RETHINKING IT ALL:

OVERCOMING OBSTACLES TO BUSINESS MODEL INNOVATION

PH.D. DISSERTATION

BY: YARIV TARAN

CENTER FOR INDUSTRIAL PRODUCTION

AALBORG UNIVERSITY
To my Family, without whose support none of this would have been possible.
PROLOGUE AND ACKNOWLEDGEMENTS

It was amazing to see, after three years of intellectual chaos, how a pattern started to emerge and all the pieces began slowly to fall into the right places...

A PhD research, there is a journey that I will never forget. What I thought initially about the process was nothing like how it turned out to be eventually. It was more like a rollercoaster ride rather than a “simple enough” process. The research domain (i.e. business model and risk management), and with that, the research questions and methodology process changed quite frequently through the years of that journey. Nothing was accepted as given, and every time I thought I got it right, I realized the day after that it had been the lateness of the hour that had led me to think that I had found the answers to all my questions...

Interestingly enough, despite the ongoing, frustrating and hair-pulling, intellectual challenges that accompanied me on that journey, and probably also because of them, the process was never boring. New challenges emerged, new bodies of literature needed to be looked at, and more contributions were generated.

The PhD research was funded one third by the local department (CIP) and two thirds by the International Center for Innovation (ICI) project, whose main focus is to develop a network-based platform that will facilitate Danish companies (located mostly in North Jutland region) to innovate their business models successfully with focus on the global markets. There were many benefits of being sponsored by the ICI project, such as active participation in strategic project planning, workshops with companies’ managers, collaboration with other research institutes, and access to empirical data. Those experiences were very important for me personally, and gave me the pleasure of merging desk research with empirical practice.

Looking back, I think that I can honestly say that the three year journey will be one that I will cherish for the rest of my life. I had the pleasure of meeting so many wonderful people with different research areas, and from various nations worldwide. I had the opportunity to visit many companies’ sites and participate in conferences locally and around the globe (e.g. Gothenburg, Valencia, Brisbane, Zürich, San Francisco, Oslo).

There are a few people, however, to whom I would like to pay particular tribute. Firstly, I would like to sincerely thank all the administrative staff at CIP for their support and administrative guidance. Also, I would like to express my sincere thanks to all the academic staff at CIP, who have freely provided me with their insights and suggestions on how to improve my research. I would especially like to express my thanks to the head of CIP, Professor John Johansen, for all the encouragement and advice, and for agreeing to fund one third of my PhD research. I would also like to thank my two close research colleagues: Kristin Falck Saghaug, and Assistant Professor Sami Farooq, for all the “small talks” and laughs over the years.

I would like to express an especially warm appreciation of my two supervisors: Associate Professor Peter Lindgren, and Professor Harry Boer. I have learned so much from both of
you over the years. Peter, you were the one who inspired me to study the ‘business model’ phenomenon in the first place, you provided me with funds for the PhD research, and gave me access to discuss my research with many company managers worldwide. We worked very closely together, and I enjoyed very much our (research) traveling and writing papers with you, and learning from you how to run projects.

Harry, you taught me how to think and write academically. Retrospectively, I can actually see how you walked me “by the hand” all of those years. You have pushed me to deliver my very best, and never compromised for less than 100 percent effort on my behalf. Your comments were always punctual, and to the point, and I enjoyed very much our co-research experiences. I feel very fortunate having you as my supervisor, one who really knew how to guide me best - balancing demands with support, theory with practice.

Quite frankly, I cannot even find the words to thank you both enough for all your academic guidance and contribution to this research’. Thank you both so very much, and I hope that we can continue to work closely together in the future.

Last, but certainly not least, I would like to thank my family both in Israel and in Denmark, and particularly my parents Eli and Sima Taran, my parents-in-law Birgit and Verner Christiansen, my wife (my better half) Marianne, and my two wonderful children Daniel and Jonathan. As cliché as it may sound, you all were, and still are, the wind beneath my wings. Thank you for your support, thank you for believing in me, and for giving me the time and space to pursue my dream…
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ABSTRACT

High business model innovativeness also brings with it a high level of risk. Innovating one’s business model in a complex and uncertain world only increases the risks. Indeed, companies and their managers are beginning to recognize that taking, while at the same time controlling, risks is fundamental to developing and implementing a sustainable competitive business model.

In this dissertation, we argue for the growing necessity to emphasize the need for, and to clarify the process of, business model innovation, and to find ways to facilitate companies’ managers in coping with the uncertainties and complexities involved, by learning how to adequately mitigate the risks related to that process.

Ten retrospective case studies of business model innovation process undertaken by two industrial companies, followed by one action research study within a Danish company, provide the empirical basis for this study.

The ten case studies have helped us to develop a better understanding as to how risks are handled in the practice of business model innovation. An analysis of the business model innovation experiences of the two industrial companies showed that both companies experienced high levels of uncertainty and complexity during their innovation processes and were, consequently, struggling to find new processes for dealing with the risks involved. Based on the two companies’ experiences, various testable propositions are put forward, which link success and failure to the way companies appreciate and deal with the risks involved in business model innovation.

Then, based on the results of the ten case studies, and the propositions developed, an approach is proposed through which risk management can be embedded in the business model innovation process. The integrated risk management and business model innovation process model was then partly tested through an action research study in a Danish company.

The results are promising and warrant continuation of the development of that model.
1. **INTRODUCTION**

The years of my PhD research, 2007 to early 2011, will be remembered as the time of the global financial crisis. The insolvency of the U.S. banking system (e.g. Lehman Brothers) triggered a chain reaction – world stock markets collapsed, large financial institutions and industrial companies went bankrupt, were bought out, or are still in seriously deep trouble (e.g. G.M., Chrysler, AIG). Millions of employees lost their jobs worldwide, and governments have had to come up with rescue packages to save their own financial systems.

The “butterfly effect theory” (Duhem 1906, Lorenz 1996), which holds that a small change in the initial conditions of a system can cause a chain of events leading to large-scale alterations of the system, seems to be accepted as the way that “nature”, or in this case the economy, is operating and affecting us all.

In a business summit that took place at Harvard University in the early phases of the financial crisis (October 14, 2008), Professor Robert S. Kaplan linked the financial crisis with firms’ behavior, and argued for the fact that “apart from the macro issues [such as] interest rates and regulatory problems, virtually, all the failures at those firms were because of the failures of their risk management function”. That is, CEOs were fired, and companies collapsed, because they took higher risks than they could afford, and were therefore not prepared for, or failed to identify and organize according to, the magnitude of the impact level of the subsequent crisis.

The financial crisis was therefore considered for many companies as the “final straw that broke the camel’s back”. As if it was not hard enough to adapt to the effect of hyper-competition (D’Aveni, 1994), companies, in all industries worldwide, were faced with additional external forces as well, which created rapid internal turbulences that affected their own systems significantly and, eventually, forced them to rethink their operational business model more frequently and more fundamentally.

“Business” today is therefore becoming increasingly difficult to manage – future economic trends are highly uncertain, market changes are unpredictable, the lifecycle of products, competences, strategic choices and routine working tasks are all becoming shorter, and internal innovations make way for collaborative innovations increasingly taking place outside of the company’s box, in networks.

Complexity, uncertainty and risks followed by radical, more disruptive business model innovation thinking have become the key characteristics of today’s competition, and are very likely to remain so, and even grow progressively further in the future, as the effect of hyper-competition accelerates.

It was these circumstances, and comments similar to those of Professor Kaplan, which inspired us to focus this research on considering the links between risk management, innovation processes in general, and business model innovation processes in particular.
1.1 **RESEARCH OBJECTIVE, AIMS AND QUESTIONS**

Business models are a challenge to innovators, and effective business models are a tremendously valuable asset to a company. However in most cases, managers’ strategic preference to secure innovation capabilities typically involves “more of the same” (mostly product) innovations, that keep their company fixed on the same line of products, using the same, or somewhat similar, technologies, aimed at delivery to the same target customer (e.g. Christensen, 1997). Consequently, the business model in many of those cases is accepted to be fixed on a certain way of doing business, and for that reason it has hardly ever been questioned or changed significantly.

In some of the cases, due to unique assets, e.g. IPR, brand or exclusive technology, companies can continue to secure a sustainable competitive position in the market, and the need to innovate the business model radically is highly questionable. However, as mentioned earlier, today’s competition has reduced not only the lifecycles of products but, in fact, also the lifecycles of current business models, which, inevitably, forces many companies to rethink their operational business model more frequently and more fundamentally, in order to allow them to continue competing in existing, or to enter new, markets.

Consequently, the research objective is:

To emphasize the need for, and to clarify the process of, business model innovation (in addition to e.g. product innovation), and to find ways to facilitate managers in coping with the uncertainties and complexities involved, by learning how to mitigate adequately the risks and challenges related to that process.

Given the limited research available on business models and risk management (associated with innovation processes), and the lack of research on understanding how to incorporate risk management within the overall business model innovation process, this research will, to a large extent, be an explorative study in nature (entering “terra incognita” - unexplored territory).

Consequently, the aims of this research were designed as follows:

1. To **clarify** the business model concept and its innovation possibilities.

2. To **learn**, from practice, how risks are mitigated in the practice of business model innovation process and the challenges related to that.

3. To **develop** a model suggesting how to integrate risk management into business model innovation process.

4. To **test** the model developed within a company, for possible effect analysis.

Furthermore, following results obtained through research aims 1-4:
5. To **contribute** to business model innovation management and risk management theory and practice.

Based on the overall research objective and the five research aims mentioned above, the following research questions are proposed:

- **Research Question 1:** What is the role of risk and risk management in the practice of business model innovation?

- **Research Question 2:** To what extent, and especially how, can risk management help a company to deal with various risks throughout its business model innovation process?

A detailed explanation of the research design, as well as the relationship between the research questions and the research aims, is discussed in Chapter 4.

### 1.2 Scope of Research

One of the greatest challenges of this research is to decide where to draw the line in choosing what will go into the research and what will be left out. After all, the business model concept can easily be extended to cover, by and large, all aspects of business studies.

Hence, the thesis was not designed for the purpose of exploring the details, but rather in keeping a holistic view for analysing organizational innovation processes, and to study the organization and its innovation processes from a systematic viewpoint, with greater emphasis on risk management and innovation management studies and theories.

### 1.3 Thesis Structure

The dissertation is designed as a monograph, in which a complete and detailed description of the research performed is presented.

**Chapter 2** presents the theoretical foundation of this research. Three bodies of literature will be looked at, namely business models, innovation management, and risk management. Through an analysis of the literature we examine the context of various researchers’ perspectives, and will conclude by pinpointing the main observations, inconsistencies and gaps identified through that research process. Then, in order to enhance, and support, our understanding even further, and based on our findings, mostly associated with the lack of knowledge regarding the business model concept and its innovation process, **Chapter 3** focuses on the practitioners’ perspectives, and their understanding of their own business models. A preliminary empirical analysis was performed, prior to the main research, in two projects (“NewGIBM” and “Blue Ocean” projects), and an additional study trip (company visits) to the Silicon Valley in San Francisco.
Then, based on the theoretical review (Chapter 2) and the pre-empirical results (Chapter 3), **Chapter 4** discusses the identified research problem. Following this, a set of five research aims is developed, based on which two research questions are proposed. The chapter then continues to explain the methodological implications drawn from the research aims and questions, and gives details on and reasoning behind, as well as validity and reliability issues related to, each of the research method techniques chosen.

Inspired by Christensen’s (2006) process for building theory, **Chapter 5** enhances our understanding further by clarifying how the business model concept and its innovation possibilities can be understood. The (business model innovativeness space) theory developed here also provides the platform for the case studies reported in **Chapter 6**, where we were interested in learning about the business model innovation experiences of two industrial companies based on their uniqueness and high success rate in considering and implementing various business model innovation initiatives over the years (i.e. 10 retrospective case studies).

Then, also based on the results from the two case studies, **Chapter 7** proposes a generic risk management supported business model innovation process model. In order to analyze its application, and, through that, explore the possible effects of risk management on business model innovation process and outcomes, the model was partly tested using action research. The results of that study are reported and discussed in **Chapter 8**.

**Chapter 9** reflects on the research. In the theory finding section we further discuss the importance of understanding the co-dependency that exists between uncertainty, complexity, risk and risk management. Furthermore, we propose various types of business model innovation, and suggest that the business model should be perceived as the “basis” for all types of innovation. The chapter then continues by giving more concrete answers to the two research questions, followed by methodological reflections, further research trajectories, and overall research contribution considerations. Finally, **Chapter 10** summarizes and concludes on the overall research performed.
2. LITERATURE REVIEW

2.1 INTRODUCTION

The objective of this chapter is to discuss the theoretical foundation of this study. Three bodies of research, on innovation management, business model and risk management respectively, were selected given their relevancy to this research. As the cross-theoretical review evolves, it becomes increasingly apparent that the three fields are closely interrelated.

This chapter focuses on identifying theoretical gaps and inconsistencies associated with the three bodies of theory together, rather than within each single research domain.

2.2 INNOVATION MANAGEMENT

2.2.1 WHAT AND WHY INNOVATION?

"It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change" (Charles Darwin, 1859)

A distinction is typically made between invention – an idea made visible, and innovation – ideas applied successfully (McKeown, 2008).

The evolution of theory on innovation has advanced progressively in the past century. Joseph A. Schumpeter (1883-1950), an Austrian economist and political scientist, is considered to be one of the first gurus in the field of innovation studies. In his book "Theory of Economic Development" (1911, translated into English in 1934), he stated that internal factors such as innovation play a major role, and are actually the main driving force for economic development, rather than external factors such as (e.g.) population growth.

He argued that innovative companies are always one step ahead of their competitors due to an unbeatable and unique selling proposition or business model, and that innovativeness is the preferred way to cope with economic crises because companies that are offering new propositions keep competition lively and prevent price erosion.

His notion of the process of “creative destruction,” conceptually and literally started a radical revolution in economic theory. Economic progress, according to him, comes with a price – creative destruction, where large firms are simply destroyed by the entrepreneur who seizes commercial opportunities from inventors, just as the factory wiped out the blacksmith shop and the car superseded the horse and buggy.

Today, change has become a constant, and uncertainty a certainty. Companies in all industries worldwide are faced with a stressful external hypercompetitive (D’Aveni, 1994) environment (e.g. shorter product lifecycles, higher level of competences, more complex
working tasks), which creates rapid internal turbulences that affect their own system significantly and, eventually, forces them to rethink their operational business model more frequently and more fundamentally.

According to Tidd and Bessant (2009, p. 6), whilst competitive advantage can come from size, or possession of assets, the (innovation) pattern is increasingly coming to favour organizations that can mobilize knowledge, technological skills and experience to create novelty in their offerings (product/service) and the way in which they deliver those offerings. Furthermore, it has also been argued that innovation affects firms’ competitiveness in a variety of ways, not only in terms of price but also in terms of other performance characteristics, such as quality, design, strategic choices and responsiveness (e.g. Mulgan and Albury 2003, Tidd and Bessant 2009).

Securing continuous innovation capabilities (in a rapidly changing environment) is therefore an inevitable necessity for maintaining a sustainable competitive positioning for a firm. However, as this chapter will illustrate, the understanding of what innovation is about and what it takes to manage the process adequately, is varied. Accordingly, this chapter will review various authors’ perceptions regarding several innovation characteristics (i.e. types, radicality, process and openness), all of which will be further analyzed and discussed throughout the thesis.

2.2.2 INNOVATION TYPES AND SCALE

2.2.2.1 WHAT IS NEW?

Schumpeter (1911) argued that innovation is associated with the production of new things or of existing things by new methods. As examples of innovation, he pointed to the development of new products by creative activity, the introduction of new production methods, the cultivation of new markets, the acquisition of new (sources of supply for) resources, and organizational reforms. Innovation, according to him, is therefore associated with the capability to generate and implement new products, services, processes and models.

Tidd and Bessant (2009) divided the innovation types into four broad categories known as the “4P’s” of innovation space:

- **Product innovation** – changes in the things (products/services) which an organization offers.
- **Process innovation** – changes in the way in which they are created and delivered.
- **Position innovation** – changes in the context in which the products/services are introduced.
- **Paradigm innovation** – changes in the underlying mental models which frame what the organization does.
Another, more detailed, innovation segmentation was presented by Dooblin strategy firm (http://www.doblin.com/). Table 2.1 describes each type’s characteristics, followed by a relevant example for illustration.

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<th>Description of type</th>
<th>Business example</th>
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<td>Finance</td>
<td>1 Business model</td>
<td>How you make money</td>
<td>Dell revolutionized the personal computer business model by collecting money before the consumer's PC was even assembled and shipped (resulting in net positive working capital of seven to eight days).</td>
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<td>2 Networks and alliances</td>
<td>How you join forces with other companies for mutual benefit</td>
<td>Consumer goods company Sara Lee realized that its core competencies were in consumer insight, brand management, marketing and distribution. Thus it divested itself of a majority of its manufacturing operations and formed alliances with relevant manufacturing companies and (new) supply chain partners.</td>
</tr>
<tr>
<td>Process</td>
<td>3 Enabling process</td>
<td>How you support the company's core processes and workers</td>
<td>Starbucks can deliver its profitable store/coffee experience to customers because it offers better-than-market compensation and employment benefits to its store workers - usually part time, educated, professional, and responsive people.</td>
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<td><strong>4 Core processes</strong></td>
<td>How you create and add value to your offerings</td>
<td>Wal-Mart continues to grow profitably through core process innovations such as real-time inventory management systems, aggressive volume/pricing/delivery contracts with merchandise providers, and systems that give store managers the ability to identify changing buyer behaviors and respond quickly with new pricing and merchandising configurations.</td>
<td></td>
</tr>
<tr>
<td><strong>5 Product performance</strong></td>
<td>How you design your core offerings</td>
<td>The VW Beetle (in both its original and its newest form) took the market by storm, combining multiple dimensions of product performance.</td>
<td></td>
</tr>
<tr>
<td><strong>6 Product system</strong></td>
<td>How you link and/or provide a platform for multiple products</td>
<td>Microsoft Office bundles a variety of specific products (Word, Excel, PowerPoint, etc.) into a system designed to deliver productivity in the workplace.</td>
<td></td>
</tr>
<tr>
<td><strong>7 Service</strong></td>
<td>How you provide value to customers and consumers beyond and around your products</td>
<td>An international flight on any airline will get you to your intended destination. A flight on Singapore Airlines, however, nearly makes you forget that you are flying at all, with the most attentive, respectful, and pampered pre-flight, in-flight and post-services you can imagine.</td>
<td></td>
</tr>
<tr>
<td><strong>8 Channel</strong></td>
<td>How you get your offerings to market</td>
<td>Legal problems aside, Martha Stewart has developed such a deep understanding of her customers that she knows just where to be (stores, TV shows, magazines, online, etc.) to drive huge sales volumes from a relatively small set of &quot;home living&quot; educational and product offerings.</td>
<td></td>
</tr>
<tr>
<td><strong>9 Brand</strong></td>
<td>How you communicate your offerings</td>
<td>Absolut conquered the vodka category on the strength of a brilliant &quot;theme and variations&quot; advertising concept, strong bottle and packaging design, and a whiff of Nordic authenticity.</td>
<td></td>
</tr>
<tr>
<td><strong>10 Customer experience</strong></td>
<td>How your customers feel when they interact with your company and its offerings</td>
<td>Harley Davidson has created a worldwide community of millions of customers, many of whom would describe &quot;being a Harley Davidson owner&quot; as a part of how they fundamentally see, think, and feel about themselves.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2 below illustrates the similarities, as well as the differences, between the three approaches, in terms of the types of innovation included in the respective approaches.
---|---|---
**Product**  |  Product (and services)  |  Product performance  
  |  |  Product system  
**Services**  |  |  Service  
**Processes**  |  Process  |  Enabling process  
  |  |  Core process  
  |  |  Channel  
**Position**  |  |  
**Models**  |  Paradigm  |  Business model  
  |  |  Network and alliances  
  |  |  Brand  
  |  |  Customer experience  

Table 2.2: Types of innovation - comparison

Tidd and Bessant (2009) touched on all four categories mentioned by Schumpeter (1911), and add an additional category, namely, “Position”, associated with innovating the target customer of the company. Doblin strategy firm, however, did not mention the position of the firm as a type of innovation, but gave more details to the other three categories mentioned by Tidd and Bessant (2009), and added three other categories, associated with: (new) network and alliances; company branding; and customer experience (related more to new customer relationship and feeling, rather than to new markets). A more detailed analysis of the innovation types will be presented again in the discussion part of the thesis (Chapter 9).

