovation, where uncertainty concerns the existence of a solution – the innovation of meanings concerns the recognition of the its value.

Of course, there are criteria, which indicate whether or not a proposed new meaning could result in success in the market. The concept of affordance as a characteristic of a product (Gibson 1977; Gibson 1979), is especially useful in the field of design, and in particular, of human-centered design. Affordance refers to the relationship between the world and an actor and whether or not persons can “afford” an object. The affordance of a new product should be compatible with its socio-cultural environment for the product to be acceptable to people. This concept is not related to functions and usability but to the ability of a human to understand, or take in, the purpose of the product.

New products can challenge existing concepts of the affordance of products. For example, the lemon squeezer by Alessi (designed by Philippe Starck), is not easy to use, does not squeeze lemons properly and is inferior to lemon squeezer already on the market. Nevertheless, the product can be afforded by people as it satisfies their interest in affective objects. Affordance, therefore, is a subtler subject than the investigation of functions. It is about understanding life, and clearly, requires more complicated and sophisticated analyses than understanding user needs in a given market.

The value of innovation of meaning is not an exogenous variable

The fourth implication of innovation of meaning concerns the influence of the value function. In technological innovation, value and in particular the relationship between performance and value, is an exogenous variable, a factor in the market, which needs to be understood.

In an innovation of meaning context, the value function seems instead to be an endogenous variable: value, co-generated by people and firms that propose the innovation of meaning. Its value depends on how the firm designs the product, how it presents it, how it attracts the interest of people through its proposal. This indicates that a very committed innovator with a strong vision can, in innovation of meanings, be more successful
than a non-committed innovator whose meaning is potentially “better”. The story of the RoboCoaster shows how the new meaning of robots in entertainment was not an answer to an explicit market demand, but a vision of an entrepreneur whose commitment and passion eventually transformed the meaning people give to robots.

As a metaphor, the island is not out there to be discovered, but is created by the company that makes the proposal. By proposing an innovation of meaning, companies can create affordances and can even have an impact on the socio-cultural environment. Therefore, searching for innovation of meaning is not equivalent to searching for a new island with traditional binoculars, but envisioning a new island that is not yet there. One might use binoculars with an “augmented reality” function where the background is real, but the island is superimposed. To conclude, the power of the innovator and her/his vision is of great importance when in the process of innovating of meanings.

4.6 Conclusion - value is in the eye of the beholder

In this chapter, the value of an innovation of meaning has been explored. We started off by examining theories of innovation relating to value in different ways. Value can be related to performance and to functions (which is often the case in technology oriented innovation) but can also be connected to the use of networks and to the use of design. And indeed, design studies touch upon the intrinsic value of meaning, by stressing for example aesthetics or performance related dimensions - but without strong linkages to innovation and strategy.

By focusing on the dynamics of innovation in industrial robotics, through the study of two cases, we have come to see that an innovation of meaning can have a significant impact on an industry and - generate significant value for the innovator. The first case was that of the RoboCoaster, in which the operation was customized instead of being standardized and the other, that of the Da Vinci system, in which reliance was transferred from a surgeon to a robot. Through the study four insights have been developed. The first one, as explained above, is that this type of innovation does create business value.

The second insight tells us that the circumstances that make an innovation of meaning valuable are not always easily understood. Differing from technology-based innovation, it appears that because meanings are not subject to saturation or “limiting technology” in the search for solutions, there is always, potentially, another, even more profitable, innovation of meaning awaiting creation. A problem however, is that even if there are always potential new meanings, it is not easy to distinguish between promising and unpromising meanings.

The third insight describes how investments in innovations of meanings (and of technology) are hazardous ventures, not because of the risk of not finding a solution, but because of the risk of not recognizing the right direction to be taken.
Moreover, discussing the value of innovation of meaning is *not an exogenous activity*, that springs from the market. Instead it is co-generated by the people and the company that create the innovation. The value of an innovation of meaning, in other words, depends not only on the characteristics of the market or on the innovation itself, but on the vision of the proposer of the innovation, her/his commitment and the strategy used in proposing this new meaning.

These four insights tell us about the value and potential of innovation of meaning and that the challenge to companies is to recognize and propose promising innovations of meaning. The insights not only clarify this but lead to new questions. For example, what is it that makes an innovation of meaning promising? What factors should determine if it is to be proposed or not? How would it be received by other humans? What are the new meanings that people can really afford? And when are people really willing to adapt to new meanings? These questions open up the need for further research. For example into the relationship between affordances in the life of people. But, also on how companies can complement new meanings as well as the socio-cultural environment in which meanings are innovated.

### 4.7 Reflection

This chapter has focused on the value of an innovation of meaning. It is related to the second research question, asking *Is the radical innovation of meaning relevant for technology-intense companies? If “yes”, in what sense? If “no”, in what sense?* My interpretation is that innovations of meaning should be considered relevant. Companies may gain advantages through a more "meaning driven" approach.

This picture has been influenced by my research interest, my background, my ways of handling and analyzing empirical material. It is focused on the positive value of innovation of meaning. Here, it is important to observe that for every positive case, like the RoboCoaster, or the Da Vinci, there is at least one negative case (see for example the end of section 4.4.1 above, where the competitor did not invest in this meaning, but another meaning). In this chapter, and in earlier ones, I only mention the strategic moves of competitors. For sure, understanding why these competitors did not invest in a certain meaning (and why they failed in creating a value through innovations of meaning), would require a deeper investigation. This reflection relates to the part of research question number two, that asks “If no, in what sense? It is a question that deserves to be further explored.

The investigation of the relevance of an innovation of meaning, also touches upon intangible values. How can we “measure” or quantify feelings or the values of individuals in interaction with products? We know that innovations of meaning are associated with emotions, but they have not been studied scientifically (or measured as a “value”) in this part of the research. Moreover, the value of these innovations of meanings has not been analyzed in their widest context, namely, in relation to society. In this study
we have not considered this aspect of the benefits (or potential disadvantages) of the innovations.

Another limitation is that, when existing theories are concerned, there are not many well-working constructs on “innovation + meaning + value,” to apply. I have taken into consideration previous research connected to value and innovation, but also kept in mind the findings on the characteristics of an innovation of meaning. These early findings have been helpful when analyzing the empirical material presented in this chapter but remain an early proposal. It does not yet consist constitute a robust and well-tested construct.

Finally, the four insights discussed in this chapter are derived from a few case studies and the findings in this chapter should therefore not be generalized but be seen as a first step toward a more detailed discussion of the subject.
5 A thinking frame to explore the practices of innovation driven by meaning

Some people eat. Some people watch TV. Some people just rest. And some people stay close. Some engage in serious conversations. Others are playful. Some even show off or make ridiculous faces. Someone is exercising, to keep fit. Another one is caressing the feet of her newborn. Some look for their books, hide a secret or take their daily medicine. Some want to stay private and in silence. Others invite their best friend to a game of chess. I am not describing life at home. That might have been the case. But it is not. This is life in bed.

And the life in bed is white. Neat. Clean. Airy. Inviting. Still discrete. It is an “all-inclusive bed” that incorporates everything you might need. Be it that you are a senior book reader with poor vision or a former soccer player with some strange illness that prevents you from running through life at a fast pace. No matter if you are an extremely tired teenager or a busy parent with toddlers around your feet. The bed is there for you with all its possibilities, no matter who you are and what you might need. It’s there for sleeping – but also, for socializing. It’s there to bring joy and peace – and to be useful, the way you want it. Be it rational or not. An “I-phone bed”, if you want.

When I see the bed the first time I am amazed. Everything is there. The shape, a feeling of openness but still, it is a nest. The many variations. I smile, because I recognize the ideas, the feelings and the discussion about the meaning of the bed that took place not so long ago. It all began as the brainchild of the imaginative and energetic CEO of a Polish company who decided to create something new, an innovative piece of furniture, for the senior generation. With no preconceived ideas, I had unwittingly accepted an invitation to join the project team. The company, Vox, with a team of intrigued and enthusiastic employees had a no-limits agenda; they wanted to make life more enjoyable for the elderly. With the help of a wide spectrum of experts (ranging from physiotherapists to aroma therapists, from historians to sociologists, they slowly developed a new meaning of what it means to be a bed. After discussions with the specialists and debating the pros and cons of life at home and furniture, they developed their vision of what a bed could be. I still remember the early sketches of one of the girls, inspired by their ideas of what would be meaningful to people.

What I came to see, just weeks before this thesis was to be printed, is the idea of “the living bedroom” realized, in the form of the bed “4 You By Vox”, as it came out 18 months after the first visionary ideas.

5.1 Outline

So far, this work has aimed at explaining what the nature of an innovation of meaning can be. We have considered a range of theories from fields as different as philosophy and entrepreneurship, marketing and psychology. Further, we have explored the value
of this type of innovation, within both robotics and other industries. It seems that innovation of meaning is not a mere construction, but something that really takes place – and with an economic benefit. Now, we will try to learn something about how this type of innovation develops. The findings in this chapter are built on the four characteristics presented in chapter three, inspired by the philosophical field of hermeneutics as a thinking frame to understand more.

This final empirical section will begin by returning to existing theories about practicing execution of innovation, to recollect the “common” ways of approaching innovation practices. Some space will be dedicated to the methods used in combining hermeneutics and empirical material to arrive at the findings. Lastly we will examine the four proposed practices that might be useful to further elaborate this subject of innovation of meanings. Remember that the findings from this last chapter will be combined with the previous findings of Chapter 3 and 4 in an overall conclusion presented in Chapter 6.

5.2 Practicing innovation management - the struggles of existing theories and the need for a new perspective

5.2.1 Innovation as a process of problem solving
As discussed before, the most firmly established stream of studies on innovation is developed within the field of problem solving. This is a cognitive approach where innovation comes from a combination of an individual’s knowledge, skills, behaviors and processes. Quite often, it seems that this approach has kept a technical innovation in focus. One frequently used source is the work of Herbert Simon and his influential theory of decision-making (Simon 1982).

But, even if Simon’s framework encompasses both problem-setting and problem-solving activities, this stream of research has increasingly focused on the latter. Innovation
seems often to be considered as the search for a new, optimal solution to a given problem. This perspective has been inspiring decades of research in management of innovation (see for example the model of design hierarchy of Clark 1985 or the problem-solving cycles in Clark and Fujimoto 1991), in system engineering design by (Pahl and Beitz 1988) and in innovation strategy with reference, for example, to the resource-based view of corporations by (Wernerfelt 1984) and their dynamic capabilities (Teece, Pisano et al. 1997). In these approaches, innovating implies “finding” a solution, with the implicit assumption that the problem is well defined as it is, that, actually, an optimal solution to the problem does exist out there and that it is merely a matter of finding it, on the basis of existing information and capabilities. Indeed these theories have played a central role, especially in the 90's, in the extensive investigations of product development management (Krishnan and Ulrich 2001). The entire body of literature on concurrent engineering is based on this paradigm (Krishnan, Eppinger et al. 1997). To find, rapidly and effectively, optimal solutions to given technical problems was here the driving force behind innovation.

But, when we want to understand innovation of meaning, the problem-solving perspective begins to show weaknesses. Meanings, as described above, are context-dependent and culturally embedded. There is no optimal meaning, but different interpretations of what a product might mean (be it a robot, a helmet or similar). And, all these interpretations are reasonable, in their own socio-cultural context. With this in mind, an innovation of meaning cannot be described as a process of problem solving. There is no optimal solution waiting out there to be found.

5.2.2 Innovation as a process of ideation

More recently, innovation studies have taken a less analytical and more emotional stance, by focusing on how a creative person thinks. Levered on established theories on abductive reasoning (Pierce 1903) and observations of how professionals work (Schön 1983), a new stream of investigation has emerged, describing innovation as the result of a more intuitive process.

This stream of study has been developed especially by scholars working on design thinking (Boland and Collopy 2004; Brown 2008; Martin 2009) or integrative thinking (Martin 2007). And indeed, approaches such as abduction, pragmatism and intuition are more compatible with the intangible nature of meanings without capturing the intrinsic dynamics of innovation of meaning.

Firstly, because of the remaining tendency to focus on problem solving rather than problem setting (design thinking is often seen as a way to find a solution to a known problems rather than a way to redefine the problem itself).

Secondly, and as a consequence of the above, because it assumes ideas to be the core element in innovation. The major challenge seems to be to generate (several) ideas: once
“the” idea is found it can be easily recognized, valued, implemented. Indeed, most of these studies move in the realm of creativity. And indeed, the focus on ideas and creative thinking has permeated the innovation literature of the last decade (Eng, Ledwith et al. 2010). However, as the example of KUKA and the RoboCoaster clearly show, radical innovation of meaning is not simply an idea, but a change in the interpretative paradigm about what makes sense. This includes both the perspective of the innovating company (a change of strategic vision) and of the customer (a change of purpose). I believe, that without this change within a paradigm, an outlandish idea would never be recognized (definitely not the idea of a rollercoaster robot!), regardless of its potential value.

An additional limitation to these studies is that they focus on the creative process in the minds of people. They struggle to capture the dynamics of meanings that are interactively co-generated “out there” in society. New meanings do not arise from “thinking” creatively only, but also by “interacting” with others in society, not by linking with a group of experts or, as in the case of communities of practice (Wenger 1999), by building meaning within a certain group of people, with a certain frame of references. Instead, new meanings develop by opening up doors to new avenues and by listening to new and external interpreters, outside the typical networks. Meanings are co-generated – by interaction between different minds. They develop when companies interact with their surroundings in new and unexpected ways.

5.2.3 Proposing a new lens: hermeneutics

A process of interpreting and envisioning

So far, two approaches in innovation management have been described (innovation as problem solving and innovation as ideation). If the first approach relates to object, facts, (bounded) rationality and optimization, the second perspective represents much more of a subjective, intuitive and emotional stance. But, as discussed, they do not capture the practices of radical innovation of meaning in its entirety. There is, apparently, a need for a richer perspective to fully understand the dynamics of this type of innovation. One potential thinking frame is to relate to the field of hermeneutics, in particular by the two acts of interpreting and envisioning.

Interpreting, because we are dealing with meanings that, by definition, are the result of an interpretative process. The RoboCoaster is a new interpretation of the purpose of a robot. The focus is not on an improvement in its performance, but on the experience it provides as being new, different and with a changed meaning. Another example of meaning change is the RobotStudio, where the aim is not to achieve higher speed or precision but to develop knowledge. Further, the POC helmet exemplifies a change in meaning, from the previous perception of helmets as a “boring must” to the new interpretation of a helmet as a “must have”. In all cases, the solution is relatively secondary (it comes as a natural consequence), once a new interpretative paradigm is generated.
Envisioning, because we are focusing on the radical innovation of meanings. Interpretation does not follow a linear process in which opportunities and ideas are assessed in the light of the existing context. Instead, the exploration of radically new meanings implies the envisioning of a new scenario, which does not yet exist, as by the KUKA employee in conceiving the idea of a passenger-carrying robot. Envisioning, therefore, can be seen as a process of generative interpretation.

Other theories close to interpreting and envisioning
This is not the first attempt at investigating innovation as a process of interpreting and envisioning. One well-developed stream of studies comes from scholars in organization theories who have explored how organizations make sense of their environment (Weick 1995) or of their identity (Tripsas 2009). As an alternative to their work, this investigation brings a similar perspective to bear on another arena in which the object of interpretation is a user experience and the subject of interpretation goes beyond the organizational boundaries to embrace also users and other external stakeholders.