2.2.2.2 HOW NEW?

Innovation can be considered as small (incremental) or large (radical) changes to existing products, services, etc. (e.g. Rosenau and Moran 1993, Leifers 2002, Tidd et al. 2005). Tidd and Bessant (2009), for example, differentiate between incremental and radical as follows:

- Incremental – “Do better” innovation or “improvement innovation”.
- Radical - “Do different” innovation.

Incremental innovation is characterized as mainly using existing knowledge to improve existing products, services etc., it is short-term based and it focuses on the focal company doing better what it already does. Radical innovation, in contrast, is based on the ability to find new knowledge and new possibilities. Change of this kind can come either through an emergence of new technology, or through the emergence of a completely new market with new characteristics and expectations. Thus it can result in new products/services that might cannibalize or move the bases of existing products/services (Tidd and Bessant, 2009).
Tushman and Anderson (1986) use the terms “competence enhancing” and “competence destroying” to describe the differences between the two.

Also, the distinction between “continuous” versus “discontinuous” (or “disruptive”) innovation has been addressed by many authors to describe the degrees of innovation novelty (e.g. Tushman and Anderson 1986, Christensen 1997, Garcia and Calantone 2002). Garcia and Calantone, for example, developed a method for classifying innovations and innovativeness rewards, and suggested that innovation can be classified under three core categories, namely: radical innovations, which require simultaneous technological and market changes, really new innovations, which can be identified by the criterion that discontinuity must occur on either a market or technological basis and, finally, incremental innovations, which can be defined as providing new features and benefits of, or improvements to, existing technologies in existing markets.

On an aggregated scale, regardless of the “buzz” word chosen to discuss innovation radicality (i.e. competence destroying, discontinuous, disruptive), it seems that radical innovation is associated, for the most part, with two main (innovation) characteristics, namely: technological and/or market changes.

2.2.2.3 NEW TO WHOM?

An interesting question arises when one tries to relate the “how new?” innovation research with the “new to whom?” question. Is it enough that one of the company’s stakeholders thinks it is new, or should all the participants have to agree that it is new before it should indeed be regarded as new? Is it new if it is new to the company but not generally within the industry as such? Is it new if it is used in another industry but not in the one that the participants are a part of? Or, should it be completely new to all like e.g. the Internet and online shopping were in the mid-nineties (Lindgren et al. 2008)?

As the previous section implicitly suggested, it seems that the level of newness (incremental/radical) concerns a scale on which various groups, or individuals, identify a certain act as being innovative. However the relation between the two is somewhat fuzzy.

O’Connor and Ayers (2005), for example, argued that radical innovation should have a strong dual impact, both on the market, in terms of offering novelty, as well as on the firm, in terms of generating new business. Leifer et al. (2000) mentioned that radically innovative projects entail new to the world performance features in terms of, for example, significant improvement in known features and/or significant reduction in costs.

Rogers (1983) presented a “scale” of radicality ranging from new to an individual, group, company, industry, or society. Garcia and Calantone (2002) offered a relatively similar innovation scale that ranges from new to the individual, through new to the firm, new to the market and new to the industry, to new to the world.

All in all, if we link the discussion of this section to the one mentioned above (2.2.2.2), the term “radical innovation” appears to be related to (at least) two levels of analysis:
• New technologies and/or markets
• Impact effect (i.e. new to whom?)

Yet, it is still quite difficult to draw a clear line, along those two dimensions, between what can be defined as a radical innovation, and what cannot. For example: based on a radically new technology/market (to the firm), a company can, for example, launch a radically new product, but with little effect, if at all, in the market place (given that that market is radically new, but only to the firm). Alternatively, it can equally be argued that a company can launch an incremental product innovation, based on a radically new (to the world) technology that they might possess, but, nonetheless, this incremental innovation will have a radical effect on the industry that they are operating in, or even to the world.

Subsequently, given this lack of clarity regarding the term “radical innovation”, in Chapter 5 we will continue to analyze and discuss this matter further.

2.2.3 INNOVATION PROCESS

An innovation process is a change process, which should eventually manifest itself in the form of a new value.

A number of conceptual models have been developed by various scholars, suggesting that the innovation process is constructed by a variety of dissimilar, but nonetheless, highly interconnected phases, for example: idea generation, research design and development, prototype production, manufacturing, marketing and sales (Dooley and O'Sullivan 2001, Knox 2002, Rothwell 1994). Tidd and Bessant (2009) narrowed the process into four key elements – search, selection, implementation and capture.

The most classical innovation process, back in the mid-nineties, assumed that the innovation process is linear and purely science-pushed. The innovation process was traditionally assumed to be (mostly) internal, R&D based; hardly any attention was given to external stakeholders’ outlooks (e.g. Rothwell, 1994).

As the competitive pressure increased, it became increasingly clear to companies that the innovation process should not be perceived solely as a linear “technology push” process, but rather also user driven (“need pull”) oriented, where the customer could also be recognized as one of the primary sources of generating successful new ideas to be innovated. Rothwell and Zegveld (1985), for example, presented the “Coupling Model” of innovation (Figure 2.2), and proposed a non-linear approach to the innovation process, presented as a logical non-sequential series of functionally interactive and interdependent stages, linking together in-house functions with extra-organizational entities.
The Rothwell and Zegveld model suggests that innovation comes from the coupling of market needs and technological opportunities. The process, according to them, is still sequential but with feedback loops where R&D and marketing play a balanced role and emphasis is given to the interface between the two.

Akin to Rothwell and Zegveld (1985), Kline and Rosenberg (1986), presented their “Chain Linked Model” for innovation, in which they argued for the dual non-linear character of the innovation process i.e. 1) both “push” and “pull”, 2) sequential, as well as 3) feedback loops between the stages.

Interestingly enough, although the (first) “push and pull”, non-linear character, of the innovation process has been well acknowledged nowadays, several authors are still opposed to the fact that the innovation process should also follow feedback loops between the different phases (e.g. Booz Allan and Hamilton 1982, Tidd and Bessant 2009). The reason for opposing the second non-linear character is due to the rising complexity of managing the innovation process through nets of communication and operational paths, which are available for users to manage the process “forward”.

Cooper (1993), in particular, introduced a process with gates between the stages that facilitate companies in managing their innovation process with more awareness and certainty.

![Stage-Gate® Product Innovation Process Diagram]

Figure 2.3: Stage gate model (Cooper, 1993)
According to Larsen (2007) the linear approach largely generalizes a range of causalities as driving mechanisms, and ignores the many instances of feedback and loops that might occur between the different stages of the process. However, according to her, the approach is conceptually appealing because it articulates a way in which people can obtain knowledge during their innovation journey by reducing uncertainties between actions on the one hand, and securing an ending to each stage of the process on the other.

2.2.4 THINKING INSIDE OR OUTSIDE OF THE BOX?

Recent research has suggested that, given today’s competition, it is highly unlikely that a single company would be able to possess all the necessary competencies needed in order to deliver successfully their unique solutions to the market place. Consequently, it is recommended that companies involve a larger group of stakeholders in their innovation processes (e.g. Chesbrough 2007, Miles et al. 2005, Dodgson et al. 2006, Ahmed and Shepherd 2010).

Chesbrough (2007), in particular, argued that businesses must adopt a model of innovation that looks both outside of its own four walls for ideas, as well as licenses its homegrown but unused intellectual property to others. That is, in order to truly exploit the true potential of the innovation capabilities of the firm, companies must open their business models by actively searching for and exploiting outside ideas and by equally allowing unused internal technologies to flow to the outside, where other firms can unlock their latent economic potential. For instance, one company develops a novel idea but does not bring it to market. Instead, the company decides to partner with or sell the idea to another party, which then commercializes it.

![Figure 2.4: Open innovation (Chesbrough, 2007)](image)
2.2.5 Conclusion

A scan of the innovation literature suggests that innovation studies evolved progressively. Beginning in the early 20th century with clear focus on the innovator entrepreneur (e.g. Schumpeter, 1911), it was then analyzed further with emphasis towards product and process innovation focus (e.g. Wind 1973, Cooper 1993). This was followed by in-house, mostly “push” innovations (R&D department), which were then extended also into market “pull” processes, and good external relations and communication channels (e.g. Tidd and Bessant 2005, Rothwell 1994). Eventually, this culminated in contemporary studies, with focus on more radical/disruptive innovations, such as positions and paradigm (business model) innovations, with emphasis on networking and collaborative, more open-based, systems for innovations (e.g. Chesbrough, 2007, Tidd and Bessant, 2005)
2.3 Business Models and Their Innovation

“Bill Gates knows that... competition today is not between products, it's between business models. He knows that irrelevancy is a bigger risk than inefficiency. And what's true for Microsoft is true for just about every other company” (Hamel and Samper, 1998)

2.3.1 Introduction

Business models are a challenge to innovators and effective business models are a tremendously valuable asset to a company (Chesbrough, 2007). Most business leaders however, when asked to explain their company’s business model, would not have a ready answer to give, and when they do come up with one they will most likely describe their organizational structure and networks. But does this represent a holistic business model? Many managers do not really know what a business model is, let alone have an explicit model of their own business. And if they do, do they know how to continuously develop it successfully?

What is it about business models that make them so difficult for managers to comprehend? What do we really know about the rationale of business models? What is the difference between innovation of a product and innovation of a business model? At present there is extensive knowledge about innovation, in general, (e.g. Ulrich and Eppinger 2000, Tidd et al. 2005) and how to innovate products (e.g. Wind 1973, Cooper 1993, Baker and Hart 2007) in particular, but very little is known about how to innovate business models.

According to Linder and Cantrell (2000), many executives cannot even articulate their business models. They talk about business models but 99 percent have no clear framework for describing their own model. They do know what business they are in, they just cannot describe it clearly. And if they are unable to describe it clearly, they cannot share it effectively throughout their organization.

Magretta (2002, p.92) continued in this line of thought and argued that both the terms “business model” and “strategy” are among the most sloppily used terms in business. ‘They are often stretched to mean everything – and end up meaning nothing’. Nonetheless, according to her, these two concepts are of enormous practical value.

Porter, too, criticized the “business model” concept and argued that “the definition of a business model is murky at best. Most often, it seems to refer to a loose conception of how a company does business and generates revenue. Yet simply having a business model is an exceedingly low bar to set for building a company. Generating revenue is a far cry from creating economic value ...” Porter (2001, p.73).

Consequently, although both academics and practitioners alike recognize and appreciate the potential hidden within the business model concept, they share a common difficulty, namely, that in spite of the intensive research carried out in this field in the past 15 years, the concept still remains very fuzzy in its definition, purpose and operationalization.
The aim of this section, therefore, is to open the discussion on business model innovation as a new field of research. However, before discussing how to innovate business models, or when a business model could be defined as new, a definition, as well as its theoretical background, is required.

2.3.2 DEFINITION OF: "BUSINESS", "MODEL", AND "BUSINESS MODEL"

What is a “business model” really? Unfortunately the answer is inconclusive. Different authors defined the concept in dissimilar ways. In order to simplify things though, it would probably be easier to separate the question into three definitions (a “business”, a “model” and a “business model”), and to try and understand, through that, whether the business model concept is simply a merger of two definitions or something new.

Definition of the term “Business”:
- [Trade] the buying and selling of goods or services (Cambridge Learner's Dictionary – C.L.D). e.g.
  - “The shop closed last year, but now they're back in business”.
  - “We do a lot of business with China”.
  - “His company has gone out of business” (= failed)
- [Organization] that sells goods or services (C. L. D). e.g.
  - “My uncle runs a small decorating business”
- [Work] that you do to earn money (C. L. D). e.g.
  - “She's in Vienna on business” (= working)

Definition of the term “Model”:
- A representation of something, either as a physical object which is usually smaller than the real object, or as a simple description of the object which might be used in calculations. (Cambridge Learner's Dictionary)
- A smaller copy of a real object, often used to show how something works or what it looks like. (Cambridge Learner's Dictionary)

Definition of the term “Business Model”:
As shown in Table 2.3, many authors have attempted to define the business model concept. Some authors took a narrow, more technological or financial focus (e.g. Chesbrough 2007, Stewart and Zhao 2000), while others adopted a more general perspective (e.g. Amit and Zott 2002, Osterwalder et al. 2004). Some have incorporated corporate strategy in their business model definition (e.g. Hamel 2000, Timmers 1998), while others have left it out (e.g. Weill and Vitale 2001, Selz 1999). However, it seems that most (if not all) authors agree that a business model is simply defined by the combination of the two terms “business” and “model”.

30
<table>
<thead>
<tr>
<th>Author(s) and Year</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timmers, 1998</td>
<td>“Business model stands for the architecture for the product, service and information flows, including a description of the various business actors and their roles, the potential benefits for these actors and the sources of revenues……… the business model includes competition and stakeholders”.</td>
</tr>
<tr>
<td>Venkatraman and Henderson, 1998</td>
<td>“An architecture along three dimensions: customer interaction, asset configuration and knowledge leverage”.</td>
</tr>
<tr>
<td>Selz, 1999</td>
<td>“A business model is architecture for the firm’s product, service and information flows. This includes a description of the various economic agents and their roles. A business model also describes the potential benefits for the various agents and provides a description of the potential revenue flows”.</td>
</tr>
<tr>
<td>Stewart and Zhao, 2000</td>
<td>“Business model is a statement of how a firm will make money and sustain its profit stream over time”.</td>
</tr>
<tr>
<td>Linder and Cantrell, 2000</td>
<td>“The business model is the organization’s core logic for creating value”.</td>
</tr>
<tr>
<td>Hamel, 2000</td>
<td>“A business model is simply a business concept that has been put into practice. A business concept has four major components: Core Strategy, Strategic Resources, Customer Interface and Value Network”… (Elements of the core strategy include business mission, product/market scope, and basis for differentiation. Strategic resources include core competencies, key assets, and core processes. Customer interface includes fulfillment and support, information and insight, relationships and pricing structure. The value network consists of suppliers, partners and coalitions)”.</td>
</tr>
<tr>
<td>Petrovic et al., 2001</td>
<td>“Business model describes the logic of a business system for creating value that lies behind the actual processes”.</td>
</tr>
<tr>
<td>Weill and Vitale, 2001</td>
<td>“A description of the roles and relationships among a firm’s consumers, customers, allies and suppliers that identifies major flows of product, information and money and the major benefits to participants”.</td>
</tr>
<tr>
<td>Magretta, 2002</td>
<td>“Business models are stories that explain how the enterprises work … Business models describe, as a system, how the pieces of a business fit together, but they don’t factor in one critical dimension of performance: competition”…. a good business model has to satisfy two conditions. It must have a good logic - who the customers are, what they value, and how the company can make money by providing them that value. Second, the business model must generate profits.”</td>
</tr>
</tbody>
</table>
| Amit and Zott, 2002 | “A business model is the architectural configuration of the components of transactions designed to exploit business opportunities. The transaction component refers to the specific information, service, or product that is exchanged and/or the parties that engage in the exchange. The architectural configuration explains
the linkages among the components of transactions and describes their sequencing”.

| **Osterwalder et al. (2004)** | “A conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, to generate profitable and sustainable revenue stream”.

| **Chesbrough, 2007** | “The business model is a useful framework to link ideas and technologies to economic outcomes”… “It also has value in understanding how companies of all sizes can convert technological potential (e.g. products, feasibility, and performance) into economic value (price and profits)”….. “Every company has a business model, whether that model is articulated or not”.

| **Skarzynski and Gibson, 2008** | “The business model is a conceptual framework for identifying how a company creates, delivers, and extracts value. It typically includes a whole set of integrated components, all of which can be looked on as opportunities for innovation and competitive advantage”.

**Table 2.3: Definitions of the term “business model”**

In this research, we adopted Osterwalder et al.’s (2004) definition, which we found it to be the most comprehensive one in providing concrete details to the core processes, or building blocks, existing within a business. Consequently, according to this definition, a business model serves as a building platform that represents a company’s operational and physical manifestation. Thus, the challenge for business model designers is to first identify the key elements and the key relationships that describe the company’s “as-is” business model before innovating it.

**BOX 1**

Four classic examples of business model innovation:

- **IBM** – from computer manufacturing to a service and solution company (consultancy and service).
- **Rolls-Royce** – from high quality aerospace engines to becoming a service company offering ‘power by the hour’.
- **Bausch and Lomb** – from ‘eye wear’ (spectacles, sunglasses and contact lenses) to ‘eye care’ (laser surgery equipment, specialist optical devices and R&D).
- **Ryanair** – transportation at the lowest possible prices, flying only to low cost secondary airports, paying for ‘extra’ services. However, unlike the other three examples, this company has set up an innovative business model from the outset, rather than shifted from an ‘as-is’ business model to a new one.
2.3.3 Evolution of the Business Model Concept

The term Business Model has become popular since the “dot com era” in the mid-nineties. As business ecosystems emerged, many companies started to rethink their business model and business structure by shifting from a so-called M-form (or “multi-divisional firm”) business to an E-form business (Moore 1998). According to Gordijn et al. (2005), the evolution of business model research can be categorized into five core phases. In the first phase, a number of authors suggested business model definitions and classifications (Timmers 1998, Rappa 2001). In the second phase authors started to complete the definitions by proposing what elements belong within a business model (Chesbrough and Rosenbloom 2000, Linder and Cantrell 2000, Petrovic et al. 2001, Magreta 2002). The third phase followed a detailed description of these components (Hamel 2000, Weill and Vitale 2001, Afuah and Tucci 2003). In the fourth phase researchers started to model the components, conceptually culminating in business model ontologies (Gordijn 2002, Osterwalder 2004). Finally, in the fifth phase, those models were applied in management and information systems applications.

![Figure 2.5: Evolution of the business model concept (Osterwalder et al. 2004)](image)

2.3.4 Theoretical Roots of the Business Model Concept

According to Loukis and Tavlaki (2005) the definitions of the business model notion converge towards the approach that the business model is related to few managerial perceptions. According to them, although the business model captures some of the key components of a business-plan, it is not dealing with a number of additional start-up and operational issues that transcend the (business) model. Furthermore, it is not a strategy but includes a number of strategic elements.