Other studies close to this perspective include those of scholars of Actor Network Theory - ANT (Latour 1987; Bijker and Law 1994; Ravasi and Stigliani; 2012) and that of Rogers on the diffusion of innovation (Rogers 1962). They provide useful references by introducing a sociological dimension, thereby approaching the proposal that innovations of meaning are co-generated. These studies embrace the fact that society is in a state of constant flux in which our interpretations are continuously reshaped. Meanings are not something “out there”, to be found in a given market (such as in the structural view of, for example, Porter 1980). Instead, meanings are constructed and re-constructed - in a constant process in society and within companies (see also Brown and Duguid 1991; Tsoukas 1996 for similar views). Innovation of meaning, as described in this research, could therefore be linked to a social-constructionist approach (Landry 1995, Burr 2010). Or even to a re-constructionist approach, in which the interaction of objects and subjects (“actants” in ANT) mutually shape, or “construct”, representations of reality in a continuous process.

These theories are very valuable, and they provide a solid background for our discussion. Still, the creation of meaning should not only be seen as a collective act. It is also a personal act. Contrary to the above theories, meaning is not only a contextual factor that explains how innovation (in technology or strategy) occurs, as a result of interactions in society and markets and within organizations. Meaning plays a much more crucial role – namely as the driver of innovation. Where innovation of meaning is concerned, meaning, instead of being an influencing factor, becomes the key objective, the target at which a company aims. It is generated from a personal interpretation, an individual envisioning process. It is not only a contextual variable to be interpreted.

And, given that innovation of meaning is also the result of an individual interpreting and envisioning act, this research would benefit from a better understanding of how humans develop new interpretations. Because personal thought is behind, or rather,
parallel to, social construction, we must also embrace the individual perspectives if we want to understand how meanings arise. We need to decode the signs generated by humans to be able to fully grasp how meanings are created. As Ann Cunliffe (Cunliffe 2011) explains, individuals “create meanings through language, routines and symbols to understand how social reality is created”.

This indicates that the innovation of meaning also touches upon subjectivist, or rather inter-subjectivist values (See Cunliffe 2011 for an extensive discussion of the three knowledge problematics of inter-subjectivism, subjectivism and objectivism). Individuals give meaning to things, not only through social interaction, but also through individual reflections on the purpose of life. Therefore, innovation of meaning does not only build on sociological, but also on personal and philosophical dimensions, as in the question of the meaning of life.

To explore the process of personal interpretation and its philosophic dimension, this study makes use of the theory of hermeneutics. And, repeating the statement in Chapter 3, fundamental to hermeneutics is its interpretative nature. In particular, this proposal taps on the branch of hermeneutics that explores the generative interpretation of things. It links to a currently emerging stream of research in which hermeneutics is applied to innovation (of meaning) and to the practice of design. Some of my reflections have been inspired by the seminal research of Marcus Jahnke on hermeneutics and the work of designers (Jahnke 2012).

In the following section, I will introduce an overview of the basic concepts on hermeneutics that are relevant for my investigation. Later these concepts will be used to analyze the empirical material and further, to explain that radical innovation of meanings consists of a process of interpreting and envisioning through four specific practices.

**The hermeneutics framework**

Three concepts are central in the framework of hermeneutics: interpretation and reflection, the importance of embracing new perspectives in the process of interpretation, and the role of the interpreter.

Firstly, we already know that one of the main concepts within hermeneutics is that the parts of an action or situation can only be understood, interpreted, if placed in a context. And vice versa, the context can only be understood if one understands the parts of the action or situation. This duality is represented by the “reflective circle”, consisting of an understanding of both the details of a situation and the overall picture. **Reflection** implies movement iteratively between the two.

Secondly, we also know, as explained in Chapter 2, that the French philosopher Paul Ricoeur has called for a more critical stance in the interpretative process (Ricoeur 1984; Kaplan 2003). It is to include an active search for a diversity of interpretations, stemming from both the interpreter herself/himself and the external world. In fact, Ricoeur
wants us to actively bring in new channels of information, make use of different perspectives. He calls for a continuous “detour”, to lose oneself in an action of “dancing” from the problem and to “rediscover oneself as another by multiple appropriations” (Kristensson Uggla 2011). Ricoeur’s suggestion, could be viewed as requiring the process of reinterpretation to be critically creative. There are also other views that stress the need to look outside oneself in creating new interpretations. For example the Theory-U by Scharmer (Scharmer 2008) begins in listening to others with ”your mind and heart wide open”. By deliberately seeking to find new, alternative ways to understand a situation, the interpreter can propose several interpretations. Reflection therefore, occurs through a process of “creative reconstruction”. But, the value of Ricoeur’s proposal is not only in this. What Ricoeur clearly underlines is not only the value of many perspectives, but also the importance of permitting these different perspectives to collide and confront each other (Ricoeur 1977; Kristensson Uggla 2011). In summary, Ricoeur stresses the importance of bringing in new perspectives and offering an active distancing to the situation.

Thirdly, as stated above, the interpreter and her/his intuition play an important role. if we want to understand how meanings arise. Trying to put oneself into the situation at hand, to feel and to live it, can create new understanding. Even more, the combination of the underlying knowledge of the interpreter and her / his ability to use intuition could make it possible for the interpreter to understand the situation more clearly than the actors within it.

With these three central concepts in mind, we will soon move to the empirical material. The first concept of interpreting and reflecting in a constant, circular movement has been a major theme in arriving at all of the four themes that constitute the findings. The second concept of bringing several perspectives (even critical ones) has inspired two of the four themes (the processes of debating and building critical capabilities). Lastly, the third concept of understanding through immersion assisted in identifying the last of the four themes (the practice of envisioning new meaning). All the three concepts of hermeneutics have been helpful in establishing the four themes that will now be proposed as a thinking frame. We will return to how, later in this chapter (see section 5.5).

5.3 The method - connecting existing and new insights

Before coupling the three concepts of hermeneutics to the empirical work, it is necessary to explain the structure and process behind this work. The process was not pre-defined, but evolved during the search for an applicable theory. As previously described, it was difficult to find theories that fully captured the concept of the innovation of meaning. The theories found were in some ways applicable, but in other ways not applicable in the cases I had been studying.

But, when studying hermeneutics for other purposes than as a theory to capture an innovation of meaning, (i.e. as a part of my being a more aware and reflective researcher...
myself), I began to wonder what would happen if the reflective mode and interpretative approach of this scientific approach were to be mirrored in the empirical material. I found interesting insights within hermeneutics that seemed to reason with what I felt was visible in the transcriptions, interviews, meetings and observations. By structuring the empirical material in patterns and comparing these patterns with the basic concepts of hermeneutics, an interesting web of connections appeared. It seemed that hermeneutics could perhaps help us deepen our understanding of innovations of meaning, and, potentially, function as a guide for future explorations in this field.

The first web of linkages between, on the one hand, what has taken place in several of the studied cases, and on the other hand, what was explained by hermeneutics, evolved first as a vague idea in my head, then as notes on paper, then as stick men and arrows on whiteboards and finally, when transferred to digital formats, first as drawings and models and then in the form of a table. Even though tables may appear to polarize and simplify things, this table actually helped me sort out different insights. The table was very helpful in discussions and in explanations of the findings and will be presented and used in the following sections.

The second way of portraying the insights came to be built on the previously proposed framework of the circle, presented in chapter three. By comparing the proposed four themes characterizing an innovation of meaning with the newly constructed table of insights, new and deeper insights were developed. These came to form a second circle proposing four practices connected to innovation driven by meaning and linking to the first one, focused on the characteristics of the same. In this moment, the two circles started to interact and the overall findings became more precise. The second circle will also be presented in the coming section.

In addition to my own structuring, re-structuring and wondering, I spent much time in discussing insights I had gained with my research colleagues at workshops, seminars and conferences (see Chapter two). I gained insights from many different fields of research, from “hard core” engineers, designers, management and creativity specialized scholars, visualization and design experts, culture- and art-inspired researchers, innovation and product development oriented experts… All these were valuable even though they prolonged the process of delivering a crisp and articulated proposal. They led to reconsideration, updating and re-labeling of the four themes that will now be presented, but also to the re-labeling of two of the proposed characteristics in the circular model, presented in Chapter 3 (see also note at the very end of Chapter 3).