Amit and Zott (2001) approached the business model construct as a unifying unit of analysis and concluded that the findings of their cross-theoretical perspective led them to believe that no single theory can fully explain the value creation potential of a business enterprise. Consequently, it is impossible to identify a holistic framework for a generic business model depending merely on one author’s perspective. They could identify, however, common central ideas and theories with the following details and aspects: business models are built upon ideas advocated by the main theoretical frameworks of strategic management (Porter, 1985) and entrepreneurship research (Schumpeter, 1942).
The business model concept is also stressing the importance of transaction efficiency, emphasized by transaction cost economics (e.g. Williamson, 1981), as well as on the value chain concept (Porter, 1985) and the extended notions of value systems and strategic positioning (Porter, 1985). Additionally, according to Amit and Zott (2001), since the business model perspective takes into consideration the ways in which resources can be valuable, difficult to imitate, less transferable, less substitutable, and more productive with use, it is therefore built also on the resource-based view of the firm (e.g. Wernerfelt 1984, Barney 1991).

Furthermore, from strategic network theory they identified a link between network configuration and value creation (e.g. Burt, 1992). By building on the insight that unique combinations of inter-firm cooperative arrangements can create value (Doz and Hamel 1998, Dyer and Singh 1998), they conclude that inter-firm cooperative arrangements are essential for remaining profitable.

Accordingly, it seems that business model studies encompass the entire business processes characteristics associated both with internal operational processes, as well as external strategic partnerships relations.

2.3.5 BUSINESS MODEL COMPONENTS

Morris et al. (2003) presented an overall, what they called; “unified perspective of business models” (see Table 2.4). They argued that a business model framework must be reasonably simple, logical, measurable, comprehensive, operational and meaningful. The challenge, therefore, is to produce a framework that is applicable to firms in general. The framework proposed by these authors includes six basic decision areas to be considered:

- Factors related to services and products, associated with the core question: How do we create value?
- Market factors, associated with the core question: Who do we create value for?
- Internal capability factors, associated with the core question: What is our source of competence?
- Competitive strategy focus, associated with the core question: How do we competitively position ourselves?
- Economic factors, associated with the core question: How do we make money?
- Growth/exit factors, associated with the core question: What are our time, scope and size ambitions?

Morris et al. (2003) argued that their framework provides users with the possibility to design, describe, categorize, criticize and analyze their business model – for any type of company. They also claimed that innovation potential exists in each model component, and that their holistic framework model can open a path towards new and general business model taxonomies and archetypes. They did not mention, however, any archetypal business model framework explicitly. Nonetheless, they still succeeded in partly improving our understanding of the contours of “business models”.

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Corresponding with the findings of Morris et al., Osterwalder et al. (2004) also developed a framework for business models. Akin to Morris et al. they summed up the academic work of previous business models researchers, adding new theoretical aspects. Table 2.5 presents their nine business model building blocks, in comparison with the six building blocks of Morris et al. (2003), as well as Chesbrough’s (2007) framework (Osterwalder et al.’s nine building blocks are in bold, and colored red).
<table>
<thead>
<tr>
<th>Source</th>
<th>Specific components</th>
<th>Number</th>
<th>E-commerce/ general</th>
<th>Empirical support (Y/N)</th>
<th>Nature of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horowitz (1996)</td>
<td>Price, product, distribution, organizational characteristics, and technology</td>
<td>5</td>
<td>G</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Viscio and Pasternak</td>
<td>Global core, governance, business units, services, and linkages</td>
<td>5</td>
<td>G</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>(1996)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timmers (1998)</td>
<td>Product/service/information flow architecture, business actors and roles, actor benefits, revenue sources, and marketing strategy</td>
<td>5</td>
<td>E</td>
<td>Y</td>
<td>Detailed case studies</td>
</tr>
<tr>
<td>Donath (1999)</td>
<td>Customer understanding, marketing tactics, corporate governance, and intranet/extranet capabilities</td>
<td>5</td>
<td>E</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Gordijn et al. (2001)</td>
<td>Actors, market segments, value offering, value stakeholder network, value interfaces, value ports, activity, and value exchanges</td>
<td>8</td>
<td>E</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Linder and Cantrell</td>
<td>Pricing model, revenue model, channel model, commerce process model, Internet-enabled commerce relationship, organizational form, and value proposition</td>
<td>8</td>
<td>G</td>
<td>Y</td>
<td>70 interviews with CEOs</td>
</tr>
<tr>
<td>(2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chesbrough and Rosenbaum</td>
<td>Value proposition, target markets, internal value chain structure, cost structure and profit model, value network, and competitive strategy</td>
<td>6</td>
<td>G</td>
<td>Y</td>
<td>35 case studies</td>
</tr>
<tr>
<td>(2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gartner (2003)</td>
<td>Market offering, competencies, core technology investments, and bottom line</td>
<td>4</td>
<td>E</td>
<td>N</td>
<td>N Consulting clients</td>
</tr>
<tr>
<td>Hamel (2001)</td>
<td>Core strategy, strategic resources, value network, and customer interface</td>
<td>4</td>
<td>G</td>
<td>N</td>
<td>Consulting clients</td>
</tr>
<tr>
<td>Petrovic et al. (2001)</td>
<td>Value model, resource model, production model, customer relations model, revenue model, capital model, and market model</td>
<td>7</td>
<td>E</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Dubosson-Torbay et al.</td>
<td>Products, customer relationship, infrastructure and network of partners, and financial aspects</td>
<td>4</td>
<td>E</td>
<td>Y</td>
<td>Detailed case studies</td>
</tr>
<tr>
<td>(2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afuah and Tucci (2001)</td>
<td>Customer value, scope, price, revenue, connected activities, implementation, capabilities, and sustainability</td>
<td>8</td>
<td>E</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Weill and Vitale (2001)</td>
<td>Strategic objectives, value proposition, revenue sources, success factors, channels, core competencies, customer segments, and IT infrastructure</td>
<td>8</td>
<td>E</td>
<td>Y</td>
<td>Survey research</td>
</tr>
<tr>
<td>Applegate (2001)</td>
<td>Concept, capabilities, and value</td>
<td>3</td>
<td>G</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Amit and Zott (2001)</td>
<td>Transaction content, transaction structure, and transaction governance</td>
<td>4</td>
<td>E</td>
<td>Y</td>
<td>59 case studies</td>
</tr>
<tr>
<td>Rayport and Jaworski (2001)</td>
<td>Value cluster, market space offering, resource system, and financial model</td>
<td>4</td>
<td>E</td>
<td>Y</td>
<td>100 cases</td>
</tr>
<tr>
<td>Betz (2002)</td>
<td>Resources, sales, profits, and capital</td>
<td>4</td>
<td>G</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2.4: Perspectives on business model components** (Morris et al. 2003)
<table>
<thead>
<tr>
<th>Building Block</th>
<th>Description</th>
<th>Chesbrough 2006</th>
<th>Morris et al. 2003</th>
</tr>
</thead>
</table>
| **Product**   | Value Proposition  
Gives an overall view of a company’s bundle of products and services | Component 1: Articulate the value of the proposed offering | Component 1: Factors related to offering |
| **Customer Interface** | Target Customer  
Describes the segments of customers a company wants to offer value to | Component 2: Identify the market segment | Component 2: Market factors |
| | Distribution Channel  
Describes the company’s various means of getting in touch with its customers | Component 3: Define the value chain to deliver that offering | - |
| | Relationship  
Explains the kind of links a company establishes between itself and its different customer segments | - | - |
| **Infrastructure Management** | Value Configuration  
Describes the arrangement of activities and resources | Component 3: Define the value chain to deliver that offering | Component 3: Internal capability factors |
| | Core Competence  
Outlines the competences necessary to execute the company’s business model | - | Component 3: Internal capability factors |
| | Partner Network  
Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialize value | Component 3: Define the value chain to deliver that offering  
Components 5: Describe the position of the firm within the value network | - |
| **Financial Aspects** | Cost Structure  
Sums up the monetary consequences of the means employed in the business model | Component 4: Establish cost structure and profit potential | Component 5: Economic factors |
| | Revenue Model  
Describes the way a company makes money through a variety of revenue stream | Component 4: Establish cost structure and profit potential | Component 5: Economic factors |
| **Strategy Aspects** | Competitive Factor  
- | Component 6: Formulate a competitive strategy | Component 4: Competitive strategy factor  
Component 6: Growth/exit factors |

Table 2.5: Comparison of a business model’s building blocks
As can be seen, Osterwalder et al. overlap on four components with Morris et al. and on five components with Chesbrough’s framework (2007), but add more detailed elements to our understanding of the business model concept: relationship, core competence, network partners, cost structure, and revenue model. However Osterwalder et al. lack the strategy dimension, mentioned by Morris et al. and Chesbrough.

Thus, an important question raised but not adequately addressed in the literature is: What is the relation between strategy and business model? Why is strategy not mentioned in Osterwalder et al.? After all, both Osterwalder et al. and Morris et al. have systematically scrutinized, for the most part, the same literature and yet arrived at different conclusions.

2.3.6 BUSINESS MODEL VS. STRATEGY

Business model and strategy – both concepts are used frequently by researchers as well as company leaders; even so, is it truly possible to classify the differences between the two?

Seddon et al. (2004) tackled this issue. Based on the work of various authors (e.g. Porter 1996 and 2001, Magretta 2002, Weill and Vitale 2001, Applegate 2001, Linder and Cantrell 2000), they came to a conclusion that a business model should be viewed and defined as an abstract representation (translation) of a company's strategy into a visual blueprint (sketch “D” in Figure 2.6). This means that, unlike strategy, a business model does not consider the firm’s competitive positioning. Furthermore, business models are inward oriented, focusing more on how the firm creates economic value, while strategy is more outward oriented and focuses more on the competitive positioning of the firm.

Osterwalder et al. adopted Seddon et al.’s findings and argued that another difference is that strategy includes execution and implementation, while the business model is more about how a business works as a system. That is why, according to them, some “winning” business models can be managed badly and fail, just as much as a “trailing” business model may succeed because of strong management and implementation skills.

Chesbrough and Rosenbloom (2002) added two more distinctions. Firstly, business models focus on creating, delivering and capturing value. Strategy is about a company’s competitive positioning and sustainability. Secondly, while both are targeted towards creating value, strategy is targeted more towards creating financial value for shareholders,
while business models are more focused towards creating new value propositions for the business. So, Chesbrough and Rosenbloom seem to conclude that there is a strong overlap between the terms strategy and business model (sketch “B” in Figure 2.6).

2.3.7 When is a Business Model “New”?

Having a conceptualization of business models is one thing, innovating them is quite another. According to Magretta (2002), new business models are variations on a generic value chain underlying all businesses, which eventually can be divided into two categories:

1. All the activities associated with production; e.g. designing, purchasing and manufacturing.
2. All the activities associated with selling something; e.g. finding and reaching customers, sales transactions and distributing the products/services.

For that reason, according to her, a new business model can be seen as a new product for unmet needs (new customer segment), or it may involve a process innovation and a better way of making/selling/distributing an already proven (existing) product or service (to existing and/or new customer segments). Or, formulated more generally, a business model is new if one of the “building blocks” is new.

According to Amit and Zott (2001), business model innovation refers not only to products, production processes, distribution channels, and markets, but also to exchange mechanisms and transaction architectures. Therefore they propose to complement the value chain perspective by concentrating also on processes that enable transactions. In view of that, they conclude that business model innovation does not merely follow the flow of a product from creation to sales, but also includes the steps that are performed in order to complete transactions. Therefore, the business model as a unit of analysis for innovation potentially has a wider scope than the firm boundaries, since it may encompass the capabilities of multiple firms in multiple industries. Also Chesbrough (2007) and the IBM Global CEO Studies (2006 and 2008) emphasize the importance of business model innovation to appear in the form of organization structure and network relationship changes, such as alliances, joint ventures, outsourcing, licensing, and spin-offs.

2.3.8 Levels of Business Model Change

The debate on incremental versus radical innovation (e.g. Rosenau 1993, Leifer 2002, Tidd et al. 2005), discussed earlier, concerns the “how new”, and “new to whom” questions. With relation to business model innovation, Skarzynski and Gibson (2008) argued that in order to understand how to innovate a business model, there is a need to break it down into individual components and understand how all the pieces fit together in a holistic way. Furthermore, according to them, in order to build a breakthrough business model that rivals will have difficulty imitating, companies need to integrate a whole series of complementary, value-creating components so that the effect will be cumulative.

Another approach to business model innovation, suggested by Linder and Cantrell (2000), discusses the level of radicality of business model innovation and presents four of what
they call “change models”: realization models, renewal models, extension models and journey models. In realization models, where most companies are situated, the main issue is to exploit the current potential within an existing operational framework. This business model is considered to be the one with the least actual change, for example, geographical expansion of the firm, minor changes in the product line, and customer service improvement. Renewal models include firms that change their core skills to create, possibly disruptively, a new position on the price/value curve. Examples include the revitalization of product/service platforms, brands, cost structures and technology bases. Extension models include radical changes by developing new markets, value chain functions, and product/service lines. Finally, journey models involve a complete transformation of the original business model. Here, the company moves deliberately and purposefully to a new operating model.

Figure 2.7: Change models (Linder and Cantrell 2000)

Figure 2.7 suggests that realization models, most of the renewal models, and even few of the extension models innovations cannot really be considered as business model innovations, since they are situated at the left side of the figure, under the “No business model change” category. Consequently, despite the attempt of developing a business model innovation typology framework, it seems that Linder and Cantrell support the understanding that most business model innovation initiatives are mostly associated with disruptive innovation to the core business of the firm. Yet, it is still somewhat difficult to grasp where we can draw the line in arguing for when an innovations can rightfully be considered a business model innovation.
2.3.9 **CONCLUSION - BUSINESS MODEL [AND INNOVATION] KNOWLEDGE GAPS**

In order to find out whether the business model concept is just a fad, or adds something fundamentally new and important to management theory and practice, we analyzed the business model concept and innovation literature, and examined the similarities/differences between various theories and studies for the purpose of proposing a genuine opinion regarding the business model concept.

Porter (2001, p.73) seems to hold the strongest opposition to business model research studies, by arguing that the “business model approach to management becomes an invitation for faulty thinking and self-delusion”. It should be noted though that he relates his opinion to dot-coms and other internet players and to what he calls: “the internet’s destructive lexicon”; that instead of talking in terms of strategy and competitive advantage, companies are talking about “business models” and “e-businesses”. This statement can be reasonably understood given the time that the article was written (2001) when the study of business models was in its early phases.

According to Osterwalder *et al.* (2004), the business model research domain is still in its embryonic phase, and it must, therefore, still prove its relevancy. But it seems as if its main contribution is in the creation of new concepts and tools that can help managers with capturing, understanding, communicating, designing, analyzing, and changing their business logic. Furthermore, the main idea of identifying the business model domains, concepts and relationships is to create a common language and a more formal ontology and focus for relevant stakeholders.

All in all, after we have analyzed the business model concept, a disturbing picture of the current research status becomes apparent, where we can conclude that the main reasons for the fuzziness of the “business model” concept are:

1. Lack of agreement regarding the business model components.
2. Lack of agreement regarding the relationship between business model and strategy.
3. Lack of agreement regarding the understanding of business model innovation.

Thus, given these circumstances, and inspired by Christensen’s process for building a theory (2006), in Chapters 5 and 7 we will continue to develop a descriptive theoretical understanding to the business model concept and its innovation process.
2.4 Risk Management

“Managing risks is one of the things that bosses are paid for, ...yet most companies still don’t have any idea what is required of risk management” (Article: “Be prepared: Managing increased risk”, The Economist, January 24th, 2004).

2.4.1 Introduction

In the previous sections, we have argued that like any form of innovation, business model innovation involves a certain level of risk. Innovating a business model in a complex and uncertain world only increases the risks. Indeed, companies and their managers are beginning to recognize that taking, while at the same time controlling, risks is fundamental to developing and implementing a sustainable competitive business model. Consequently, leading companies are looking for ways to handle the complexities, uncertainties and consequent risks involved in innovating their business model (e.g. ERM survey, 2008).

2.4.2 Uncertainty and Complexity

Risk is a function of the uncertainty and complexity related to innovation. Boer (1992) has addressed uncertainty and complexity as follows.

Uncertainty - Several terms have been used to refer to this aspect of organizational reality. Some authors use the term predictability (e.g. Mintzberg, 1979); others prefer to call it uncertainty (e.g. Thompson 1967, Galbraith 1973, Mowery and Rosenberg 1979). Uncertainty is inevitably connected with innovation, and refers to the extent to which individuals, groups or organizations are informed about the future (Galbraith, 1973). The level of uncertainty, which may vary along a continuum of certainty, risk, uncertainty and unstructured uncertainty (De Leeuw, 1982), is generally assumed to be highest at the initial stages of the innovation process, and should tend to decrease in the course of time. It may concern the objectives to be pursued, the activities to be performed in order to achieve desirable results, the people to perform the activities, the arrangements regulating their cooperation, and the influence the organization’s context exerts (Galbraith 1973, Simon 1964, Mintzberg 1979, Kickert 1979, De Leeuw 1982). Typical symptoms of uncertainty are failures being made, setbacks and surprises occurring, unforeseen barriers needing to be leveled, goals and objectives requiring redefinition during the process, formerly elaborated ideas and accepted solutions being rejected and exchanged for new ideas leading to alternative solutions, implemented solutions appearing to be less effective than anticipated, and/or schedule and budget overruns (Galbraith 1973, Sayles 1974, Schroeder et al. 1986, During 1984).

Given that uncertainty decreases in the course of the innovation process, it can be assumed that more formal arrangements can be relied upon the further an innovation process progresses. However, one bothersome property of uncertainty is that it is difficult to predict whether, when, at which level and with respect to what this dimension is going to manifest itself. This means that the organization may have no prior knowledge of what will be the best coping strategy. In addition, therefore, organizations should be able to respond flexibly to circumstances and apply the strategy most suitable for handling the uncertainty presented to
them. In other words, by embedding flexibility into a company’s innovation processes, the company would be able to cope better with varying degrees of uncertainty.

There is little doubt that uncertainty is one of the most pervasive characteristics of innovation, and a difficult one to cope with. The bounded and subjective rationality, and limited information processing capacity, of human beings will make them stop searching once they have found a satisfying solution (so-called satisficing behavior – see Simon, 1964), which, however, is not necessarily the most effective one. As a result, the innovation process will produce an outcome which is not performing to the best of its potential. Due to uncertainty, the innovation process will always have the character of a search process aimed at finding realistic goals, ways to achieve these goals and a supportive business model most conducive to performing these processes.

**Complexity** - This factor has been referred to using different terms, such as comprehensibility (Mintzberg, 1979) and analyzability (Perrow, 1967). In this thesis we will use the term complexity to refer to the difficulty with which the work can be understood (cf. Mintzberg, 1979). The extent to which the innovation process is complex or, contrarily, easy to understand, depends on features such as the newness and radicality of the innovation. Furthermore, the greater the gap between the knowledge and skills required from the people on the one hand, and the competences these people have on the other, the more the organization has to rely on unanalyzed experience, intuition, chance and guesswork, rather than well-known, standard methods of designing, developing and implementing solutions to the innovation problem (cf. e.g. Perrow, 1967). Considering this observation, one strategy is to allow for trial-and-error learning about the innovation goals, process and organization (cf. Simon 1964, Schroeder et al. 1986, Shrivastava and Souder 1987). As a result the organization is more likely to produce a qualitatively sufficient output, albeit at the cost of time incurred in learning. A possibly less time-consuming strategy aimed at reducing competence gaps is to increase the organizational members’ innovative capabilities by means of training and education in a wide range of fields, including technical and organizational issues, leadership, motivation and communication. Also, the company may try to recruit experienced people from other companies, consultants, or other experts, on a permanent basis or for the duration of (part of) the innovation process. Both possibilities have their pros and cons, depending on the actual situation.