5.4 Blending old and new – re-discovering the empirical material

Following the method described above, hermeneutics (the “new” method) will now be applied to further explore the nature of innovation of meaning (mostly deriving from the empirical cases but also from cases not previously introduced). This is due to the fact that hermeneutics, and its framework of three central concepts, seems to resonate
well with the nature of innovation of meanings. To be able to discuss hermeneutics though, we need some kind of guide, or structure. I will therefore introduce a conceptual table. It will serve as our “tool” when discussing hermeneutics and innovation practices in the next section.

But before discussing hermeneutics in relation to innovation of meaning, let us take a look at the table below. Remember, that the focus is on analyzing the material in search of implications for practice of this type of innovation.

We will begin the exploration (and the coming discussion) from **column one**, by focusing on the four characteristics of an innovation of meaning. These are:

1) meanings are context dependent
2) meanings cannot be optimized
3) radical meanings are outlandish compared to what currently make sense
4) radical change of meaning is co-generated

The first two characteristics come from the nature of “meanings”, and innovation as a process of interpreting; the third and fourth characteristics are a consequence of focusing on “radical” innovation of meanings, and therefore on innovation as a process of envisioning new possibilities (not thought of before).

Following previous discussions, the table then shows, in **column two**, how the dominant theories of innovation mismatch these four characteristics (sometimes by pointing in the opposite direction). This becomes visible especially in the first and second characteristic. In the first row, innovation of meaning underlines context while the dominant innovation theories specify problems. In the second row, meanings are explained as not connected to optimization, contradictory to what established theory would argue.

Next, in **column three**, the table puts forward concepts of hermeneutics that relate to these four characteristics. They are based on the three central concepts presented earlier, but they have been divided into four parts instead of three. These are:

- the parts and the whole
- the iterative mode of interpretation
  (both derived from the first basic concept of interpreting and reflecting)
- the action of taking a critical stance (derived from the second basic concept of new perspectives)
- the creation of a new understanding (derived from the first but also the third basic concept of the interpreters ability to live and feel and imagine a situation)

Here, I will pinpoint why these four themes better capture the nature of radical innovation of meanings.

In **column four** the advantages of hermeneutics are presented, proposing a new theory
of innovation. In particular, the role of networks is highlighted, by comparing how external players are considered in dominant innovation theories and within the framework of hermeneutics (see columns five and six).

Note that this proposal is theoretical and conceptual in nature. It aims at proposing a new lens for investigating the radical innovation of meaning, and thereby supporting and stimulating further research. Its purpose is not to provide empirical evidence, but to provide exemplifications that may further clarify the concepts. These will be discussed in the coming section. My hope is that hermeneutics can provide an additional explanation of how innovation takes place and contribute to the discussion of existing theories relating to innovation management.

![A theoretical framework for discussing the role of hermeneutics in capturing the nature of radical innovation of meanings.](chart)

### 5.5 Findings - towards a new theory of innovation management

With the help of hermeneutics, it became possible to structure the four characteristics of the nature of an innovation of meaning in the above table. By relating to existing

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$WKHRUHWLFDOIUDPHZRUNIRUGLVFXVVLQJWKHUROHRIKHUPHQHXWLFVLQFDSWXULQJWKHQDWXUHRIUDGLFDOLQ$
innovation theories, it also became possible to crystallize the differences between these and the specific practices of an innovation of meaning (see column four). What has emerged is four ways of approaching innovation of meaning, each one related to one of the four characteristics described earlier. These four practices will now be presented. In addition, several insights on networks have emerged. This is a result of meanings as being closely related to contexts and therefore also to networks.

In the coming sections I will use examples previously discussed, but will also relate to other, empirical cases, not previously presented. These are described in more detail in the related paper “Interpreting and Envisioning – A Hermeneutic Framework to look at Radical Innovation of Meaning” (Verganti and Öberg, forthcoming).

**Designing scenarios of meaning**

Previously, we learned that one of the major features of the innovation of meanings is its **context-dependency**. Meanings cannot be innovated by merely focusing on the details of a product or technical problem. Customers make sense of a product or service in accordance with their psychological profile and the cultural and social context in which they are immersed.

Classic innovation theories, focused on **problem solving** and **idea generation** seem to fail, or are only partly able to capture this type of innovation. And, even if they embrace a more socially constructed approach, the dynamics of innovation of meaning are not fully covered. In this case, the focus seems to be almost exclusively on the context, almost neglecting the personal act of interpretation. However, some of the theories mentioned above work well when innovation concerns the **improvement** of a function of utility for users, for example an isolated technical feature or performance, which is **given** and independent of the socio-cultural context. (For example, in developing a computer with a larger memory, or a faster robot, solutions that can be, almost exclusively, technically described, are searched for). But, the innovation of meanings works on a higher level and with a broader scope. It redefines the **purpose** and the utility of a product, by reinterpreting its relationship with the context.

The conceptual framework of hermeneutics, presented above, seems to be more useful than these theories in capturing this type of innovation. As mentioned earlier, fundamental to this thinking frame is the process of moving between the **parts** (the product and its interaction with the individual) and the **whole** (the context). The framework of hermeneutics indicates that novel interpretations occur by expanding the scope of investigation, by stepping back from a close focus on the problem at hand and by considering instead, the overall user-experience (beyond the specific interaction with a product). Inspired by this reasoning, innovation of meaning could be described as managing a two-fold task: caring for the whole user experience, **and** the product. It could also be explained as a double level of design, where both levels need to be embraced coherently and simultaneously.
As a theory, this proposal looks new and contrary to the mainstream theory of innovation. The output of the process should not be an idea or a solution, but, rather, something more holistic, including both details and context (the parts and the whole). What would be required is some kind of “scenario”, giving a sense of the new meaning to be reached for. We have come to call this, a **scenario of meanings**. A dictionary definition of a scenario is “a sequence of events, especially when imagined” (Merriam Webster, 2011). It brings together the part (the individual events, one of which is the product at hand) and the whole (the overall user experience, which is the envisioned course of action). A scenario of meaning, therefore, is something that expresses a new meaning on both a detailed and a comprehensive level. When re-visiting the empirical material, the “scenario” appears in the form of written reports or visual descriptions (such as PowerPoint presentations), and also in the form of a mood board or a storyboard. It is also represented by physical realizations, such as a mock up or a concept project (even shown in public by a company to indicate future aspirations). Common to all these things and events, the scenarios of meaning, is that they show a blend of impressions, interpreted in a special direction. It is the identification of many different signals (the parts), melted down in one coherent message (the whole).

Let us look at some empirical observations. During the research project, I had the opportunity to work with and study Vox, the Polish furniture company that was considering manufacturing furniture for the elderly. The direction to be taken remained uncertain and the management was open to a wide range of proposals. Employees contributed a variety of appropriate ideas including high-tech beds, rolling bookshelves and garden tables with integrated functions. Most focused on function and smart details. The ideas were discussed and mapped and then left for incubation.

Meanwhile, the company engaged a number of experts with no formal connection with the elderly as a group. These were experts in a variety of fields, ranging from aromatherapy to history and psychology, experts who presented their vision of the elderly, in relation to their expertise. Almost none related to furniture. For Vox, this put light on several areas not considered before. Who would have thought that a young girl, an employee at a Spa, an expert in aromatherapy, could contribute to the development of new furniture? Or an elderly historian? Nevertheless, full of new insights, Vox began a new phase of the project. With new (sometimes almost “outlandish”) insights they began to tell stories, making story boards and even relating to movies to discuss the elderly and their situation. And the world of the elderly became more real. With imagination and empathy, characters came alive and engaged the entire group of professionals. The focus was redirected, from the furniture to the old people, their needs, desires, secrets and problems, their friends, environments, memories and history. Vox, had transferred the focus from the product to the context. They managed to create several scenarios of meaning out of which one became the preferred vision. Suddenly, they shared the same aspirations. Suddenly, previous and new ideas were considered seriously. No doubt existed about which ideas were appealing, which were daring or too “crazy”. Strengthened
by the engagement of the external team of the experts, the company chose a quite radical approach to the development of a new bed. A “nest”-like room-bed with a wide range of possibilities for socializing, reading, resting or being intimate, depending on age and needs. (And indeed, the product attracted the interest of the younger generations). One of the key parameters that helped Vox to find a new meaning for “bed” (from a “place to sleep” to a “place to be”) was the creation of several scenarios of meaning. If they had begun directly with a detailed specification of a piece of furniture, this radical approach would probably not have emerged.

Another example of creating scenarios of meaning comes from the Swedish home appliance company Electrolux. When attending a workshop at their headquarters in Stockholm, I learned about their Design Lab (see www.electroluxdesignlab.com), a yearly competition for industrial design students in visualizing the future of whiteware in our homes. The competition has focused on issues such as healthy eating and green thinking and has introduced concepts as different as a mobile washing machine and a façade refrigerator. A website has been developed in connection with the competition and support has been obtained from other social media and a network of design partners.

Together, they constitute a forum for the presentation, discussion and sharing of ideas. In backing this, Electrolux is not only searching for new ideas to be exploited commercially. Instead, and even more importantly, the Design Lab competition also involves the hopes, dreams and aspirations of the coming generation. On reflection, these proposals could be seen as pieces of a puzzle intended to provide new understandings. They put
the company in touch with new perspectives and it opens up for new interpretations. The existence of the Design Lab therefore, serves a greater purpose than collecting ideas in a well-branded way. Instead, by carefully interpreting the signals from the network, Electrolux creates great possibilities for creating scenarios of meaning, rather than finding solutions. An additional case, picturing the use of scenarios of meaning is the approach of the German company, BayerMaterialScience and their CreativeCenter, focused on an analysis of society and culture. See Paper 3 for a detailed description of this.

These three examples show the value of creating scenarios of meaning as an alternative to focusing directly on solutions. Differing from classic models of innovation, in which actors in a network are considered as providers of ideas or solutions to specific problems, in both the Vox and the Electrolux cases, networks provide new, different understandings of the context. They permit possible interpretations of what could be meaningful to users.

To summarize, the cases show an approach in which both the whole and the parts are considered. They also show that radical innovations of meaning are context-dependent. They are not about designing a product, but about designing a scenario of meaning, which is developed through interactions with an external network of interpreters.

**Debating**

The second proposed characteristic of the nature of meanings is that meanings cannot be optimized. They belong to an ever-shifting sphere of knowledge, opinions, news, and proposals, and consequently, a meaning can never be constant.

As discussed previously, the nature of an innovation of meaning is not compatible with dominant innovation theories that see problem solving as a process of progressive reduction of uncertainty and that assume that there is an optimal solution out there, awaiting discovery. Instead, the hermeneutic approach, and in particular the iterative hermeneutic circle, proposes a constant reinterpretation of the surrounding world.

Rather than detecting new or uncertain information as early as possible in the process, the iterative hermeneutic circle leads us to repeatedly bringing in new insights. Instead of retaining one constant perspective, it introduces the use of several perspectives. In short, this suggests a new theory of innovation that instead of focusing on convergence towards “the one optimal solution”, is based on a continuous and iterative discussion, or debate, in which firms actively take part.

In this debate, external networks again play a central role. However, differing from established theories of innovation, in which external players act as suppliers of knowledge to fill existing competence gaps (thereby contributing to a reduced uncertainty in problem solving), hermeneutics can help us consider external actors as an important
source of new arguments. They are able to express different ideas, use other voices and create perspectives, other than those normally consulted. In this way, interpretations are combined and lead to new, by stressing some and abandoning others.

If we return to the case of the RoboCoaster, we already know that this project began with the proposal of a previous employee. The company subsequently paid much attention to what the wider network searched for and progressively developed the concept. Among other things, the seat was provided with a top cover, equipment for laser guns (to fire at themed targets) and other special effects. Recently the RoboCoaster has been supplemented with a 3D function, providing the experience of a virtual rollercoaster. This feature makes the product a cost saver, enabling a theme park to offer the thrills of a rollercoaster using a minimum of limited land space. The 3D solution also provides experiences of avalanches, bobsleds and jet planes. Further, the concept has been incorporated in interactive exhibits that combine math and science with sport activities for children.

What we see is a continuous progress, from an adapted assembly robot, offering a total experience. The product currently includes not only precise movements, but also user-control functions and visual and audio effects. The RoboCoaster is not merely a response to a “wish-list” of customers. It is the result of an iterative development process, in which different actors have actively contributed to the development. Along the way, these actors brought new proposals, were engaged and in this way, helped to reinterpret the meaning of the product (from offering emotions to even being a part of an educational experience). The strategy used seems two-fold, including both listening, but also adapting the product continuously.

The value of debating is also shown by the case of the Ambient Experience for Healthcare solution by Philips, the Dutch domestic appliance company. Over a time period of eight years (from 1995 to 2003) the company conducted several projects for building scenarios of meanings. From the early project “Vision of the Future” focusing on new domestic scenarios, to “Noah’s Ark”, focusing on the transition between sleeping and awakening. Philips did not invest in these projects primarily to develop new, specified solutions, but to interpret what made sense to humans. By involving a large number of different experts, functioning as interpreters, they progressively enriched the understanding of opportunities involving, in this case, ambient technologies, such as LEDs and video projection. These interpreters not only fed the projects with knowledge - but also took active part in the discourse in debating different options. (See also Paper 3 for a more thorough description of this case)

To conclude, the practice of building scenarios of meaning and the practice of debating are important in the search for innovations driven by meaning. However, as stated before, we are not focusing on meanings in general, but on radical changes of mean-
ings. We will now see how hermeneutics provide a useful lens in capturing this radical change of meaning.

**Building critical capabilities**

Earlier, we have seen how the development of a radical change in meaning is a challenge to the dominant assumptions about what a product is meant for, and introduces strange, even outlandish ideas. Who would have dared to think of putting humans into the “claws” of an automatic robot? Indeed, at a first glance, it is a bizarre and crazy idea. Still someone dared to propose it, with a new successful product, the RoboCoaster as a result.

A radical change in mindset (such as in this case) within a company normally has large impact on the company, for better or worse. It comes as no surprise, therefore, that studies of innovation have closely examined the dynamics of radical change, not focusing on change of meaning, but focusing on the change of capabilities. In this search for new capabilities, external networks have been considered crucial to provide access to new competencies (Chesbrough, 2003). This approach is completely compatible with the radical innovation of meanings, as networks are extremely valuable in creating changes. Nevertheless, to complement this discussion about networks, hermeneutics has an interesting comment. Namely, that the act of searching for radical change (through new meanings) is coupled with a criticism of the existing dominant socio-cultural paradigm. It seems that firms that want to create breakthroughs in meanings must adopt, or actively search for, a critical stance, with respect to their current view of the purpose of their products.

As a consequence, the building of critical capabilities becomes of crucial importance for companies. It leads us again to the important role of networks, but with a new perspective: instead of using external resources only as a source of complementary capabilities (that have been identified but are currently missing), the external views could be used as a source of questioning, even criticism, of the current situation. As Paul Ricoeur has proposed, external influences (or, in other words, interpreters) may help in finding underlying messages and move behind the immediate interpretation of things, in this case, the market’s dynamics.

External partners can act not only as experts in new domains, but also, even as critics of the current domain. By bringing in interpreters from outside the “usual” networks, the existing norm is exposed to new light and outlandish interpretations can develop. This points to the fact that customers or suppliers from the existing ecosystem of a company, are not the forerunners. Instead players who are alien to this environment are often the ones who manage to show the way forward. To cite Ricoeur, they can enable a firm to make “detours” from the current dominant interpretation. To make them “lose themselves and then find themselves as another again”, with a new, enriched perspective.
On reviewing the empirical material, we can see that both the development of the **RobotStudio** application by ABB and the **RoboCoaster** have benefited by the contribution of executives who originally came from industries other than industrial robotics (indeed, the entry of KUKA into new markets was foreshadowed by the recruitment of an entire team of young executives with no previous experience of the industry). These executives could take a critical stance in relation to the accepted assumptions in the industry and thereby pave the way to the development of breakthrough meanings. Another example is from **Deloitte & Touch**, which despite being in the early stages of its innovation process, embraces the idea of taking a critical stance when reconsidering the meaning of accounting. They have begun to question the concept of the accountant as a specialist and look for new unspoken needs and hidden meanings within their business. Another example, is the Ambient Experience for Healthcare solution, realized by **Philips** that required a significant shift in the core values and identity of a manufacturer of imaging products: from selling a device to selling ambient solutions, a concept not likely to be envisaged by firms in this industry (Verganti 2011, Verganti and Öberg, forthcoming).