### 2.4.3 Risk and Risk Management

In simple terms, the term risk refers to the “uncertainty of outcome” (Chapman and Ward 2004), or to the *combination of the probability of an event and its consequences* (ISO/IEC Guide 73, 2002).

Risk Management process is defined as (e.g.) “*the systematic application of management policies, procedures and practices to the tasks of communicating, consulting, establishing the context, identifying, analyzing, evaluating, treating, monitoring and reviewing risk*” (ISO/IEC Guide 73).

The evolution of risk management has come a long way in the past two decades. Unfortunately, although risk management (decision-making) processes have been
successfully adopted by organizations in the form of internal audits, treasury, insurance, environmental health and safety, and legal reports, it has not yet been fully incorporated into other core business processes, such as strategic planning, capital allocation, and performance management (ERM survey, 2008).

Accordingly, it could be implied that unrewarded risks, in the sense that no premium is obtained for managing them but only avoiding the potential for loss, seems to be the main drive in today’s risk management practices, while rewarded risks, which are critical decision-making processes associated with future growth, are not yet fully embedded within organizational innovation and change management processes.

Furthermore, even in cases where there were attempts by companies to systematically manage rewarded risks such as project risk management (i.e. Chapman and Ward 2004, Kendrick 2003) and product innovation management (i.e. Keizer et al. 2002, Keizer and Halman 2007), it has been assumed that those risks can be managed in isolation from the entire system. Yet, recent surveys (e.g. ERM survey 2008) have shown that a growing percentage of managers worldwide are showing growing interest in applying risk management in a much more comprehensive (i.e. proactive and holistic) manner.

A study by Accenture (2009), for example, suggests that there are, roughly speaking, three risk management models that a company can adopt, namely: 1) Risk management for compliance where risk management involves a regulatory set of requirements focused on keeping the organization compliance (e.g. with regulations), 2) Risk management for value protection, which is aimed at managing expected risks, as well as reducing the degree of unforeseen risks and, finally, 3) Risk management for value enhancement, which is aimed at covering all dimensions of the business, as well as increasing the protection against unforeseen risks. According to Accenture (2009), “In choosing where to stand on the risk-management spectrum, a company is deciding what kind of risk-management culture it wants to embrace. Does it want to simply comply with regulations? Or does it want to be visionary and adjust risk management for the evolved company it will become as the business grows?”.

Implicitly, within this argument, it could be argued that organizations that are static by nature will tend to adopt risk management models that are mainly focused on compliance and/or on value protection, while dynamic (innovative) organizations will prefer to apply risk management models that are more focused on value enhancement. In the latter case, companies will tend to manage proactively those risks that are affecting their value creation, and that will help the entity to avoid pitfalls and surprises along the way (e.g. COSO 2004).

2.4.4 Risk Appetite – How Hungry is the Company?

Put simply, risk appetite is “the total impact of risk an organization is prepared to accept in the pursuit of its strategic objectives” (KPMG 2008, p. 3). According to DelCreo Inc. (an enterprise risk management company), once the risk appetite threshold has been breached, risk management treatments and business controls are implemented to bring the exposure level back within the accepted range.
In order for a company to meet its risk appetite, it needs to determine its corporate risk appetite preference first. Through that process, it is important to take into account not only the top management’s, but also other stakeholders’ perspectives, since the risk appetite of e.g. the management team, is not necessarily the same as that of e.g. the employees or investors (KPMG 2008, HM Treasury 2006, Barfield 2006).

The corporate risk appetite is therefore a challenging matter to harmonize, but nonetheless a crucial one to identify and agree upon, before and during the innovation process. According to Barfield (2006), there are considerable benefits in taking the time to articulate the risk appetite properly, mainly due to the fact that it can provide the basis for consistent communication to different stakeholders by explicitly articulating the risk attitudes of the company’s senior management.

HM Treasury (2006) developed a risk appetite scale, which asks the stakeholders to determine the corporate risk appetite level of their firm. By mapping various possible impact categories (e.g. reputation and credibility; operational and policy delivery; financial and legal/regulatory compliance) the company would be able to determine its corporate risk appetite on a scale ranging from “averse” to “hungry”.

<table>
<thead>
<tr>
<th>How [risk] hungry is the company?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Averse</td>
<td>Avoidance of risk and uncertainty is a key objective.</td>
</tr>
<tr>
<td>Minimalist</td>
<td>Preference for ultra-safe options that have a low degree of inherent risk and only have a potential for limited reward.</td>
</tr>
<tr>
<td>Cautious</td>
<td>Preference for safe options that have a low degree of residual risk and may only have limited potential for reward.</td>
</tr>
<tr>
<td>Open</td>
<td>Willing to consider all options and choose the one that is most likely to result in successful delivery while also providing an acceptable level of reward.</td>
</tr>
<tr>
<td>Hungry</td>
<td>Eager to be innovative and to choose options based on potential higher rewards (despite greater inherent risk).</td>
</tr>
</tbody>
</table>

Table 2.6: Corporate risk appetite scale (HM Treasury, 2006)

According to HM Treasury (2006), the risk appetite scale is a useful tool for decision makers to consider, since the identification of the risk appetite level can assist decision makers in generating and implementing attainable innovation ideas that reside within the risk appetite zone of their firm.

Nonetheless, risk appetite is a complicated concept, since it is determined by the eye of the beholder (Barfield, 2006). In most cases it is difficult to quantify it into concrete numbers (e.g. Lecky 2008, HM Treasury 2006), and in many cases a qualitative risk-benefit analysis will have to take place in order to determine a company’s risk-benefit balance.
2.4.5 ENTERPRISE RISK MANAGEMENT [ERM]

A wealth of risk management methods has been put forward. Proposed as a new approach to meet today’s hypercompetition, Enterprise Risk Management (ERM) attempts to capture and reduce the effects of complexity and uncertainty throughout the innovation process by providing a broader framework for managing risks (Moeller 2007, Monahan 2008). However, as with many approaches still in their relative infancy (less than a decade old), there is much confusion about what is meant by ERM, and more fundamentally, how it can be applied to, and embedded into, business model innovation processes.

According to the Committee of Sponsoring Organizations (COSO), ERM deals with risks and opportunities affecting value creation, and helps an entity to get where it wants to go and avoid pitfalls and surprises along the way. Thus, they define ERM as “a process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives” (COSO, 2004). Table 2.7 illustrates an example of an ERM framework suggested by CAS (2003).

<table>
<thead>
<tr>
<th>Process step</th>
<th>Types of risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard</td>
</tr>
<tr>
<td>Establish Context</td>
<td></td>
</tr>
<tr>
<td>Identify Risks</td>
<td></td>
</tr>
<tr>
<td>Analyze/ Quantify</td>
<td></td>
</tr>
<tr>
<td>Integrate Risks</td>
<td></td>
</tr>
<tr>
<td>Assess/ Prioritize Risks</td>
<td></td>
</tr>
<tr>
<td>Treat / Exploit Risks</td>
<td></td>
</tr>
<tr>
<td>Monitor and Review</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.7: Enterprise Risk Management framework (CAS, 2003)

Potential ERM benefits drawn from the literature (e.g. COSO 2004, Ernst & Young 2006, Treasury Board of Canada 2004, The National Affordable Homes Agency 2008, ERM survey 2008) suggest the following:
- **Improve contingency planning** by taking a proactive approach, leaders could avoid surprises, and anticipate and influence events before happening.
- **Foster better decision-making choices** by aligning risk appetite with strategy.
- **Enhance risk response decisions** through risk avoidance, reduction, sharing, and acceptance.
- **Identify and manage multiple cross-enterprise risks**, segmented mostly to four core risk groups: strategic, operational, financial and hazard risks (CAS, 2003).
- **Seizing new identified opportunities** based on identified risks.
- **Achieve efficiencies** - structured and comprehensive risk management process built into existing activities generates better managerial processes: e.g. facilitate with resource allocation; improve deployment of capital; avoid unnecessary problems; set demanding performance targets.
- **Improve corporate governance** - efficient ERM process can assist with defining reporting and communication protocols, and can also assist with setting appropriate corporate ethics as well as securing compliance with regulatory requirements.
- **Strengthen accountability** via demonstrating that levels of risk associated with policies, plans, programs and operations are explicitly understood, and that stakeholder interests are optimally balanced.

However, despite the possible potential benefits suggested above, it has also been implicitly argued (e.g. Ernst & Young 2006, ERM survey 2008) that the understanding of how to incorporate ERM into innovation processes is missing. Accordingly, companies that apply ERM embed it within their system, and manage ERM processes as they see fit, e.g. focus on managing risks to existing assets, but miss the connection to future growth (e.g. ERM survey, 2008).

### 2.4.6 INCORPORATING RISK MANAGEMENT IN THE PRODUCT/PROJECT INNOVATION PROCESS

Incorporating risk management in a company’s innovation processes is not simple, and could easily result in increasing the levels of uncertainty (what to do?), and complexity (how to do it?) related to that process, at least initially so. Particularly companies that wish to pursue radical innovations are, consequently, quite likely to get hurt in the process. By looking into other theories, e.g. on project risk management and product innovation risk management, a deeper understanding can be generated as to “how” and “when” risk management could be incorporated into a company’s business model innovation process.

Keizer et al. (2002), for example, clarified how Unilever, a world-leading company in fast-moving consumer goods, adopted the Risk Diagnosing Methodology (RDM) in its product innovation management. RDM was initiated, developed and successfully tested first in a division of Philips Electronics Company. Its aims were to identify and evaluate technological, organizational and business risks in product innovation. Similar to the Philips results, RDM proved to be a very useful method for Unilever for diagnosing product innovation project risks, promoting creative solutions, strengthening team
ownership and building a knowledge base of potential risks in product innovation projects.

Keizer et al. (2002) argued that, with relation to Unilever’s innovation funnel (Figure 2.9), the RDM process should be applied at the end of the feasibility phase, at the contract gate. Since RDM was focused particularly on one of the gates of the company’s innovation funnel, the main issues addressed at that stage were consumer and trade acceptance, commercial viability, competitive reactions, external influential responses, human resource implications, and manufacturability.

Figure 2.9: The Unilever innovation funnel (Keizer et al., 2002)

Chapman and Ward (2004) proposed a framework for incorporating risk management into project management processes called SHAMPU (Share, Harness, And Manage Project Uncertainty). In contrast to Keizer et al.’s (2002) study, which argues for applying the risk management process only once, at the end of the feasibility phase, Chapman and Ward maintain that the nine phases of the SHAMPU risk management process (define, focus, identify, structure, ownership, estimate, evaluate, harness, manage), should be presented as an ongoing process activity, followed by an iterative loop back to the “estimate” phase or even to the (early) “define” phase to refine or redefine the basis of analysis of sources of uncertainty revealed to be important. However, similar to Keizer et al. (2002), Chapman and Ward also argued that the risk management process should start at the early phases of the project and end at the planning phase, before allocating and executing the planned project. This “planning” phase in the Chapman and Ward model can, to a great extent, be compared to the “feasibility” phase in the Unilever innovation funnel (Figure 2.9).

2.4.7 CONCLUSION

Despite the understanding that business model innovation is a “risky business”, most companies are still choosing not to apply any risk management processes through their innovation processes. Recent surveys have shown (Ernst & Young 2006, ERM survey 2008) that managers still continue to apply risk management in general, and ERM processes in particular in a reactive mode, due to their lack of understanding of how to incorporate ERM/risk management into innovation processes (i.e. in a proactive manner).

According to the Deloitte ERM survey (2008, p. 2), “management is demanding proof of the value proposition of ERM, just as they did when quality initiatives were first being introduced. Unfortunately, such proof is usually most evident after a catastrophe”.

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2.5 CONCLUSION AND GAPS IDENTIFIED

Table 2.8 sums up the main observations, inconsistencies and gaps identified drawn from the cross-analysis of the three bodies of literature: innovation management, business models, and risk management.

<table>
<thead>
<tr>
<th>Cross analysis</th>
<th>Inconsistencies and gaps identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation management and business models</td>
<td>• Lack of agreement regarding the business model components.</td>
</tr>
<tr>
<td></td>
<td>• Lack of agreement regarding the relationship between business model and strategy.</td>
</tr>
<tr>
<td></td>
<td>• Lack of agreement regarding the understanding of business model innovation.</td>
</tr>
<tr>
<td>Innovation management and risk management (ERM)</td>
<td>• Few (but nonetheless successful) attempts are made to incorporate risk management with innovation activities, but mostly associated with the early phases of the innovation process (empirical observation).</td>
</tr>
<tr>
<td></td>
<td>• For those who try to apply ERM, there is much confusion about how it can be (fully) applied to, and embedded into, innovation processes (empirical observation).</td>
</tr>
<tr>
<td></td>
<td>• ERM is mostly focus today on managing risks to existing assets and miss the connection to future growth (empirical observation).</td>
</tr>
<tr>
<td></td>
<td>• Today’s best-practice and state of the art theory have yet to realize how ERM/risk management processes can be adequately incorporated into core business innovation processes (theoretical gap).</td>
</tr>
<tr>
<td>Business model innovation and risk management (ERM)</td>
<td>• ‘Terra incognita’ – unexplored territory (theoretical gap).</td>
</tr>
</tbody>
</table>

Table 2.8: Cross disciplines inconsistencies and gaps identified.

Given the cross theory and literature review results, the next question that needs to be addressed is: are those observations, inconsistencies and gaps identified important enough to warrant further research?

The innovation theoretical review section has clearly indicated that companies today in all industries worldwide are faced with a stressful external hypercompetitive (D’Aveni, 1994) environment, which creates rapid internal turbulences that affect their own system significantly and, eventually, forces them to rethink their operational business model more frequently and more fundamentally.

Yet, innovating one’s business model fundamentally involves a certain level of risk – doing so in a complex and uncertain world only increases the risks. Indeed, companies and
their managers are beginning to recognize that taking, while at the same time controlling, risks is fundamental to developing and implementing a sustainable competitive business model. Consequently, leading companies are looking for ways to deal with the risks involved in innovating their business model (e.g. ERM survey, 2008).

The discussion so far has illustrated that risk management is only partly understood, while the process of incorporating it into innovation processes in general, and business model innovation processes in particular, is not well understood either. This inevitably only increases the levels of uncertainty (what to do?), and complexity (how to do it?), particularly for those companies who wish to pursue radical business model innovations.

Given these circumstances we found the observations, inconsistencies and gaps presented above important enough, indeed, to warrant continuation of the research. Accordingly, this dissertation will therefore largely be based on an explorative study (entering “terra incognita”).
3. **Preliminary Empirical Setting**

### 3.1 From Experience

Given that the “business model” concept was chosen as the (main) unit of analysis for this research, and based on the results presented in the previous chapter, it was within our interests to develop a first-hand understanding as to how managers perceive the business model concept and its innovation.

The reason for conducting this exploratory research was the observation that many managers today discuss the need to innovate their business model (e.g. IBM survey 2006 and 2008, KPMG survey 2008), while the theory supporting that venture is poorly developed.

This part of the thesis will therefore report and discuss an exploratory field study. A range of interviews and observations were conducted as part of two projects (“NewGIBM” and “Blue Ocean”). In addition, a study trip including company visits was made to Silicon Valley in San Francisco.

#### 3.1.1 The “NewGIBM” Project

NewGIBM stands for New Global ICT-based Business Models. The NewGIBM project started early 2005, and was carried out in close collaboration between three Danish research institutions: Aalborg University – Center for Industrial Production, Aarhus School of Business, and the University of Southern Denmark. In addition, assuming that business model innovations were increasingly network-based oriented, ten Danish companies and their network partners were carefully selected to participate in this project. The project, which ended in December 2007, involved a range of case studies, which led to a number of conclusions concerning the challenges associated with business model and network-based innovation.

In the early phases of the project, many managers were speaking very eagerly about their business model, but when they were asked to explain it, each manager described it differently. It was only after a presentation, in which we shared our latest research knowledge (at the time) on what a business model “really” is, and what its components are, that we could find common ground to communicate the business model language with the project managers.

“Business model” was used merely as a buzzword. Managers found the concept to be a new “cool” emerging managerial lingo, but both practitioners and researchers were struggling to continue and further develop it. Furthermore, many managers assumed that they innovated their business model radically, but in most cases we found their implementation processes to be relatively incrementally oriented.
3.1.2 THE “BLUE OCEAN” PROJECT

As part of the “objective two” fund, sponsored by the EU, the Center for Industrial Production (CIP) collaborated with the Business Development Centre in North Jutland - Denmark (ErhvervsCenter Nordjylland), in order to jointly assemble a “Blue Ocean Strategy” project, with the intention of assisting local SME’s managers with developing their new growth strategy. The project started in January 2007 and came to a close in June 2008.

Using the Blue Ocean strategy tools (Chan and Mauborgne, 2005), the intention was to promote the survival and development opportunities of 12 small and medium-sized enterprises located in North Jutland region in Denmark. From a scientific level, we were particularly interested to test the blue ocean tools, and to learn whether those tools are, indeed, facilitating company managers in entering into (truly) new “blue ocean” markets, as suggested by Chan and Mauborgne (2005).

The project aim was therefore to facilitate managers with their strategic management and future business development. The intention of this competence development process was to improve the participants’ strategic analysis and planning abilities, and through that, the companies’ performance.

Project contribution

Through our involvement in assisting local companies to innovate their business models, we found several benefits in using the blue ocean tools, such as:

- Improvement of management ability to develop new growth strategy ideas.
- Improvement of management ability to prioritize between various (new) strategy proposals.

However, we also identified some business model related weaknesses. First, the companies’ managers generated many new ideas, but they had difficulties understanding how to implement them. Or as one of the managers stated: “I can see the light – I just don’t see the road how to get there”. That is, they lack understanding of how to innovate the business model. Second, based on the blue ocean tools alone, many companies only considered how to innovate their business model independently. For that reason their innovation ideas were limited to their own competences, rather than to potentially new network-based competences (e.g. open innovation). Third, although the new ideas proposed were radically new (to the company), it became apparent that most, if not all, ideas proposed were mostly product/process or market innovation oriented. Consequently, the managers perceived their business model as “fixed” and associated new ideas with the same line of core business.

All in all, through actively participating in those workshops, we observed that managers, in general, are very eager to consider more radical changes to their business model. However, they are experiencing difficulties, due to lack of knowledge and feasible processes, in understanding how to implement such changes.
3.1.3 Study Trip to Silicon Valley

The International Center for Innovation (ICI) has recently been established in the northern part of Denmark, and provides a platform for enhancing global business model innovation in local companies in the region. The center is located at Aalborg University at the Center for Industrial Production (CIP).

As members of the ICI research team, we had the opportunity to participate in a study tour to Silicon Valley in San Francisco in September 2008. The theme of the trip was “innovation of business models”, and a mixed group of 26 scholars and managers visited companies in the Valley (e.g. PG&E, Linden Lab (Second Life), VmWare and Litepoint). The study tour also attended a full day (innovation theme) conference at Stanford University and an evening networking event with local venture capitalists hosted by Innovation Center Denmark.