We have now discussed the practices of building scenarios of meaning and debating. With these two practices at hand we have come to see the importance of building critical capabilities. This is particularly important in encouraging discussion in the search for new interpretations and meanings of products. These three practices though, would not lead forward without the last proposed practice, the ability to deliberately envision and “proclaim” new meanings.

**Envisioning new meaning**

The fourth and last characteristic describes radical innovation of meaning as being co-generated.

As stated before, radical changes in the meaning of things do not come as an answer to a clear market need but from reconsidering current needs and proposing a new vision. Contrary to dominant innovation research, focused on users (especially within studies on user-centered innovation, design thinking and crowdsourcing) this type of innovation is not prompted by user or client wishes.

Again, hermeneutics help to capture this dynamic: the act of interpretation is not based on the discovery of what is already there, but on deliberately and actively generating new interpretations not yet existing. It is not an act of seeing “better”, but of imagining and conceiving a new possibility.

Hermeneutics, therefore, helps to suggest the practice of envisioning new meanings. This practice is not simply about generating ideas and solutions, but creating a whole new vision. For example, the **RoboCoaster** is not an idea created and kept in a vacuum.
It has become the locus of a clear and forward-looking strategy, searching for new applications by redefining what a robot is. Perhaps the most evident proof of how KUKA is holistically redefining the meaning of robots, is given by considering the graphic and experiential language of their websites (www.kuka-robotics.com/en/) and, in particular, in relation to new applications in the field of entertainment, (www.kuka-entertainment.com). The websites show a range of ideas about new applications; the images are playful combinations of products creating complex shapes in the style of Arcimboldo’s vegetable portraits. KUKA has collaborated with digital designers Clemens Weisshaar and Reed Kram to create an artistic installation in Trafalgar Square during the 2010 London Design Festival. Festival visitors and the global Internet community could take control over eight robots via a website by sending short text messages that were then “painted” in the air by the robots using LED lights. KUKA robots have appeared in Hollywood movies such as the James Bond film “Die another day” and “Tomb Raider” and the company has won a number of design awards. An entirely new strategic vision has evolved through the development of the RoboCoaster.

To summarize, whereas recent theories of innovation place a major focus on the role of users in creating new solutions, the radical innovation of meanings requires the involvement of a broader range of interpreters, outside the usual networks, as the example discussed here shows.

This last proposed practice of how to work towards innovation driven by meaning stressed the importance of co-generating meanings. This broader perspective is common to all the four practices. If meanings are derived from a context, the need for cooperation and networks are central. From this follows the notion that there is no single correct solution or opinion, rather several, as seen from different points of view. As a result, a company needs to develop the ability to consider other views and appreciate them, even embracing critical voices, instead of disregarding them. By deliberately taking into consideration new, sometimes strange proposals, the understanding is deepened, to the extent that new visions can be expressed. These new proposals drive the debate about what makes sense in a certain context and contribute to the construction of new meanings. Critical voices will then react and in the end, meanings will never be definite. Clearly, the creation of meaning and the search for innovation driven by meaning is a complicated, yet intriguing, matter!

In accordance with the reasoning above, it is clear that the four proposed practices of innovation of meaning cannot be separated. Instead they come together in one approach with slightly different perspectives. This approach is illustrated through the construction of a second circle, complementing and surrounding the first circle (focused on the four core characteristics and presented in Chapter 3). Here, we can see how the four characteristics of the nature of an innovation of meaning link with the four proposed practices of the same, but in no particular order. This means that no theme is
considered more important than any of the others.

5.6 Conclusion - raking seeds for future harvest

In this chapter, the practices of an innovation of meaning have been sought for. To begin with, we examined existing ways of practicing innovation. First by relating to the very common way of seeing innovation as a cognitive process of “problem solving”. Second by relating to the more creative way of innovation as “ideation”. If the first approach relates to object, facts, (bounded)-rationality and optimization, the second perspective represents much more of a subjective, intuitive and emotional stance. But, as discussed, they do not capture the nature of (radical) innovation of meaning in its entirety. What has been put forward to capture this type of innovation instead, is the hermeneutic framework. The empirical material has been approached from this reflective and interpretative viewpoint - to arrive at four proposed practices.

First, the practice of designing scenarios of meaning. Previously, we learned that one of the major features of the innovation of meanings is its context-dependency. Meanings cannot be innovated by merely focusing on the details of a product or technical problem. They have to be related to a context. In this practice, the context (to understand a new meaning) is created by interpreting several different signals in society in a special direction, a scenario of meaning. In the empirical material, these scenarios appear as visual descriptions of different kind, as written material or as physical realizations. This first proposed practice is in accordance with the hermeneutics approach of considering both details and the whole. It has been demonstrated through the cases of the Polish furniture company Vox, the Swedish home appliance company Electrolux and the German BayerMaterialScience.

The second practice is that of debates, related to the proposal that meanings cannot be optimized. Instead they belong to an ever-shifting sphere of knowledge, opinions, news, and proposals. And, they arrive from the continuous and iterative discussion within and outside network. They constitute a debate in which firms actively take part. This practice evolved as an inspiration from the hermeneutic process of iterations and introducing several new perspectives. We have learned how these debates can take place through the case of the RoboCoaster but also through the case of the Dutch company Philips.

A third practice of an innovation of meaning, is the one of building critical capabilities. It relates to the characteristic of innovation of meanings as often being considered as outlandish, strange, almost bizarre. Because, a radical change in meaning challenges dominant assumptions about what a product is meant for, and to propose strange, even outlandish ideas. The proposal here comes from hermeneutics and especially, the “Ricoeur inspired” way of being critical, questioning existing beliefs, taking new perspectives and to “go” behind the immediate interpretation of things. We have got a glimpse of how both the RoboCoaster and the RobotStudio show these practices.
within the robotic industry, but the practice can also be found in other industries as the case of Deloitte & Touch and Philips show.

Lastly, and as a consequence of the above practices, an innovation of meaning includes the fourth practice of envisioning new meaning. Because, radical changes in the meaning of things do not come as an answer to a clear market need. On the contrary, it comes from reconsidering current needs in a continuous debate in which many different actors take part. By being immersed in such a debate, a company can propose a new vision. This practice evolved from the hermeneutic way of creating new understanding through both individual but also contextual factors. In this way it links to the characteristic of meanings as being co-generated. The entrepreneurial spirit of the founder of the RoboCoaster is a good example of this practice.

With these four proposed characteristics at hand, a second circle of innovations of meanings was created. It links with the proposed circular model of innovation of meanings (presented in Chapter 3). Together these two circles have created a new, circular model (presented at the end of this Chapter 5). It proposes, not only, the nature of innovations of meaning through four characteristics but also the practices that can be related to these. This model is intended to serve as a thinking frame when innovations of meanings are discussed in different ways. Hopefully, it may simplify the navigation
between innovations and meanings for both researchers and executives and help to grow the understanding of innovations driven by a meaning perspective.

5.7 Reflection
This last part of the study was focused on the search for practices of innovation of meaning and on finding answers to research question number 3, “What are the practices that support the development of a radical innovation of meaning?” The findings are a result of examining several cases, some of them within the main focus of the study, others from secondary sources (the BayerMaterialScience and Philips cases). It must be pointed out that all the four proposed practices do not apply in any one of the cases but together, the cases have served to explain what takes place within companies in search of new meanings when developing products. The study is limited by the small number of cases but has permitted the development of a thinking frame in which to discuss this type of innovation.

The proposal in this chapter differs from other ways of practicing innovation (the problem-solving innovation discourse and the ideation oriented discourse). The way they are presented may appear to be somewhat extreme. Problem solving can, of course, be more complex and sophisticated than as is presented here Simon, for example, wrote not only of problem solving, but also of problem setting as a way to approach decision-making. And indeed, there are also moments of reflection and interpreting within a more idea-focused and design inspired context. But, the somewhat extreme descriptions of the above-mentioned fields, was a conscious decision. I deliberately stressed differences between innovation practices, hoping thereby to stimulate the debate among scholars of innovation and design.
6 Meta conclusion

“One is a pot. The other is a cup!” This statement is made by one of the members of a group at a workshop training session, pointing to two photos on display. We are discussing cases of meaning changes and right now the focus is on coffee. From the old meaning of standard coffee machines in domestic kitchens, to the use of the Nespresso coffee system, enabling the preparation of individual cups of coffee by the use of shiny colored capsules and a special machine. The participants are senior executives of an American corporation, unconnected with the coffee business. They do work with consumer products but with totally different technologies and with drivers other than those of coffee drinkers. The group continues work on defining different meanings. They conclude that the coffee machine at home is associated with a morning routine of several steps - while the Nespresso can be used at any time as one quick and simple operation. The old coffee machine was all about function, not necessarily beautiful, not on display, almost to be hidden, while the new Nespresso is elegant, bold, a status symbol. The old system made several cups at a time and created, indeed, some waste while the new machine provides just the amount of coffee then required. Someone suddenly comments, “The old coffee machine was really a coffee-maker, this one (he points at the new system) is an experience maker”. Coffee, the old way, was to be found at Wal-Mart, nowadays you buy your special coffee capsules on-line, or at least in a high-end boutique. – “Nespresso feels more European”, says the group, and “the traditional way of brewing coffee is more Mid-west”. I smile and try to take in what they say. The group has just described meanings from functional, but also emotional and symbolic, perspectives. Just as meanings have been described in this research. – “Oh, one more thing”, says one of the members of the group. – “We said the old meaning is like canned beer, and the new like bespoke cocktails!” I smile again. In a second the picture of a stylish cocktail comes to my mind. I understand what they mean with this description.

“They use metaphors”, I say to my self. It is not the first time I have seen this tendency to depart from the product itself when describing its meaning. I have experienced several times, the difficulty of extracting the meaning from a product in order to describe it so that other people understand. And several times, what seems to work is the use of metaphors. I have been aware of this from early in this research but how the use of metaphors can be related to the concept of the innovation of meanings is not yet clarified. I make a note in my sketchbook. “Metaphors – to be explored”. This is just a few weeks before the completion of this thesis and I must see it as a promising subject for future research. Let us now summarize what we have learnt about innovation of meaning, so far.

6.1 The contribution of three-fold work
This thesis has been written as an attempt to clarify some of the dynamics connected to the concept of innovation of meaning. The study has been performed in three parts, into three main aspects of this type of innovation, namely:
Its nature (or characteristics)
Its value
Its practices

This structure is mirrored in the outline of the thesis, the research questions defined and the three contributions of the research.

First, by identifying and investigating several interesting cases, especially within the robotics industry, and by studying several theoretical fields, the first contribution came to be a circular model of four characteristics explaining the nature of an innovation of meaning (see Chapter 3 for an illustration).

The second contribution came from an investigation of the relevance of this type of innovation. By focusing on two cases within the robotics industry, my studies resulted in four insights into the value of innovation of meaning (see Chapter 4). We have learnt that this type of innovation can and does create value, as increased sales, larger margins and competitive advantages. It is a peculiar type of innovation though, because it is not easily recognized. It is always possible to innovate meanings but the challenge is to know when an innovation of a meaning is valuable and when it is not. In addition, the value of innovation of meaning is not pre-defined and absolute. It also depends on the visionary capability of firms. Given that meanings are co-generated, and the proposing firms have a major role in this generative process, their value is not an exogenous variable, but, strongly depends on the vision, actions and drives of executives who propose them.

The third part of the contribution evolved in parallel with the above two studies, as I investigated practices associated with the innovation of meaning. The result of this
third study, built on the two previous empirical studies, was the identification of **four proposed practices**, additions to the initial circular model (See chapter 5).

In the search for answers to the research questions, the concepts of hermeneutics have been of considerable assistance. Its central concepts, presented in Chapter 5, have significantly facilitated the analysis of the empirical material. They have helped to separate insights into categories of characteristics and practices but also prompted more detailed investigations in some of the cases. Hermeneutics also helped to frame the innovation of meaning as a process of **interpreting and envisioning**.

The model proposes one possible thinking frame for exploring the concept of an innovation driven by meaning. It suggests that radical innovations of meaning are context-dependent. They belong in an ever-shifting sphere of knowledge, opinions, news, and proposals, and therefore, can never be constant.

Due to this **context dependency**, that implies viewing things in a wider perspective, meanings are not about solving a specific and well-defined problem, nor even about designing a product, but, in taking a wider stance, about **designing a scenario of meaning**. This scenario is developed through interactions with an external network of interpret-
ers and can take the shape of a storyboard, an exhibition or even a website. It is an approach in which both the whole (the context) and the parts (of a product or concept) are considered.

Further, and in line with the above proposal, the model suggests that innovations of meaning cannot be optimized. They evolve through the practice of debates. Innovations of meanings are not intended to optimize a performance nor reduce uncertainty in a product development process. On the contrary. During debates, i.e. discussions of different kinds between companies, suppliers, researchers, artists, designers, and other experts, insights multiply and therefore complexity increases. Here, a network is to be seen as a provider of different arguments - rather than pure knowledge. In this way, an innovation of meaning evolves in an iterative and continuous process.

When meanings are radically new, they look strange, even outlandish in relation to the dominant assumptions in an industry. They are connected to a process of questioning existing beliefs and therefore demand a capability of being critical. A strategy of bringing “new capabilities” (like in new resources, competences etc), a common way to refresh the innovation process in companies, might therefore, not be sufficient to capture this type of innovation. Instead, meanings are more likely to evolve when companies develop their critical capabilities, by increasing their openness to critical voices. To see and include networks, not only as experts, but as critics of existing norms.

If criticism is encouraged within organizations, an innovation of meaning is not decided on by a single executive. Instead, it is co-generated by interaction between companies and the surrounding world, through a continuous dialogue between firms, designers, users, and stakeholders, both inside and outside a corporation. This implies the envisioning of new meanings - rather than finding optimal solutions.

To summarize, meanings are not an answer to the need of a user, or to sudden ideas from within a company. Instead, meanings are culturally embedded. They originate in humans, in interaction with products or services in a wider context. Naturally, they must differ between individuals, moods, geography and over time. We cannot find the one and only meaning of a product. Instead, different meanings can be proposed. This implies, that the innovation of meaning works on a higher level and with a broader scope than most innovation strategies. It redefines the purpose and the utility of a product, by reinterpreting its relationship with the context. By leveraging the theoretical framework of hermeneutics, the proposed model provides a perspective to explore the radical innovation of meaning: by considering innovation as a process of interpreting and envisioning. For a more profound discussion see Chapter 5 in which a table provide guidance to the proposed model.

6.2 Implications
In this thesis we have learnt that the common ways of innovating products are con-
nnected to either a process of problem-solving or, more recently, to a process of ideageneration. The former, often in a technological context, and seen as improving a given product, the latter, often connected to a process of market expansion, where a less analytical and more emotional approach is embraced. In both these approaches, the discussion of the meaning of a product seems absent. It seems a given, not discussed or questioned. Problem-solving is a normal, indeed essential, activity in companies improving their products. And the practice of generating ideas has always been encouraged in companies (many are the companies that generate huge amounts of ideas on colorful post-its!). The challenge comes when companies want to make sense of these solutions and ideas in a society that is becoming increasingly complex. Increased competition and an ever-shifting flow of offers and proposals make it more difficult to navigate among products, for both companies and consumers. In this competitive word, one way to move forward as a company could be to re-think the way innovation can take place.