With focus on our research topic, and based on the presentations made by companies managers, we found similar results to those we observed earlier during the NewGIBM project, namely that despite the fact that many managers use the term “business model” continuously, they do not really know how to describe it consistently. Some managers described how they make money, others addressed their offering (value proposition), some talked about their organizational structure, while others focused more on the technological aspect of their products.

3.2 Conclusion

All in all, the two projects and the study trip results correspond with our previous theoretical findings, namely that most managers, when asked to sketch their company’s business model, do not have a ready answer to give. Many managers are very keen on the term “business model”, but they do not really know what a business model is, and in most cases they do not have an explicit model of their own business.

We therefore conclude that, despite the fact that many entrepreneurs, top managers, journalists and consultancy firms alike are very keen on discussing the business model concept on a regular basis, they do not really know how it can be realized, and what would it actually take in order to innovate it (and needless to say, how to manage the risks involved in that process adequately). This conclusion confirms the (empirical) need to look deeper into business models and their innovation.
4. RESEARCH METHOD AND DESIGN

4.1 RESEARCH PROBLEM AND OBJECTIVE

"I can see the light - I just don't see a road how to get there...” (Interview with a Danish CEO, 10/09/2008)

Identifying a gap in organizational theory and practice and, based on that, developing a valid research problem, is never easy. We needed to illustrate, through empirical studies, i.e. interviews with managers, and a cross-theoretical analysis, that the problem proposed is a relevant one, and, indeed, important enough to warrant research.

Accordingly, in the previous chapters we came to the conclusion that business models are a challenge to innovators, and effective business models are a tremendously valuable asset to a company.

However, in most cases, managers’ strategic preference to secure innovation capabilities typically involves “more of the same” (mostly product) innovations that keep the company fixed on the same line of products, using the same, or mostly similar, technologies, aimed to be delivered to the same target customers. Consequently, the business model in many of those cases is accepted to be fixed on a certain way of doing business, and for that reason it has hardly ever been questioned or changed significantly.

In some of the cases, due to ensuring intellectual property rights, a winning brand, or a unique technology, companies can continue and secure a sustainable competitive position in the market. In such cases, the need to innovate the business model ‘radically’ is questionable. Other companies, however, especially those operating under conditions of hypercompetition (D’Aveni, 1994) in the form of shorter product lifecycles, higher-level competences, and more complex working tasks, are increasingly forced to rethink their operational business model more frequently and more fundamentally, so that they will be able to continue and compete in local/global markets.

However, business model innovation brings with it a high level of risk, and doing so in a complex and uncertain world only increases the risks. Indeed, companies and their managers are beginning to recognize that taking, while at the same time controlling, risks is fundamental to developing and implementing a sustainable competitive business model.

Consequently, based on the literature review, our own observations, and interviews, we found that there is a growing necessity to emphasize the need for, and to clarify the process of, business model innovation. By addressing the link between business model innovation process, and the risks involved in that process, we will attempt to find ways to facilitate companies in coping with the uncertainties and complexities involved in that process.

Accordingly, the working hypothesis has been formulated as follows:
Companies, even if they spend a great deal of effort to continuously innovate their value proposition (e.g. products, services), do not usually have adequate processes to experiment with more complex and uncertain innovation systems in the form of alternative/ supplementary business models.

Given the limited research available on business models and enterprise risk management, and the lack of research on understanding how to incorporate risk management within the overall business model innovation process, this research will largely be explorative (entering “terra incognita” – unexplored territory).

The aims of the research are:

1. To **clarify** the business model concept and its innovation possibilities.
2. To **learn**, from practice, how risks are mitigated in the practice of business model innovation process and the challenges related to that.
3. To **develop** a model suggesting how to integrate risk management into business model innovation process.
4. To **test** the model developed within a company, for possible effect analysis.

Furthermore, following results obtained through research aims 1-4:

5. To **contribute** to business model innovation management and risk management theory and practice.

Based on the problem statement and the research aims mentioned above, the following two research questions are proposed:

- **Research Question 1**: What is the role of risk and risk management in the practice of business model innovation?
- **Research Question 2**: To what extent, and especially how, can risk management help a company to deal with various risks throughout its business model innovation process?

This chapter discusses the methodological implications drawn from the research aims and questions, and gives details to, arguments for, as well as validity and reliability considerations, regarding each of the research methods chosen.
4.2 Choosing a Research Method

Different research problems require different research approaches (Singleton and Straits, 1999). Two common paradigms of research approaches are “positivist” and “phenomenological”. Whereas the potential of (quantitative) positivist methods is enormous regarding generalization and replication to other settings and circumstances (Robson, 1994), the phenomenological (qualitative) approach allows a much richer and deeper understanding of complex real-life scenarios (e.g. Phillips and Pugh, 2000).

Inspired by the work of Hussey and Hussey (1997), Easterby-Smith et al. (1991), Lincoln and Guba (1985) and Mangan et al. (2004), Table 4.1 represents the differences between the two paradigms.

<table>
<thead>
<tr>
<th>Basic beliefs</th>
<th>Positivist paradigm</th>
<th>Phenomenological paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reality is singular. By carefully dividing and studying its parts, the whole can be understood. Observer is independent. Science is value free.</td>
<td>There are multiple realities. These realities are socio-psychological constructions forming an interconnected whole. Observer is part of what is being observed. Science is driven by human interests.</td>
<td></td>
</tr>
<tr>
<td>Researcher should</td>
<td>Focus on facts. Look for causality and fundamental laws. Reduce phenomenon to simplest elements. Formulate hypotheses (deductive reasoning).</td>
<td>Focus on meanings. Try to understand what is happening. Look for totality of each situation. Develop ideas through induction from data.</td>
</tr>
<tr>
<td>Preferred method include</td>
<td>Operationalizing concepts so they can be measured. Use large samples.</td>
<td>Using multiple methods to establish different views of phenomenon. Small samples investigated in depth or over time.</td>
</tr>
</tbody>
</table>

Table 4.1: Key features of the Positivist and Phenomenological paradigms
4.2.1 CHOICE OF RESEARCH DESIGN

“Methods are personal. People think differently and have their own way of getting to some type of truth” (Stern, 1994).

In order to insure a solid research foundation, the method chosen has to be consistent with the research aims and questions. Accordingly, given the highly explorative nature of this research, it was our choice to adopt a qualitative (phenomenological) approach, since we were interested in finding meaning, through observations and interviews, and studying management behaviors, and events, under uncertain and complex conditions i.e. occurring in their natural settings - objectives that are more difficult to achieve through quantitative studies.

Also, the inductive nature of a qualitative study (Merriam, 1988) allowed us to explore, and build abstractions, concepts, propositions, and theories from details, as well as to partly explore the validity of the theories developed through action research.

Three industrial companies provided the empirical basis for this research, which went through three successive steps.

First, following Christensen’s (2006) method, we developed a theory on business model innovation, clarifying the business model concept and its innovation possibilities (Chapter 5).

Second, through ten retrospective case studies, in two industrial firms, we learned about the role of risk and risk management in the practice of business model innovation (Chapter 6). Based on that, we developed a model, suggesting how to integrate risk management processes into business model innovation process.

Third, this model was applied through action research of a business model innovation process, which allowed us to analyze the possible effects of applying risk management in business model innovation (Chapter 8).

Table 4.2 below illustrates the fit and connections between the research aims, the research questions and the research methods. Figure 4.1 illustrates the overall research design.
<table>
<thead>
<tr>
<th>Research aim</th>
<th>Associated with</th>
<th>Research method and analysis technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To clarify the business model concept and its innovation possibilities</td>
<td>Building the grounded platform for the research to be based upon</td>
<td>Building a theory (Christensen, 2006) - focusing on step one: observation, and step two: categorization (Chapter 5)</td>
</tr>
<tr>
<td>2. To learn, from practice, how risks are mitigated in the practice of business model innovation and the challenges related to that</td>
<td>Research question one</td>
<td>Ten retrospective case studies: • Cross-case analysis • Propositions (Chapter 6)</td>
</tr>
<tr>
<td>3. To develop a model suggesting how to integrate risk management into the business model innovation process</td>
<td>Research question two, mostly in relation to “how can risk management help…”</td>
<td>Building a theory (Christensen, 2006) - focusing on step three: association (Chapter 7)</td>
</tr>
<tr>
<td>4. To test the model developed within a company, for possible effect analysis</td>
<td>Research question two, mostly in relation to the “extent” to which risk management can help a company…</td>
<td>Action research • Analyzing the effect of applying the model • Propositions (Chapter 8)</td>
</tr>
</tbody>
</table>

Table 4.2: Relationships between the research aims, the research questions, and the research methods

Research aim five, associated with the contribution of the research to innovation management and risk management theories and practice is discussed in the discussion part of the thesis (Chapter 9).
Figure 4.1: Research design
The following sections address the methodological concerns of each research method chosen, namely: theory development (Christensen, 2006), case study and action research methodology, respectively.

4.3 **Theory Development Methodology**

“It is a very useful way to begin any research by fully exploring the semantics surrounding a given term and develop a clear understanding from the existing literature of just what one is dealing with”. (Conversation with Professor Ross Chapman, University of Western Sydney, 24/08/2009).

4.3.1 **Grounded Theory (1967) or Building a Theory (2006)?**

Although it is beyond the scope of this dissertation, it is still essential to clarify why we chose to adopt Christensen’s (2006) method over grounded theory (Glaser and Strauss, 1967), for developing theory on:

- Clarifying the business model concept and its innovation possibilities (research aim 1) and
- Developing a model suggesting how to integrate risk management into business model innovation process (research aim 3).

According to Martin and Turner (1986), grounded theory is "an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data". The major difference between grounded theory and other methods is its specific approach to theory development – grounded theory suggests that there should be a continuous interplay between data collection and analysis. According to Allen (2003), rather than beginning by researching and developing a hypothesis, a variety of data collection methods are the first step within grounded theory. From the data collected the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts, in order to make them more workable. From these concepts categories are formed, which are the basis for the creation of a theory. This is dissimilar to the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon.

However this theory holds two major weaknesses. The first one, according to Thomas and James (2006), is the lack of understanding why the idea of grounding the result is so important in qualitative inquiry, given that the theory is relatively weak in guaranteeing that the final results will actually produce a new “theory” as well as in claiming that it is developing inductive knowledge. The second critique, drawn from Christensen (2006), is that grounded theory (Glaser and Straus, 1967) actually is a book about categorization. According to him, their term substantive theory corresponds to the attribute-bounded categories of descriptive theory, and their concept of formal theory matches his definition of normative theory, which employs categories of circumstance.
All in all, although both schools of thought (Glaser and Strauss 1967, and Christensen 2006) have examined the improvement in predictability that accompanies the transition from the attribute-based categorization of descriptive theory to the circumstance-based categorization of normative theory, it is our choice to adopt Christensen’s (2006) method of building theory. The reasons for this are the critique on grounded theory mentioned above, the clarity of Christensen’s process for building a theory, as well as its specific focus on business studies in general and innovation studies in particular.

4.3.2 Short Overview of Christensen’s (2006) Method

Given the choice to adopt Christensen’s method (2006) as an outline for building the research model, it is essential to clarify his “theory” of how to build a theory, and to draw a preliminary guideline of how his approach can be applied in this research.

According to Christensen (2006), theory is built in two major stages: firstly through a descriptive stage, which aims to inductively observe, classify and define various relationships to a specific phenomenon, and secondly, through careful observation, by which the researcher moves beyond statements of correlation (descriptive) to define what causes the outcome of interest (normative).

![Diagram showing the transition from descriptive to normative theory](image)

**Figure 4.2: The transition from descriptive theory to normative theory** (Christensen, 2006)

Given our understanding, it would be too early to discuss the business model phenomenon from a normative perspective. For that reason, the theory development process will focus mostly on the first phase, namely the “descriptive theory” pyramid.

Based on the analysis of various business model researchers’ perspectives presented in Chapter 2, we placed their reflections and findings in the three steps proposed by
Christensen namely, *observation, categorization, and association*, and continued to further develop the theory by:

- Clarifying the core components of a given business model (Chapter 5).
- Proposing a business model template (Chapter 5).
- Further developing our understanding regarding the term “business model innovation”, and its innovation space (Chapter 5).
- Developing a model suggesting how to integrate risk management processes in business model innovation process (Chapter 7).

Furthermore, in order to insure a high level of research validity and reliability, we analyzed numerous articles and reports published on business models since the early nineties and selected the most promising ones for further analysis. The criteria for selection were: originality; contribution to theory; contribution to practice; academic rigor. Unpublished dissertations, conference presentations, magazine articles were analyzed with “extra care”, making sure that the sources used for the analysis are indeed accurate, and the results of the study correspond with the data that was analyzed.

### 4.4 CASE STUDY METHODOLOGY

#### 4.4.1 WHY CASE STUDY?

The case study approach is a common research strategy in social science research including traditional disciplines such as psychology, sociology, political science, anthropology, history, and economics; as well as practice-oriented fields such as urban planning, public administration, public policy, management science, social work, and education (e.g. Dooley 2002, Yin 2003).

A case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2003, p. 13). The case study is an ideal methodology when a holistic, in-depth investigation is needed (Feagin et al. 1991), and it contributes uniquely to our knowledge of individual, organizational, social, and political phenomena (e.g. Yin, 2003).

According to Yin, case study results can be generalized into theoretical propositions and not to populations or universes. Case studies are the preferred strategy when the investigator has little control over events, and when the focus is on a contemporary phenomenon within a real-life context. Investigators must exercise great care in designing and performing case studies to overcome the traditional criticisms of the method, namely that they provide little basis for scientific generalization (e.g. Yin, 2003).

Yin (2003) identified three specific types of case studies:

- **Exploratory cases**: For new or undiscovered topics. This approach is particularly useful if limited previous research exists on the phenomenon under investigation. Usually focused on the “what”, not the “why” or “how”, questions. Fieldwork and data
collection may be undertaken before propositions/theories are formulated. It is only through the analysis of the “data” that the researcher tries to precisely define the research and formulate propositions, which are sometimes considered as a “prologue” to a more advanced future research (e.g. action research, quantitative research).

• **Descriptive cases:** Mostly theory driven (Klenke, 2008), the researcher is going a bit further and develops a descriptive theory before starting the project. This type of case study requires a theory to point the data collection in the correct direction. Research questions here can again focus on “what” but lead to questions such as: what have been the effects of a certain cause? Thus, what is implied in this type of study is the formation of hypotheses on cause-effect relationships. Hence, the descriptive theory must cover the depth and scope of the case under study.

• **Explanatory cases:** Aim to establish causal relationships between variables and are therefore suitable for doing causal studies and to relate how things happened. Research questions in this case are more likely to be of the “how” or “why” type, and it is most suitable to be applied in very complex and multivariate cases. The analysis can make use of pattern-matching techniques. Design can be used when the research field has matured. It is designed to build theory using inductive methods to generate hypotheses about new research questions (Klenke, 2008).

Descriptive cases require a theory to point the data collection in the correct direction. However, the current research on business model innovation and the risk challenges related to that are lacking a theory to facilitate the data collection. Consequently, the descriptive case study is not the appropriate method to apply. Explanatory case study research is not appropriate either, since it is normative based, and therefore focuses on establishing causal relationships between variables, a research process that is suitable to more advanced research areas. Consequently, given the highly explorative nature of this study, it seems that the exploratory case study was the most suitable method to apply to this research. Accordingly, data was collected before propositions were formulated and a model was proposed, to provide the platform for more advanced and detailed (action) research.

### 4.4.2 Why Retrospective Case Study?

In business studies, retrospective research is commonly used in studies of problem solving (Lipshitz and Bar-Ilan, 1996), conflict management (Van de Vliert and Kabanoff, 1990), and decision making (Mintzberg et al. 1976). Retrospective generally means taking a look back at events that have already taken place. According to Yutaka et al. (2002), in a retrospective study, researchers do not have an influence on the site's conditions and outcomes. Thus, the practice being investigated (which consists of individual performances, events, and happenings) can be viewed from the objective, external perspective of an outsider. This point of view enables researchers to achieve a certain degree of distance from the research materials.

Hence a high level of objectivity can be achieved in this type of study. However, one serious bias of such research, particularly in business studies, resides within the difficulty of determining cause and effect from reconstructed events, since the participant may not have recognized an event as important when it occurred, and consequently may not recall (and therefore also misinterpret) the reason for any errors that might have occurred
retrospectively (Huber and Van de Ven, 1990). Ways to avoid such bias, according to Huber and Van de Ven, involve the use of multiple sources of evidence for data gathering as well as in conducting interviews with multiple sources, rather than basing the entire analysis on one manager’s perspective.

Accordingly, a retrospective approach for data gathering and analysis would be the most suitable research method since it results in a high(er) level of objectivity as the researcher does not influence site conditions and outcomes (e.g. Huber and Van de Ven, 1990).

Also, in a retrospective view, we can reflect on many cases of success/failure that a company has experienced over the years, and whether they have learned from past failures and improved their innovation processes. Such a research process cannot be applied in a contemporary study, where we would be able to reflect purely on the business model innovation cases that are currently taking place, without any ability to identify what the actual outcome might be.

4.4.3 Case Studies Description

Ten retrospective case studies of business model innovation processes undertaken by two industrial companies (see Table 4.3) provide the first empirical basis for this thesis. We selected these companies based on their (relatively) successful, yet somewhat different, business model innovation experiences over the years. The study began in early 2009 and is still in progress.

<table>
<thead>
<tr>
<th>Description</th>
<th>Company Alpha</th>
<th>Company Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large and global company, which is specialized in developing, manufacturing and marketing (for the most part) professional audio products</td>
<td>Large and global company, which is specialized in developing, manufacturing and marketing flexible electrical/electronic control and instrumentation solutions within power production; marine and offshore</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3: Companies case study description and interviews taken

4.4.4 Data Gathering Techniques Used

Given the exploratory nature of this research, multiple qualitative methods were used to gather the relevant data needed in order to ensure the validity and reliability of this part of the research. The data collection was carried out through both desk and field research. The desk research consisted of information gathered through books, articles, websites, as well as documents received from the two companies. The field research consisted of interviews (using a standard protocol), e-mail correspondence, questionnaires, and company visits.

We used a semi-structured questionnaire in order to allow the managers maximum freedom to explain their views on the new business model and their understanding of the innovation process, and to enable us to collect the data we felt we needed for the purpose of our
research at the same time. Since the case studies were analyzed retrospectively, the data could not be acquired through observations. Inspired by the work of Yin (1994), Table 4.4 represents the data collection techniques used, as well as the pros and cons of each type.

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Options Within Types</th>
<th>Advantages of the Type</th>
<th>Limitations of the Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Face-to-face, one on one interview</td>
<td>Targeted - focuses on case study topic</td>
<td>Bias due to possible poor questions or response bias.</td>
</tr>
<tr>
<td></td>
<td>Mediated - Telephone and online interview</td>
<td>Useful when informants cannot be directly observed</td>
<td>Incomplete/partial recollection</td>
</tr>
<tr>
<td></td>
<td>Group - informants in a group (focus group interview - only in company Alpha)</td>
<td>Informant can provide historical information</td>
<td>Interviewee might express what interviewer wants to hear</td>
</tr>
<tr>
<td></td>
<td>Third party - students interviewing similar or different interviewees (only in company Alpha)</td>
<td>Allows researcher to get a third party reflection</td>
<td>Other researchers’ presence may bias responses</td>
</tr>
<tr>
<td>Documents</td>
<td>Public documents such as newspapers, company reports.</td>
<td>Can be accessed at a time convenient to researcher</td>
<td>Protected information unavailable to public or private access</td>
</tr>
<tr>
<td></td>
<td>Written descriptions by other researchers.</td>
<td>Represents data that are thoughtful in that informants have given attention to compiling</td>
<td>Requires the researcher to search out the information (not easily accessed)</td>
</tr>
<tr>
<td></td>
<td>Private - internal</td>
<td>As written evidence, it saves a researcher the time and expense of transcribing</td>
<td>Materials may be incomplete. The documents may not be authentic or accurate. Credibility (free from error or distortion) limitations</td>
</tr>
</tbody>
</table>

Table 4.4: Pros and cons for data collection techniques chosen
4.4.5 Choice for Data Analysis

According to Huber and Van de Ven (1990), multiple cases increase external validity and help in guarding against observer bias. Yin (1987), argues that single and multiple case studies are two variants within the same methodological framework. The choice is considered one of research design. However, the multiple-case design has distinct advantages and disadvantages in comparison to the single-case study. For instance, evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust (Herriot and Firestone, 1983). However one must insure that one is not trying to compare “apples” with “pears”. Consequently, a major insight, according to Yin, is to consider coherent replication logic through the process of data gathering. That is, each case should be selected so that it either predicts similar results (literal replication), or produces contrary results but for predictable reasons (theoretical replication).

Accordingly, we selected the two industrial firms based on their successful, but still somewhat different, business model innovation experiences over the years so as to allow theoretical replication. The cross-case analysis is therefore focused on the selection of categories or dimensions, and aimed at analyzing the similarities and, to a greater extent, differences between the ten case studies’ business model innovation experiences (e.g. Eisenhardt, 1989).

Additionally, in order to increase the validity and reliability of the research, the data gathering and analysis of all cases will focus on similar, theory based, criteria, namely:

- **Past, present and future risk appetite preference of each company** (based on Chapter 2, Section 2.4.4, Table 2.6). Strategic perspective. At this level we were particularly interested to learn how “hungry” each company is in taking risks? Has the risk appetite remained the same or changed over the years? And is there a link between the top management risk appetite and business model innovation experiences?

- **Characteristics of the business model innovation cases, and their success rates** (based on Figure 5.5).

- **Rationality in choice under uncertainty and complexity.** Here, we analyzed the innovation process of each company through its business model innovation experiences, based on Tidd and Bessant’s (2004) innovation model of “Search-Select-Implement” (discussed in Chapter 2, Section 2.2.3).

- **Management of risks throughout the innovation process** (based on Chapter 2, Section 2.4). Both strategic and operational perspective. Here, we have tried to identify how risks are managed through the business model innovation process (e.g. explicitly, implicitly, stage-gate oriented).
Also, given the exploratory character of the case studies, we were also actively seeking additional criteria emerging from the data gathered and analyzed, which, eventually, resulted in eight (new) propositions (Chapter 6).

4.4.5.1 CROSS-CASE ANALYSIS

Eisenhardt (1989) proposed three tactics for cross-case comparison:

- Selecting categories or dimensions, and then looking for within-group similarities coupled with intergroup differences.
- Selecting pairs of cases and listing the similarities and differences between each pair.
- Dividing the data by data source.

The second tactic is designed for a large cross cases analysis, and tactic three assumes that each data source has acquired different/additional data for further analysis, which is not the case in this study. Consequently, it seems that the first tactic is the most appropriate one for this research, since the criteria selected for data gathering will also be the same dimensions for the analysis of the two cases. Consequently, following Eisenhardt’s recommendations, both cases will be analyzed together, with a focus on their similarities and differences.

4.4.6 VALIDITY AND RELIABILITY IN CASE STUDY RESEARCH

Joppe (2000, p. 1) defines reliability as: “...The extent to which results are consistent over time ... and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable”. Charles (1995) also uses the word “stability”, with relation to credibility, and argued that if we are dealing with a stable measurement, then the results should be similar. A high degree of stability, according to him, indicates a high degree of reliability, which means that the results are repeatable.

Validity “determines whether the research truly measures that which it was intended to measure or how truthful the research results are” (Joppe, 2000, p.1). In other words, does the research instrument allow the researcher to hit "the bull’s-eye" – their research objective?

While both qualitative and quantitative researchers need to test and demonstrate that their studies are credible (valid and reliable), the credibility in quantitative research depends mostly on some sort of instrument construction, while in qualitative research “the researcher is the instrument” to insure credibility (Patton, 2002). In other words, in quantitative research different researchers, using the same instruments/procedures, will arrive at similar results. However, in qualitative research, where the research occurs in natural settings and involves the response of humans in the process of change, it is often difficult to replicate (Burns, 2000). For that reason, according to Patton (2002), reliability is restricted by the number of observers involved in the study, the response of informants who provide data, and the natural response and bias of the researchers as they are involved in the study for a lengthy period of time.
Yin (1994) helps us with these concerns and argues that there are three validity tests (excluding reliability) that are commonly used to establish the quality of any empirical social research:

- **Construct validity** - establishing correct operational measures for the concept being studied.
- **Internal validity** - establishing a causal relationship, whereby certain conditions are shown to lead to other conditions.
- **External validity** - establishing the domain to which a study’s findings can be generalized.

Based on Yin (1994) and Huber and Van de Ven (1990), Table 4.5 assesses the overall quality of the case studies performed.

<table>
<thead>
<tr>
<th><strong>Test</strong></th>
<th><strong>Case study tactic</strong></th>
<th><strong>Research phase in which tactic occurs</strong></th>
<th><strong>Action taken by the author</strong></th>
</tr>
</thead>
</table>
| **Construct validity** | Triangulation - use multiple sources of evidence | Data collection | • Interviews (Face-to-face; Mediated; Group; Third party*)  
• Documents (public; private) |
<p>| | Establish a chain of evidence – tracing every step to a conclusion (citing) | Data collection | The research design has been the guiding principle to insure a fit between the research aims, research question, and the consequent data gathered (and analyzed after). The reader should be able to trace the steps in either direction (from questions to propositions developed and to conclusions - and vice versa) |
| | Have key informants review draft case study report | Composition | Both supervisors were informed on a monthly basis on the research progress, and they were also closely involved in the analysis process of the cases (see conference papers) |
| <strong>Internal validity</strong> | Do pattern-matching (empirical to test predictions). | Data analysis | Cross-case analysis (Eisenhardt, 1989) |
| | Do explanation building (did x lead to y) | Data analysis | Building propositions |
| | Address rival explanations (was a third factor involved) | Data analysis | Addressed in the Discussion part of the thesis (chapter 9) |</p>
<table>
<thead>
<tr>
<th><strong>External validity</strong></th>
<th>Use theory in single-case studies</th>
<th>Research design</th>
<th>(not relevant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use replication logic in multiple-case studies</td>
<td>Research design</td>
<td>Data gathering and analysis were focused on similar criteria</td>
<td></td>
</tr>
</tbody>
</table>
| **Reliability** | Develop case study database (documentation, narratives, notes …) | Data collection | • Most interviews conducted by the author were recorded. Several interviews have been partially transcribed for more in-depth analysis  
• For third party (student) interviews, the data needed to be gathered by interviewing the students themselves  
• Companies’ documents have been received both electronically and physically (both of which have been saved in individual files) |

**Table 4.5: Quality of the two case studies research**

It should be noted that, although we took into consideration some of the internal validity tactics, internal validity is not relevant for exploratory studies, but for explanatory or causal study only (potential confusion about cause and effect) (Yin, 1994, p. 35).

Also, following Yin’s recommendations, as well as Miller, Cardinal and Glick (1997) who reviewed methods for improving the validity and reliability of retrospective studies, four suggestions were taken (additionally) into consideration while performing the research (data gathering and analysis):

- We utilized multiple informants as much as possible so that the reliability could be assessed.
- During the interviews, we asked about past events or facts rather than have individuals try to recall the opinions or beliefs that they may have expressed or held at some time in the past. This is because events and facts are subject to less cognitive bias or to impression management than are personal points of view.
- We did not ask informants to recall events from the distant past (that they were not present at), in order to reduce the time span bias.
- We motivated informants by ensuring confidentiality and minimizing the duration and inconvenience of data collection.

Using these methods to gather retrospective recall of events, according to Miller et al. (1997), can produce a reasonable substitute for continuous monitoring procedures.
4.5 ACTION RESEARCH

The case studies results (Chapter 6), together with the theoretical considerations (Chapters 5 and 7) resulted in a conceptual model (Figure 7.1), which was subsequently tested using action research in a small Danish company (i.e. second empirical basis of this thesis).

The company is a new venture, intended to offer a new and revolutionary filtration system, which can be assembled in various ways and applied in multiple industries (e.g. pools, car wash, marine boats, drinking water). We were actively involved in developing the company’s business model acting as action researchers. The study began in early 2008 and is still in progress.

4.5.1 WHAT IS ACTION RESEARCH?

Action research has been defined as “a methodology which has the dual aims of action and research; action to bring about change in some community or organization or program, and research to increase understanding on the part of the researcher or the client, or both” (Dick, 1993). Thus, action research contributes both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Or, according to the ABL Group (1997), there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal, according to them, requires the active collaboration of researcher and client, thus stressing the importance of co-learning as a primary aspect of the research process.

Furthermore, according to Carr and Kemmis (1986) there are two essential aims of all action research: to improve and to involve. Action research, according to them, aims at improvement in three areas:

- The improvement of a practice.
- The improvement of the understanding of a practice by its practitioners.
- The improvement of the situation in which the practice takes place.

The aim of involvement, according to them, should stand shoulder to shoulder with the aims of improvements, and should be applied in all the action research phases of planning, acting, observing and reflecting.

Zuber-Skerritt (2001, p.15) developed a general model for action research. Figure 4.3 illustrates the ongoing cyclic process of combining theory, research and practice. We adopted that model to perform the action research study. Its application is described in detail in Chapter 8. By unfolding systematically each of the application phases (i.e. plan; act; observe; reflect; revised plan…), we described our initiatives taken in each phase, and its achievement in improving the practice (performing a business model innovation process), as well as practitioners’ understanding (for managing efficiently the risks involved in that process) and, gradually, also the consequent situation (company’s growth).
4.5.2 Why Action Research?

An action research approach was selected for several reasons:

- **Fit** - The aim of the action research is to put knowledge into action. That is, to build a theory and test it in action (Susman and Evered, 1978). Action research therefore seems to be the appropriate methodology to apply for testing the business model innovation process (model) developed.

- **Opportunity** - Having the International Center for Innovation (ICI) as the platform for this research, we had an excellent opportunity to select a company collaborating with the center, for conducting the action research. The company’s managers were very open-minded and gave us the flexibility to experiment and test our model as we saw fit.

- **Further research** - The action research is based on one, mostly explorative, pilot study. There are several well-documented advantages to this methodology, such as richness and depth, but also weaknesses related to, amongst others, comprehensiveness and generalization. But nonetheless, according to Neergaard and Ulhøi (2007), the results of an action research should be capable of either informing or being applied in other contexts. Consequently, the initial findings presented above should be regarded as a pilot testing of the model, aimed, eventually, at developing theory on the management of business model innovation process.

We decided to perform action research in order to:

- Put the model developed (Figure 7.1) into a field test to analyze its application, and through that,
• Explore the possible business model innovation effect – with relation to the achievement of the model developed in facilitating managers with innovating their business model successfully (Research Question 2).

4.5.3 DATA COLLECTION AND DATA ANALYSIS TECHNIQUES

As indicated before, a business model innovation process conducted by a small Danish company (Provital) provides the empirical basis for this part of the research. The study began in early 2008 and is still in progress. We have been involved in the company’s attempt to develop an innovative business model from its inception, and took an active part in the development and screening of new business model ideas, as well as in the strategic decision making and change processes implemented later on. The case narrative in Chapter 8 presents the company and describes and discusses the “actions” we took to facilitate the company with innovating its business model.

In addition to making observations through active participation, we conducted individual interviews and a series of meetings with the company managers (one workshop was also video recorded). We designed the meetings as workshops, which systematically followed the business model innovation process illustrated in Figure 8.2. This helped us to test the process while it was implemented, and explore its effects on the innovation process. All notes taken at these meetings and workshops were uploaded to the project extranet. The managers had free access to those files and they were encouraged to comment, correct and/or simply accept our interpretations of those meetings.

Data analysis – similar to the procedure reported in Keizer and Halman (2007), the data was analyzed in three successive steps:

• Risk management literature review – with a focus on developing a list of key strategic, operational, cultural, financial and hazard risk factors (Appendix 2).

• Analysis of semi-structured interviews that took place before and after we tested our model, for understanding better both the disparity between the expected and the actual contribution of applying risk management, as well as the importance and seriousness of applying risk management in the business model innovation process.

• Content analysis – in order to be able to draw valid case conclusions, the risks identified by the company’s managers during the workshops were checked against the potential risks outlined on the basis of our previous literature review. Through that process we identified similarities and differences, and the outcome of this process was a list of risks, separated into four categories (strategic, operational and cultural, financial and hazard) with 22 critical risk issues. Due to confidentiality issues, we could not enclose that project definition report. However, Table 4.6 illustrates the analysis process for each risk factor identified (For further details, see Chapter 8, Section 8.3.2).
## Table 4.6: Evaluation and treatment of risks at Provital

<table>
<thead>
<tr>
<th>Likelihood (1-5)</th>
<th>Impact (1-5)</th>
<th>Inherent Risk</th>
<th>Medium and High risks identified:</th>
<th>Risk treatment</th>
<th>Person in charge, and milestones</th>
<th>Residual Risk</th>
<th>Fit to the risk appetite of the company?</th>
<th>Further action planned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Risks:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>High</td>
<td>S1 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Medium</td>
<td>S2 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td><strong>Operational and cultural Risks:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>Medium</td>
<td>O1 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Medium</td>
<td>O2 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low to Medium</td>
<td>Scarcely Fit</td>
<td>Confidential</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Low</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td><strong>Financial Risks:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Medium</td>
<td>F1 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>Medium</td>
<td>F2 – Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Medium</td>
<td>No Fit</td>
<td>Tolerate</td>
</tr>
<tr>
<td><strong>Hazard Risks:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>High</td>
<td>H1 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>High</td>
<td>H2 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>High</td>
<td>No Fit</td>
<td>Confidential</td>
</tr>
</tbody>
</table>
Additionally, given that our intention with the action research was to put the model developed (Figure 7.1) into a field test to analyze its application, and effects, we decided to select the following categories for measuring whether the application of the model should be considered as being successful, partly successful or a failure:

- **Risk management application benefits** – so that we could learn whether the application of risk management through business model innovation process was, indeed, beneficial for the company.
- **Timing** – so that we could learn whether risk management processes should be applied only once (e.g. Keizer et al. 2002), several times, but still only at the early phases of the innovation [project] process (e.g. Chapman and Ward, 2004), or ongoing, throughout the entire business model innovation process, as suggested by the model proposed.
- **Challenges and pitfalls** – which become visible through the application of the model. Akin to the clinical tests of a new medicine, we developed a new model (i.e. new medicine), but have no idea yet whether the model (medicine) actually works, or what the “side-effects” of applying it might be. Consequently, we need to keep an open mind for the possibility that secondary, unexpected, effects might occur through the application of the model (medicine). Still, it should be noted, that in this research we are testing only one “patient”, so it would be impossible to generalize the results obtained through the action research to the population or, in our case, to other industrial settings.

### 4.5.4 Validity and Reliability in Action Research

Action research uses different measures of validity and reliability than other forms of qualitative/quantitative research since it is taking a more democratic, empowering and humanizing approach, via assisting managers in extending their own understanding of their situation, and helping them to resolve identified problems (Guba, 1996). McNiff (2001), for example, claims that validity in action research is not about methodology, but concerned with personal and interpersonal issues. This view is supported by Clark (2000), who stated that action researchers need to present an analysis of decisions made during the conduct of the study to facilitate judgment of validity. Thus, following Clark’s (2000) recommendations, the case narrative chapter is designed according to Figure 4.3 (i.e. plan; act; observe; reflect; revise plan…), and presents and explains the analysis of decisions made during the action research study.

Furthermore, according to Dick (1993), a fundamental key to achieving rigor and validity in action research lies in the constant effort to test apparent agreements/disagreements and emerging interpretations during and between action research cycles. Action researchers must therefore ensure that their conclusions and data have survived attempts to invalidate them. Those issues have been taken into consideration while writing the case narrative, where we have reflected upon our challenges in each phase conducted (i.e. Figure 4.3, e.g. “reflect” and “revised plan”).

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Additionally, in order to further increase the validity and reliability of the action research, the tactics summarized in Table 4.7 were incorporated into the data gathering, analysis and consequent interpretations as recommended by Lewis (1998), Greenwood and Levin (2000), Dick (1993), Lewis (1998), Duffy (1987), Fielding and Fielding (1986), and Maxwell (2005).

<table>
<thead>
<tr>
<th>Tactics incorporated</th>
<th>Why incorporate?</th>
<th>Phases of research in which tactic occurs</th>
</tr>
</thead>
</table>
| **Data triangulation - use multiple sources of evidence (primary and secondary data)** | Triangulation increases the possibility of identifying (and reflecting) actual existing connections (Duffy 1987, Fielding and Fielding 1986, Maxwell 2005) | • Data gathering – via interviews, observations, workshops, documents  
• Data analyses – results and findings were analyzed and developed based on the cross-data analysis gathered |
| **Multiple action research cycles**                       | Refinement of each cycle increases the researcher’s understanding, and facilitates refining the initial conceptual framework (Lewis 1998) | • Case narrative discusses the two cycles of action research that took place  
• Data analysis was richer in its investigation due to the dual cycle that took place through the action research study |
| **Data gathering process**                               | Literature was accessed, and interviews (and workshops) were conducted at multiple stages as “understanding” improved | • Case narrative (second cycle)  
• Data analysis |
| **Iterative triangulation**                              | The generic business model innovation process was developed through existing studies, instead of data collected directly from organizations; iterative triangulation is recommended in situations where the research topic is novel and underdeveloped, but at the same time a body of relevant literature exists (Lewis, 1998) | • Building a theory and the generic business model innovation process (Christensen, 2006) |

Table 4.7: Tactics used to increase validity and reliability in the action research
SWOT analysis is a general tool designed to be used in the preliminary stages of decision-making and as a precursor to strategic planning in various kinds of applications (Johnson et al. 1989, Bartol and Martin 1991). When correctly applied, it is possible to get an overall picture of the present situation in relation to external factors, comprised of threats and opportunities, coupled with an internal examination of strengths and weaknesses, which all eventually help in forming a better fit between internal and external factors, aimed towards an improved future strategic vision.

Table 4.8 provides a brief SWOT analysis of the overall research and method chosen.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>“First mover” research. Not a lot of research has been done on business model innovation. No research on incorporating risk management into business model innovation process</td>
<td>A qualitative research method is subjective and it is generalizable only to theory (not population)</td>
</tr>
<tr>
<td>Business model is currently a very “hot” research area</td>
<td>Known vulnerabilities in speaking and understanding Danish</td>
</tr>
<tr>
<td>Strong (and growing) network ties with global experts, universities and companies</td>
<td>Limited effect on companies’ core activities – no guarantees to perceive actual changes that occurred (or will occur) within companies involved in our research (also a threat)</td>
</tr>
<tr>
<td>ICI is an excellent platform to perform the action research</td>
<td></td>
</tr>
<tr>
<td>CIP – Resources, knowledge, people, supervision</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research gap - what does it really mean to “Innovate the business model”? How to incorporate risk management into business model innovation process?</td>
<td>Too many global networks – too many various opinions. There is a need to keep the research in focus</td>
</tr>
<tr>
<td>Strengthening global network ties (also strength)</td>
<td>As the research will evolve, it may become increasingly apparent that the business model is nothing more than a “buzz word”</td>
</tr>
<tr>
<td>Learning (also) by doing, using, and interacting (action research)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.8: Research design SWOT analysis
4.7 SUMMARY

In this chapter we presented and accounted for each research method and technique chosen, and discussed how we increased the validity and reliability of the research.