Companies can no longer rely on technology or “new ideas” to guarantee success. Innovation cannot only be “the solution of problems” or “the generation of ideas”. Instead, innovation processes could benefit from something more. From a deeper reflection on what really make sense to humans. From understanding, on a deeper level, what is relevant to customers. Innovation, in this sense, would benefit from reconsidering, even re-interpreting what is meaningful to people.

One company that reconsidered the meaning of their product, is Germany-based KUKA Roboter with their “RoboCoaster”. This product uses existing technology to transform an industrial robot from a powerful and reliable tool into an exciting entertainment device. Another example is the Da Vinci system in which, instead of replacing humans in an industrial application, a robot interacts with humans by acting as a surgeon in performing invasive surgery. Through these two examples, this research indicates that innovations of meanings can be relevant. They create value and economical benefits for companies.

The first implication of this research, is that the crucial activity of innovation of meanings is not product development, nor idea generation - but the creation of vision. The key role therefore, should be played, not by scientists or creative employees - but by the top managers. The leaders, together with a team of both internal and external interpreters, need to co-create proposals of new meanings in parallel with the strategic work of vision creation. Innovation of meaning does not come from users, but from interpretation of a wider context. Therefore, leaders must be a part of that process. If leaders are excluded, the communication of meanings becomes more difficult. This insight suggests a need to further explore the role of leaders in the process of redefining the framework of interpretation that they use in evaluating opportunities.

The second implication for companies, is that external actors, especially those “outside the usual networks” in the industry, play a major role in the process of interpretation. They can bring a critical attitude to what is currently assumed to be meaningful by a
company and add new perspectives in the search for new, profitable, meanings. The radical innovation of product meanings therefore requires seeing external partners not only as providers of knowledge and solutions, but also and especially, as providers of arguments and novel interpretations, in a continuous iterative dialogue. This insight highlights the need to further understand the connection between external actors and companies and how these both make use of critical perspectives.

6.3 A critical review
What is the value of these findings? Are they totally new and revolutionary? In the following, I provide a few comments relating to the findings and the methods used. For further comments, see the end of chapters 3, 4 and 5.

My first reflection concerns the pairs of characteristics and practices constituting the proposed thinking frame. In this circular model, context is one important dimension. This is indeed, discussed in a number of fields of research, e.g. user innovation, sensemaking and cultural systems. Within these streams of research, the characteristic of being context dependent might come as no surprise. Similarly, designers might consider the related practice of “designing scenarios of meaning” one of their basic practices, even though the focus might be more on “designing” and “scenarios” than on “meaning”.

Moving to the next pair of characteristics and practices, a researcher immersed in complex theory would perhaps argue that the dimension of being not optimized (and therefore the practice of “debates”) is not really a new insight but “the way life is”. (Life is complex, you cannot optimize it.) It would perhaps be considered a starting position rather than a finding.

Moreover, scholars using the perspective of critical theory would perhaps consider the third proposed pair of characteristics and practices as strange and not very revolutionary. The practice of critical capabilities, would to them, perhaps be considered more of a starting point when examining empirical material. In this way, things that look “outlandish” – and in a way contra-culture – seem a common element in this research.

Some scholars and executives would perhaps find “nothing new” in the characteristic of an innovation of meaning as being co-created. Particularly not strong believers in user innovation. The practice of envisioning new meanings is customary for many artists who express new meanings through art, music or performances and is a central practice for some business leaders.

Indeed, I am more than aware that parts of this research could be considered as “less revolutionary” in certain research communities. However, its contribution, I think, is not in each individual finding, but in the whole integrated framework. It is the combination of the four characteristics of innovation of meaning and the related four practices as an entity that I hope contributes something new to the innovation management and
design management fields. This “wholeness” of the framework comes from the discursive and reflective field of hermeneutics that shows a new path forward in considering innovation and humans.

My second reflection is related to the insights on the value of an innovation of meaning (discussed in Chapter 4). It is clear that this is a field where more research is needed. Because, value can be considered in many ways, not only as described in this thesis (through market shares and sales). Value, in a wider sense, can be discussed in relation to more intangible values and as related to society. In this thesis we need to see the insights on value as a means to show a positive value of an innovation of meaning. We need to keep in mind that this research is in its early stages and that the dimension of value deserves further investigation.

Lastly, my third reflection concerns the chosen approach of hermeneutics. As discussed in the reflections on Chapter 3 and 4, another approach would have given other insights. I have deliberately looked for links between hermeneutics and the material. This is both a weakness and strength. Weakness, as it might make the researcher “blind” to other ways of understanding. Strength as the approach pinpoints reflection and reconsideration.

I also want to underline, again, that this thesis is a first step, suggesting the direction further investigation could take. Its aim has been to propose a framework, a lens for further research. The thesis, therefore, has no definitive conclusion. I hope rather, to prompt a debate, inspired by the hermeneutic tradition. I hope to hear many new, critical and different voices and to see other, supplementary pictures of the fascinating and largely unexplored subject of radical innovation of meaning.

6.4 A call for further research...

Before looking forward, I want to spend some lines on reflecting on the studies already performed. The research presented in this thesis is exploratory in nature. Its findings are not yet supported by extensive empirical analysis. To be able to provide “evidence” supporting these early findings, I feel the need to explore the subject more thoroughly. A broader empirical investigation, based on a larger number of cases would be needed to support the development of this early proposal. This remains a future project.

On returning to the studies performed, many interesting questions have emerged. Especially during physical meetings and interviews, but mostly during workshops with collaborating companies. One could ask how entrepreneurs find the energy to fight for new solutions and how they persuade the surrounding world to believe in their vision. Or, how organizations manage to embrace new thinking that is far from the norm. I have also wondered, quite often, about the language that is used when exploring, explaining and proposing new meanings. Do human always use the same language to express themselves at work? Or is it different when discussing meanings of products and what makes sense? Are we becoming more personal, more subjective when in touch
with a new meaning? Or do we stay within the expected and official version of our “thinking frame”? In that case, why? Are there special abilities connected to the expression of meanings? Are some people more “talented” in understanding them? Can some people “afford” new proposals more easily than others?

These questions could not be examined more closely during the study. But they act as proposals for further research. Some alternative paths forward in refining the proposed thinking frame of innovation of meanings could therefore be:

**How is innovation of meaning communicated?** Who expresses a new, proposed meaning in a company, and by what means? What is the role of the spoken word and of written texts in this context?

Is the practice of designers, who embody ideas through sketches and mock ups, the most common way? In what other ways can meaning be understood? Are creative and artistic practices such as music, fine arts, dance or theatre used to innovate meanings? If so, how? From the cases studied in this research, this more “creative” ways of communicating is not excluded. The German robot manufacturer KUKA created a show of lights on London’s dark sky to promote potential new meanings with their robots. Vox, the Polish furniture producer, used their new developed bed as a stage where three actors performed both drama and practical jokes. This, to let people understand the meaning of the product, the bed as a living room to socialize, not a private and closed space.

**What is the link between meaning exploration and the search for new technology?** Who build bridges between the two approaches of optimizing technology and innovating meanings? How can these different perspectives meet and how can their different perspectives merge? Are there special “brokers of language” within the process of innovation of meanings? Who build the bridges between different minds, and who creates resistance to a meaning driven innovation process?

**The use of metaphors.** It seems that many executives make use of metaphors to explain an existing or new meaning. When is this practice fruitful and when not? What happens when metaphors are not understood? Is the use of metaphors more common within certain fields of competences or industries?

These are some of the questions that intrigue me, now, in the finishing phase of this thesis. Even if this journey has been like navigating a small boat on a perilous ocean, it has mostly been an inspiring and enriching voyage. I therefore welcome you to join me, in the search for new answers to these and other questions related to innovations driven by meaning. Jump aboard!
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T
Tushman, M. L. and Andersson, P. (1986), “Technological Discontinuities and Organi-


Wetter Edman, K. (2011). *Service Design - a conceptualization of an emerging practice*. Gothenburg, University of Gothenburg, ArtMonitor Doctoral Dissertations and Li-
centiate Theses.

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