We started the chapter by presenting the research problem, objective, aims and research questions. We then proceeded by choosing a phenomenological approach for the research, and refined the “how” and “why” questions for each research method chosen i.e. theory development (Christensen, 2006), ten retrospective case studies in two industrial firms, and one action research, respectively.
5. DEVELOPING A BUSINESS MODEL THEORY

“Theories thus become instruments, not answers to enigmas, in which we can rest. We don’t lie back upon them, we move forward, and, on occasion, make nature over again by their aid” (William James, 1907, p. 46).

5.1 INTRODUCTION

Given the current state of the business model “theory”, and the lack of understanding of the business model concept, we can conclude that no valid and reliable research could be further developed if it is to be based merely on the “shaky ground” of assorted theoretical inconsistencies and current empirical knowledge, which is currently lacking.

Inspired by Christensen’s process for building a theory (2006) (see Section 4.3), this chapter maps the analysis of various business model researchers’ findings and perspectives, which are then placed into the two first categories of observation and categorization. Based on this, we will develop the categorization step further.

5.2 OBSERVATION - OBSERVE, DESCRIBE, AND MEASURE THE PHENOMENON (CONSTRUCTS)

In the first step (the base of the descriptive pyramid) researchers observe the focal phenomenon and carefully describe and measure what they see. Careful observation, documentation and measurement of the phenomena, according to Carlile and Christensen (2005), are important at this stage: if subsequent researchers will not be able to agree on what the phenomenon is, they will have difficulty improving the theory progressively. Furthermore, according to Christensen (2006), researchers at this stage often develop constructs, which are abstractions that help researchers to rise above the cluttered details, so that they can better understand the essence of what the phenomenon is and how it works. In this relevant phase, we can discuss the findings of various scholars who focused on defining the business model concept (Section 2.3.2 in general, Table 2.3 in particular), as well as their research on clarifying its components (Section 2.3.5 in general, Tables 2.4 and 2.5 in particular). As indicated in the theoretical review presented in Sections 2.3.2 and 2.3.4, the results of the first step were inconclusive.

As for the business model definition, Table 2.3 showed that many authors have attempted to define the business model concept. Some authors took a narrow, more technological or financial focus (e.g. Chesbrough 2007, Stewart and Zhao 2000), while others adopted a more general perspective (e.g. Amit and Zott 2002, Osterwalder et al. 2004). Some incorporated corporate strategy in their business model definition (e.g. Hamel 2000, Timmers 1998), while others left it out (e.g. Weill and Vitale 2001, Selz 1999). Given these circumstances, we chose to adopt Osterwalder et al.’s (2004) definition, which we
found to be the most comprehensive, in that it provides concrete details to the core processes, or (potential) building blocks, existing within a business.

Similarly, the results regarding the business model components are also inconclusive. Table 2.5, for example, compares three (group of) researchers, namely, Morris et al. (2003), Osterwalder et al. (2004), and Chesbrough (2007). We found that the findings of Osterwalder et al. overlap on four components with Morris et al. and on five components with Chesbrough’s framework, but added more detailed elements to the business model concept: relationship, core competence, network partners, cost structure, and revenue model. However Osterwalder et al. lack the strategy dimension, mentioned by Morris et al. and Chesbrough. In this case, however, we chose not to adopt any authors’ findings and, instead, to further explore, based on our own understanding, what the components of a given business model might be (e.g. Section 5.3.1).

5.3 CLASSIFICATION - CATEGORIZATION BASED UPON ATTRIBUTES OF PHENOMENA (FRAMEWORKS & TYPOLOGIES)

According to Christensen, once the phenomena have been observed, described and partly understood, the researchers move into the second phase, and begin to classify the phenomena into categories. In the descriptive stage of theory building, the classification schemes proposed are typically defined by the attributes of the phenomena. Categorization is an essential (inner) process since it simplifies and organizes the world in ways that highlight possible consequential relationships between the phenomena and the outcomes of interest. These descriptive categorization schemes are often referred to as frameworks or typologies. In this section we can relate the findings of various scholars who focused on categorizing the business model with regard to its innovation process (Sections 2.3.7 and 2.3.8), also mentioned earlier in Chapter 2.

5.3.1 FURTHER DEVELOPMENT OF STEPS ONE AND TWO

Based on an analysis of publications on the business model phenomenon, we concluded Chapter 2 by arguing that the main reasons for the fuzziness of the “business model” concept are:

1. Inconsistencies regarding business model components (Table 2.4).
2. Inconsistencies regarding the relationship between business model and strategy (Figure 2.6).
3. Inconsistencies regarding the understanding of business model innovation (e.g. Sections 2.3.7 and 2.3.8).

From a theory development perspective, Christensen (2006) argues that, if researchers are not able to agree on what the phenomenon is, they will have difficulties improving the theory progressively. Accordingly, in order to provide a solid foundation for the business
model research to be built upon, and based on the similarities/differences between the various authors’ perspectives, there is a need to narrow down and sharpen the large variation of opinions, as well as to develop new concepts, ideas and categories to the term “business model” in general, and its innovation process in particular.

5.3.1.1 CORE BUSINESS BUILDING BLOCKS

Firstly, as to the components of what we propose to be the core of the business model, despite the large variation in opinions, we could still identify a strong resemblance between the different components. Thus, based mostly on Osterwalder et al.’s (2004) nine building blocks, Amit and Zott’s (2001) analysis, Chesbrough’s (2007) open business model innovation, Johnson et al. (2008), and Hamel (2000), we propose the building blocks in Table 5.1 as the ones that best represent the core components of a business model.

Explanation of the choice
The seven core building blocks are mostly inspired by the work of Osterwalder et al.’s (2004) nine building blocks: value proposition; target customer; distribution channel; customer relationship; value configuration; core competence; partner network; cost structure; revenue model (Table 2.5). However we adopted the term profit formula suggested by Johnson et al. (2008) to merge their revenue model and cost structure blocks under one category, and we excluded their distribution channel, since it is already embedded in the value chain, e.g. Porter’s (1985) inbound/outbound logistics (Figure 5.1), presented in Osterwalder et al. as the value configuration block.

<table>
<thead>
<tr>
<th>Core question</th>
<th>Core building block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who do we serve?</td>
<td><strong>Target customers</strong>, market and geographical segments</td>
</tr>
<tr>
<td>What do we provide?</td>
<td><strong>Value propositions</strong> (products and services) that the company offers</td>
</tr>
<tr>
<td>How do we provide it?</td>
<td><strong>Value chain</strong> configuration</td>
</tr>
<tr>
<td></td>
<td><strong>Core competences</strong>: assets, processes, branding and activities that translate the company’s input into value for customers (output)</td>
</tr>
<tr>
<td></td>
<td><strong>Partner network</strong>, including both strategic partnerships and supply chain management</td>
</tr>
<tr>
<td></td>
<td><strong>Customer relationships</strong>, e.g. physical or virtual</td>
</tr>
<tr>
<td>How do we make money?</td>
<td><strong>Profit formula</strong> – both cost structure and revenue flow</td>
</tr>
</tbody>
</table>

Table 5.1: Core components of the business model
5.3.1.2 **CORE BUSINESS, STRATEGY AND INNOVATION PROCESS RELATIONS**

As Table 5.1 suggests, strategy is not included in the core components of the business model. As mentioned earlier, some key researchers (e.g. Morris *et al.* 2003, Chesbrough 2007, Weill and Vitale 2001, Hamel 2000) included strategy in the core processes (i.e. building blocks) of a given business model. It is conceptually clearer, however, also in view of the role of the business model innovation process, to at least analytically distinguish between strategy and the core processes, or components, of the business model. Strategy, then, involves intentional decision-making on the positioning of the business and the way that strategy will be pursued, while the core processes of the business model represents the actual implementation of the business strategy.

It is therefore conceptually clearer, as shown in Figure 5.2, to position the business model innovation process between the business strategy (intent) and the core business (realized), and define business model innovation as the actual process through which the business strategy is realized.

![Diagram of Porter's value chain model](image)

**Figure 5.1** Porter’s value chain model (Porter, 1985)

![Diagram of core business, business model innovation and business strategy](image)

**Figure 5.2:** Core business, business model innovation and business strategy

Accordingly, if we were to follow up on Tidd and Bessant’s (2009) innovation process (Figure 5.3), we could argue that the innovation process should be supported by two key questions:
“Do we have a clear innovation strategy?”

“Do we have an innovative organization?”, associated with organizational culture and leadership commitment for securing innovation capabilities to a firm.

Thus, it could be argued, as shown in Figure 5.4, that strategy as well as organizational culture and leadership are part of the overall business model template, and this provides the supported elements needed for the core business processes (i.e. building blocks) to be solidly based upon.

**Figure 5.3: Tidd and Bessant (2009, p.44) model of the innovation process**

**Figure 5.4: Overall business model template**
5.3.1.3 BUSINESS MODEL INNOVATIVENESS SCALE

The next issue concerns the question: when can we call a change in an organization a business model innovation?

Three approaches have been proposed. The first approach, associated with business model innovation radicality, “defines” business model innovation as a radical change in the way a company does business (Chesbrough 2007, IBM survey 2006, 2008, Linder and Cantrell 2000). Linder and Cantrell in particular are clearly attempting to draw a line in suggesting what can and cannot be defined as business model innovation.

The second approach defines innovativeness in terms of, what might be called, the reach of the innovation (e.g. Rogers 1983, Olsen et al. 1995, Green et al. 1995, Garcia et al. 2002). A suitable scale to measure the degree that an innovation is “new to whom” could be one ranging from new to the company, via new to the market and new to the industry, to new to the world.

The third approach considers measuring the business model innovativeness through its complexity, where any change in any of the (core) building blocks or the relationships between them could be considered as a form of business model innovation (Amit and Zott 2001, Osterwalder et al. 2004, Magretta 2002). Alternatively, in line with Abell (1980) and Skarzynski and Gibson (2008), business model innovation could also be considered in terms of the number of building blocks that are changed simultaneously: any change in one of the building blocks would constitute a simple innovation, while simultaneous changes in all of the building blocks would be the most complex form of business model innovation.

If we combine these three approaches, a three-dimensional space emerges (Figure 5.5), which helps in qualifying the innovativeness of a new business model:

- **Radicality** – (how new?) incremental vs. radical of each building block - illustrated in Table 5.2.
- **Reach** – to whom is the innovation new?
- **Complexity** – number of building blocks changed simultaneously.

<table>
<thead>
<tr>
<th>Building block</th>
<th>Incremental innovation “Do what we do but better”</th>
<th>Radical innovation “Do something different”</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Value proposition</td>
<td>Offering “more of the same”</td>
<td>Offering something different (at least to the company)</td>
</tr>
<tr>
<td>2. Target customer</td>
<td>Existing market</td>
<td>New market</td>
</tr>
<tr>
<td>3. Customer relationship</td>
<td>Continuous improvements of existing channels</td>
<td>New relationship channels (e.g. physical/virtual, personal/peers/mass awareness)</td>
</tr>
<tr>
<td>4. Value chain architecture</td>
<td>Exploitation (e.g. internal, lean, continuous improvements)</td>
<td>Exploration (e.g. open, flexible, diversified)</td>
</tr>
</tbody>
</table>
Accordingly, any change can rightfully be called a business model innovation, but some changes are more radical and/or complex than others, and some (e.g. radical product innovation, incremental process improvement) are better understood than others (e.g. a holistic, new to the world departure from all business models known so far). Consequently, we get around the eternal discussion of when a business model innovation is indeed radical or incremental, simple or complex, far reaching or not, and, instead, portray the space in which any business model innovation can be positioned in terms of its degree of radicality, reach and complexity (Figure 5.5).

**Table 5.2: Incremental and radical orientation to each building block**

![Table 5.2: Incremental and radical orientation to each building block](image)

**Figure 5.5: A three-dimensional (business model) innovativeness scale**

![Figure 5.5: A three-dimensional (business model) innovativeness scale](image)
5.4 Conclusion

The objective of this chapter was to build a (descriptive) theoretical understanding of the term “business model” and its innovativeness. In the course of doing so, we followed Christensen’s (2006) method of building a theory (Figure 4.2) as the overall framework for this research.

We identified different opinions concerning the components of a business model, its relation to strategy, and its innovation. Thus, we argued for the need to narrow down the large variation by sharpening the following aspects:

- Despite the large variation in opinions regarding the components of the business model, we still identified a strong degree of concurrence between various authors. Based mostly on Osterwalder et al.’s (2004) nine building blocks, Amit and Zott’s (2001) analysis, Chesbrough’s (2006), Johnson et al. (2008), and Hamel (2000), we proposed in Table 5.1 what we argued to be the core components (or processes) of a given business model.

- As to the overall business model template (Figure 5.4), we argued that strategy as well as organizational culture and leadership, are all part of the holistic business model template, and thus, provide the supported elements needed for the core business processes to be solidly based upon.

- As regards business model innovation, various alternatives have been proposed. Linder and Cantrell (2000), in particular, actually regard innovation as part of their so-called change models. It is however conceptually clearer to position that process between the business strategy (intent) and the core business (realized), and define business model innovation as the actual process through which the business strategy is realized (Figures 5.2).

- Furthermore, when do we talk about business model innovation? Based on Rogers (1983), Abell (1980), Amit and Zott (2001), Osterwalder et al. (2004), Tidd and Bessant (2009 and Magretta (2002), we proposed a broader approach that perceives business model innovation to appear in the form of a three dimensional space (Figure 5.5) determined by innovation radicality, reach and complexity.

All in all, akin to the IBM (2006, 2008) and KPMG (2006) surveys, our research has led us to believe that business model thinking and business model innovation do indeed matter. (More) precise definition and positioning of the key constructs, business strategy, core business and business model innovation, and their relationships as proposed in this chapter, help reduce the confusion and allow us to design and communicate business model research more rigorously.

In Chapter 7 (also based on the empirical results drawn from the case studies – Chapter 6) we will continue to further develop the theory on business model innovation and proceed to the third step, “Association”, where we will develop a generic business model innovation process, supported by risk management processes.
6. EMPIRICAL INVESTIGATION ANALYSIS I: TEN RETROSPECTIVE CASE STUDIES

6.1 INTRODUCTION

Now that the business model concept and its innovativeness have been clarified (first research aim), we shift focus to exploring business model innovation and how risks are handled in the practice of that process (second research aim).

Based on the literature review (Chapter 2), and our own pre-empirical analysis (interviews and observations – Chapter 3), we came to realize that innovating a business model is likely to involve many risks, which many companies and their managers are not prepared to take (Markides, 2008), unable to handle adequately, or worse, not aware of. Yet, by not taking risks and implementing changes, many companies are likely to be cannibalized by their competitors (e.g. Tidd and Bessant, 2009). Managers should, therefore, recognize that taking, while at the same time controlling, risks, is fundamental to developing and implementing a sustainable competitive business model (e.g. IBM survey 2006, 2008). The question is: how to manage innovation-related risks adequately? Recent studies on risk management, particularly in relation to project management (e.g. Chapman and Ward, 2004) and product innovation management (e.g. Keizer, Halman and Song 2002, Keizer and Halman 2007) argued for the importance of incorporating risk management in the early phases of the innovation process, and particularly in the idea-selection gate, which is considered to be a crucial gate since most innovation ideas that pass through this gate into the next (innovation) phase, are likely to continue into the market place, and will therefore receive large amounts of funding to support its planned implementation processes.

Yet, despite the considerable amount of literature on risk management, its processes have not yet been fully incorporated, proactively, into other core business decision-making processes, such as strategic planning, capital allocation and performance management (ERM survey 2008). Consequently, risk is usually managed reactively, and related to existing assets.

This practical lack of management awareness for the need to manage innovation risks adequately in view of pressures to increase stakeholder value, improve earnings, and raise the innovation success rate on the one hand, and the gap in our understanding of the processes and benefits of proactively applying risk management throughout the business model innovation process on the other, has led many companies to “simply” disregard, and therefore not apply, any risk management throughout their business model innovation processes.

Given these circumstances, we were particularly interested in exploring whether companies that innovated their business model successfully have found alternative, adequate ways of managing the risks involved and, then, to what effect.

Consequently, our first research question aims to explore:
What is the role of risk and risk management in the practice of business model innovation?

6.2 Data Gathering Results

Ten retrospective case studies of (more disruptive oriented) business model innovation processes undertaken by two industrial companies provide the empirical basis for this part of the thesis. We selected these companies based on their (relatively) successful, yet somewhat different, business model innovation experiences over the years. Table 6.1 summarizes the case study data collected.

<table>
<thead>
<tr>
<th></th>
<th>Company Alpha</th>
<th>Company Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk appetite</td>
<td>Used to be between “open” and “hungry”. Currently moving towards “open” – “cautious”, and taking fewer risks. Intending to move to ‘hungry’ again in future.</td>
<td>Used to be between “open” and “cautious”. Currently moving towards “open” and “hungry”. Willing to take chances and aim high, but aware of the risks involved in that.</td>
</tr>
<tr>
<td>The ten business model innovation cases and their success rates.</td>
<td>• <strong>Case A</strong> – New business unit offering existing technology-based products to a new market (automotive) – very successful (medium radicality, medium reach, high complexity).&lt;br&gt;• <strong>Case B</strong> – New business unit offering new technology-based products to a new market (mobile phones) – partly successful (medium radicality, low reach, high complexity).&lt;br&gt;• <strong>Case C</strong> – New business unit offering existing technology-based products to a new market (studios), plus outsourcing of marketing and sales to a partner – failure (low radicality, low reach, high complexity).&lt;br&gt;• <strong>Case D</strong> – Joint venture, a new technology-based product that can be used in many industries – very successful (medium radicality, high reach, medium complexity).&lt;br&gt;• <strong>Case E</strong> – Joint venture with a venture fund. The core business is IP and R&amp;D of products based on existing and new technologies for the biomedical industry – very successful (medium radicality, medium reach, medium complexity).&lt;br&gt;• <strong>Case F</strong> – Joint venture offering new technology-based products to a new market (telephone infrastructure), planned to be sold (divested) to a partner.</td>
<td>• <strong>Case 1</strong> – Penetration of the marine industry based on existing and new technological competences. Required internal re-engineering to insure higher quality control and work efficiency (e.g. lean, new business intelligence department) – very successful (medium radicality, medium reach, high complexity).&lt;br&gt;• <strong>Case 2</strong> – Acquisition of a small company operating in a different industry (wind power). That company currently continues to develop the business internally. Soon to be spun off again as a new independent company – very successful (high radicality, medium reach, high complexity).&lt;br&gt;• <strong>Case 3</strong> – New technology-based product, aimed at serving existing and potential new customer segments – failure: after one year of heavy investment in the product, the project was terminated due to incongruity with customer demands (product shape and size; price – too expensive) – (low radicality, low reach, high complexity).</td>
</tr>
</tbody>
</table>

All in all, roughly 66% success in business model innovations.
European company – very successful (medium radicality, medium reach, medium complexity).

- **Case G** – Outsourcing the manufacturing of one of the products – failure (low radicality, low reach, high complexity).

All in all, roughly 60% success in business model innovations.

**Rationality in choice under uncertainty and complexity**

| **Search processes** | No search process in any of the cases. “It was just something that came up along the way”. One project was managed proactively in search of a radically new business model (Case F). Otherwise, it was internal competences chosen to be used elsewhere. |
| **Selection and implementation processes** | Following a stage-gate model, radical innovation ideas are handled with extra awareness. A slower process, which always starts with small steps and then grows slowly. Radical ideas follow gates similar to those of incremental ideas. The difference is, though, that it takes more time to move from gate to gate. |

**Selection and implementation processes** – Recognized as one of the weaknesses of the company. They do not really have any systematic processes to manage radical, or even incremental, innovation ideas. It is something that usually just “pops up”. They give more attention to ideas that come from their main customers.

| **Selection and implementation processes** | A stage-gate model is used to move the business concept idea through a maturity roadmap and development process. Many complaints about the fact that there is not enough market research behind ideas proposed. In effect, lacking understanding of the potential market and sales volume. |

**Management of risks through the innovation process**

No explicit risk management processes, but rather a project culture and a project/innovation model that is structured by many gates aimed at continuity and reducing the risks throughout the innovation process. It is not an advanced risk management model, or one that applies a risk assessment method, but nonetheless a very sufficient model to reduce many risks through the innovation process.

No explicit risk management processes were identified. However, their innovation processes are highly controlled, to insure that strategic decisions made at the gates are being implemented adequately at the stages throughout the innovation process, and, the company considers those control processes as a form of risk reduction.

| **Management of risks through the innovation process** | As Table 6.1 illustrates, the cross case analysis focused on the selection of categories or dimensions, where we looked into the similarities and differences between the two companies’ experiences (e.g. Eisenhardt, 1989). The categories selected were:

- Past, present and future risk appetite preference of each company (based on Chapter 2, Section 2.4.4, Table 2.6).
- Characteristics of the business model innovation cases, and their success rates. |

Table 6.1: Summary of the case data

As Table 6.1 illustrates, the cross case analysis focused on the selection of categories or dimensions, where we looked into the similarities and differences between the two companies’ experiences (e.g. Eisenhardt, 1989). The categories selected were:

- Past, present and future risk appetite preference of each company (based on Chapter 2, Section 2.4.4, Table 2.6).
- Characteristics of the business model innovation cases, and their success rates.
Following Figure 5.5 and Table 5.2 we adopted the following terminology/scales:

- **Radicality**: ranging from low (i.e. incrementally new), through medium (i.e. incorporate up to four radical elements - based on Table 5.2), to high (i.e. radically new business model).
- **Reach**: ranging from low (new to the firm), through medium (new to the marketplace and/or the industry), to high (new to the world).
- **Complexity**: ranging from low (any change in 1-2 building blocks), through medium (any change in 3-5 building blocks), to high (any change in 6-7 building blocks) (see Table 5.2).

- Rationality of choice under uncertainty and complexity.
- Management of risks throughout the innovation process.

Table 6.2 gives more detail to the data gathered by visualizing the business model innovation cases through their degrees of innovativeness with relation to radicality, reach and complexity.

**VP=**value proposition; **TC=**target customer; **VC=**value chain; **CC=**core competences, **CR=**customer relation; **PN=**partner network; **PF=**profit formula.

<table>
<thead>
<tr>
<th>Case</th>
<th>Radicality (to the core business)</th>
<th>Reach</th>
<th>Complexity (to the core business)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case – A</td>
<td>Medium: (VP; TC; VC; PN)</td>
<td>Medium: (new to the industry)</td>
<td>High: (VP; TC; VC; PN; CR; PF)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case – B</td>
<td>Medium: (VP; TC; VC; PN)</td>
<td>Low: (new to the firm)</td>
<td>High: (VP; TC; VC; PN; CR; PF)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case – C</td>
<td>Low: (VP; PN)</td>
<td>Low: (new to the firm)</td>
<td>High: (VP; TC; VC; PN; CR; PF)</td>
</tr>
<tr>
<td>Case</td>
<td>Medium:</td>
<td>High:</td>
<td>Medium:</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>D</td>
<td>(CC; PN; PF)</td>
<td>(new to the world)</td>
<td>(TC; CC; PN; PF)</td>
</tr>
<tr>
<td>E</td>
<td>(CC; PN; PF)</td>
<td>(new market, sometimes also new to the industry - depend on the product innovated)</td>
<td>(TC; CC; PN; PF)</td>
</tr>
<tr>
<td>F</td>
<td>(CC; PN; PF)</td>
<td>(new to the industry)</td>
<td>(TC; CC; PN; PF)</td>
</tr>
<tr>
<td>G</td>
<td>Low: (VC; PN)</td>
<td>Low: (new to the firm)</td>
<td>High: (VP; TC; VC; CC; PN; PF)</td>
</tr>
<tr>
<td>1</td>
<td>Medium: (VP; TC; VC; CC)</td>
<td>Medium: (new to the industry)</td>
<td>High: (VP; TC; VC; CC; CR; PN; PF)</td>
</tr>
<tr>
<td>2</td>
<td>High: (VP; TC; VC; CR; CC; PF)</td>
<td>Medium: (new market)</td>
<td>High: (VP; TC; VC; CC; CR; PF)</td>
</tr>
</tbody>
</table>

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### 6.3 CROSS CASE ANALYSIS

#### 6.3.1 CORPORATE RISK APPETITE LEVEL

**Company Alpha:** The company’s risk appetite used to be “hungry”, but they are now moving towards “cautious”, taking fewer risks. In the past, the company was more willing to take risks, and experimented with new, rather than “more of the same”, products and business models. However, due to a significant downturn in the company’s profits during the last couple of years, which is partly related to the financial crisis, and resulted in hiring a new CEO, the strategy of the company has changed significantly and, with that, also its risk appetite. Today, the company focuses on a narrower portfolio of A/V technology-based innovations only.

**Company Beta:** The company used to focus on electronics and instruments that were used in switchboards in factories. It was very traditionally oriented, and had relied upon Denmark as its only sales market. The company’s risk appetite lay somewhere between “cautious” and “open”. Since the early nineties, the risk appetite of the company has grown significantly and is now leaning towards “open” and “hungry”. This is partly due to a replacement of the senior management, but also because sales volume has grown and new technologies have emerged that opened up new opportunities for the company. Willing to take chances, the company is aiming high, even though they are aware of the risks involved.

Based on these risk appetite profiles, both companies should be expected to adopt risk management processes for value enhancement (see Accenture, 2009). However, as the following sections will show, they did not, and the question is: why did they choose not to apply risk management and what have been the effects of that decision?

Clearly, the corporate risk appetite level serves as a company’s guiding principle for determining the ideas to be selected first, and the implementation processes to follow. In both cases, the risk appetite of the top management team in general, and the CEO in particular, plays a significant role in determining which innovation challenges will be pursued. However, while the replacement of the CEO in company Alpha changed the company’s strategy significantly, to become more risk averse, a similar event has led company Beta to become more inclined to taking higher calculated risks.
Also, in both cases we identified that the risk capital invested in the new business models was available in-house in most cases. So, no third party investment (e.g. bank loans, venture capital) was used. That strategic choice for investing in new business models had a direct impact on the risk appetite of the firms. In times of prosperity both companies were more risk hungry, while in times of financial constraints both companies chose to reduce their risk appetite level by focusing more on retrenchments and taking more calculated risks in seeking future growth.

6.3.2 CHARACTERISTICS OF THE BUSINESS MODEL INNOVATION AND SUCCESS RATE

**Company Alpha:** Throughout the years, company Alpha engaged in seven business model innovations. Four cases (A, D, E and F) were very successful\(^\text{viii}\). In three cases, the company either partly succeeded (case B), or failed to succeed (cases C and G). All successful cases involved the exploitation of existing technology (case A), or the development and exploitation of new technology-based products, together with a partner (cases D, E and F), in a market segment new to company Alpha. Case A resulted in a new internal manufacturing unit; the other success cases in a joint venture. The two failure cases were attempts to outsource the production (case G) or marketing and sales function (case C) to a third party. Two factors caused their failure. First, the partner did not match the company’s high quality standards. Second, they realized in a later phase (particularly case C) that the market was too small to play a significant part in the company’s turnover. In case B, company Alpha and a partner company combined some of their competences and developed two mobile phone types. One product was a partial success while the other type did not succeed. Nonetheless, this project would have been continued if it were not for the financial crisis, which forced the company to become more focused in response to the 34 percent turnover loss.

**Company Beta:** This company engaged in three business model innovations, two of which became a success (case 1 and 2), while one attempt failed (case 3). Case 1 involved the application of existing, and the development of new, competences and technologies in a new market segment. Case 2, an acquisition, was much more risky for the company, both in terms of investment as well as time constraints, and involved the development and exploitation of new technology in a new market segment. In case 3, a failure, the company “pushed” a radically new product into the market in an attempt to exploit a new emerging technology, without any idea of how customers would respond. Cases 1 and 3 were implemented using the company’s existing organization. As said, case 2 was an acquisition.
<table>
<thead>
<tr>
<th>Case</th>
<th>Result</th>
<th>Radicality</th>
<th>Reach</th>
<th>Complexity</th>
<th>Key content</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Successful</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Existing technology for new market segment</td>
<td>New BU</td>
</tr>
<tr>
<td>B</td>
<td>Partly successful</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>New-to-the-firm technology for new market segment</td>
<td>New BU</td>
</tr>
<tr>
<td>C</td>
<td>Failure</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Existing technology for new market segment</td>
<td>New BU Partner</td>
</tr>
<tr>
<td>D</td>
<td>Successful</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>New technology for new market segment</td>
<td>Joint venture</td>
</tr>
<tr>
<td>E</td>
<td>Successful</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Existing and new technology for new market segment</td>
<td>Joint venture</td>
</tr>
<tr>
<td>F</td>
<td>Successful</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>New technology for new market segment</td>
<td>Joint venture: planned to be divested soon</td>
</tr>
<tr>
<td>G</td>
<td>Failure</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Outsourced manufacturing</td>
<td>Supplier</td>
</tr>
<tr>
<td>1</td>
<td>Successful</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Existing and new technology for new market segment</td>
<td>Existing core business, improved through BPR</td>
</tr>
<tr>
<td>2</td>
<td>Successful</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>New technology for new market segment</td>
<td>Acquisition; planned to be spun off soon</td>
</tr>
<tr>
<td>3</td>
<td>Failure</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>New technology for existing and new market segments</td>
<td>Existing core business</td>
</tr>
</tbody>
</table>

Table 6.3: Key characteristics of the ten business model innovations
6.3.2.1 CROSS ANALYSIS

On the aggregate scale combining radicality, complexity and reach, all successful cases were more innovative than the partially successful case B and the failures C, G and 3. All failures were low in radicality, high in complexity and low in reach. All successful cases were medium-high in radicality, complexity and reach. So, what happened?

A deeper look into the failure cases suggests a pattern. First, complexity hardly seems to explain the difference between success and failure, but radicality and reach do.

Case C involved the establishment of a new business unit offering incremental improvements to existing products, combined with outsourcing of marketing and sales to a partner. Case G concerned outsourcing of manufacturing to a partner, which, however, failed to result in a competitive product. Company Alpha is, indeed, a highly competent design company, pushing new products into the marketplace and with a successful history of technology development collaborations. However, they may have underestimated the complexities involved in establishing a successful operational collaboration through outsourcing. In Company Beta, new product development activities are usually based on market-pull. Case 3 may have failed because the company “pushed” a radically new product into the market without any idea of how customers would respond.

The successful cases not only opened up completely new markets for the companies, but also increased their sales volume and profits significantly.

6.3.3 RATIONALITY IN CHOICE UNDER UNCERTAINTY AND COMPLEXITY

**Company Alpha:** In most cases (except case F), there was never a search process for new business models. Rather, ideas were slowly developed along the way based on their existing core competences (e.g. technologies, know-how). The company simply considered it obvious that existing competences would give them relatively easy access to other industrial settings. These competences include the ability to:

- Outsource existing products and processes to a new partner (case G).
- Transfer existing technologies and processes to another industrial setting (cases A and C).
- Develop, in-house or together with a partner, and then transfer, new technologies and processes (cases B, D and E).

The challenge, in cases C, E, F and G, was to find the right partner to work with. The search for a partner, rather than the search for an idea, seemed to be the main challenge in these cases. Furthermore, in all cases except E and F, the company preferred to generate the idea and test it first internally, starting with a low scale production process, and to consider growth in due course (e.g. through a joint venture, or a new business unit). This replication of previous business model innovation processes seems to be a winning
formula for the company, and is expected to be followed relatively similarly in future business model innovations.

All new ideas have to pass through three strategically oriented gates before they are allowed to continue further to implementation. At the first gate, the idea is presented to the concept manager. The second gate involves a presentation of the so-called initial proposition to the top management. At the third gate, the top management decides whether or not to commit to the concept that has been worked out, and to the detailed business plan that was developed. With every approval, the budget available for developing the innovation increases until, after the third gate, all the funding needed to develop, produce and commercialize the innovation is available to the innovation team. Further downstream, the gates are managed by a cross functional team (idea factory, R&D, production, marketing and sales), which provides the innovation team with the flexibility to manage the stage-gate process from gate to gate as they see fit. At each gate, the team receives a checklist that must be completed before the next gate meeting.

**Company Beta:** As was the case with company Alpha, there was never a formal search process for new business models. Radically new ideas emerged over the course of time, either through existing technological capabilities (case 1, case 2), as a reaction to emerging competitors’ technologies (case 3), and/or simply to reduce cost (case 1). Furthermore, the failure of case 3 made the management team even more aware of the need to better understand customer demands as a basis for selecting innovation ideas.

Company Beta, too, follows a stage gate model for moving new product and business concepts through a process roadmap and development process. For each innovation project there is a steering group, which is situated at the gates. This group includes representatives from the management team and the R&D group, and a product/project manager as well as supply chain staff (purchasing, distribution). The business intelligence unit, however, is not involved in that process. For that reason, according to one of the company’s managers, the discussions in the steering groups at the gates are concerned with performance errors in existing products, rather than searching for wholly new products/businesses that could better meet present, and potentially new, customer demands.

### 6.3.3.1 Cross Analysis

Both companies try to reuse successful business model innovation processes (new idea generation and implementation processes). However, while company Alpha is keen on pushing ideas and technology into the market place, company Beta is more in favor of adopting a customer pull strategy. Furthermore, both companies try not to repeat failures made in the past. Consequently, the failed outsourcing attempts of company Alpha (cases C and G) has led the company to re-experiment with familiar, “pushed”, business model innovation processes, while company Beta, based on the failure of case 3, has chosen to no longer push new ideas and technologies into the market place, without consulting their customers first.
6.3.4 MANAGEMENT OF RISKS THROUGHOUT THE INNOVATION PROCESS

**Company Alpha:** The innovation process of the company is very structured and goes through many gates. The process and gates are the same for all innovations. The company considers the gates, to a certain extent, as risk reduction processes. The business development project in progress has to meet each requirement at each gate before the green light is given to proceed to the next stage. However, no explicit risk management/assessment processes are applied.

An additional function used by the company to reduce risks is associated with time. That is, despite the fact that the innovation process and the gates remain the same for all types of innovations, the time it takes to get from gate to gate increases as the level of radicality, reach and/or complexity increases. This gives the company the flexibility to proceed with more caution and to terminate those projects that are expected to be unsuccessful without too many consequences. This process is also a function of risk management since the outcome of the process, i.e. the innovation itself and its commercial success, are more important than the time that it takes to implement the innovation. However, in order to keep pace with competition, the company also maps each innovation project’s timetable as red, yellow, or green to illustrate the sense of urgency for its completion.

Yet, it was also apparent to the management team that despite the fact that the decision making and implementation processes are well designed for technological success, the company does not really possess adequate processes to predict the possible success in the marketplace, i.e. commercial success. Consequently, the new management team is very keen to search for new, more structured ways to deal with risk-benefit projections and increase the likelihood of commercial success of future innovations. Those new processes, according to the company’s innovation director, are not meant to increase control but rather to reduce uncertainty as regards future sales.

**Company Beta:** Company Beta does not have an explicit risk management process in place either. Instead, the company considers the gates as their risk reduction processes, where each gate sets a higher level of control requirements. However, unlike company Alpha, which gave the innovation team the flexibility to manage the stages freely from gate to gate, in company Beta, the control processes are very formal and continue also through the processes from gate to gate. According to one of the managers, the innovation processes involve a lot of paperwork, which has very little impact on output effectiveness but rather forces the innovation team to spend a lot of time on completing checklists instead of managing the process forward.

In its technological innovation projects, company Beta uses scenario planning. Performed by the business intelligence unit, this method involves the development of three sales forecast scenarios: an optimistic, a realistic, and a conservative scenario. Those scenarios are used to assist the company with analyzing the actual “as-is” business progress (e.g. better than expected, as-planned, worse than expected). However, those scenarios were not applied in any of the business model innovation processes.
Consequently, the company is still struggling with the question of whether or not they should control their innovation processes so tightly. One troublesome consequence that became apparent to the company recently was the fact that no new products/business models had been generated in the past two years, in spite of the fact that the company has doubled its R&D staff.

According to one of its managers, one of the main reasons for this is the amount of control, and the time it takes to fill in checklists and provide explanations as to whether or not an innovation is ready for the next gate. Those constraints, according to him, are a challenge they have to resolve soon. More and more product/business model ideas are waiting in the pipeline, but cannot become operational as long as the projects in progress are not completed.

6.3.4.1 CROSS ANALYSIS

In both companies, problems continued to manifest themselves in different ways, some of which had a more tolerable impact (e.g. setbacks and unexpected, unpleasant but solvable surprises; goals and objectives that required redefinition during the process; accepted solutions that were rejected in a later phase; implemented solutions that were less effective or glamorous than anticipated; and/or schedule and budget overruns), while others had a catastrophic impact and led to complete project failure (cases C, G and 3).

In effect, neither of the companies was satisfied with the stage-gate process as their dominant risk management approach, but they did not really know how to optimize the process.

6.4 DISCUSSION

The cross-case analysis seems to suggest the following picture.

Successful business model innovation increases a company’s turnover and profits significantly. Success, however, depends a great deal on the risk appetite of the company and the way it manages the risk involved in that process. The top management’s personality and their assessment of the company’s economic position and outlook, have great influence on the risk appetite of the company. This confirms the important role the key stakeholders’ perceptions of an innovation (e.g. Rogers, 1983) play in “setting the stage”.

Top management perception also greatly affects their appreciation of the nature of the innovation, and may lead to underestimation of the difficulties involved in that process, even, or perhaps especially, when incremental (radicality) and new-to-the-firm (reach) innovations are pursued, since such innovations present a departure from the company’s previous strategy and does not, consequently, build on experiences with previous innovations. This reflects Cohen and Levinthal’s (1990) concept of prior related knowledge. This concept, which is related to path dependency (Nelson and Winter, 1982),
also explains why companies tend to “simply” repeat successful business model innovation processes, and to equally “simply” drop unsuccessful approaches. The inherent danger, however, is that a company may fail to learn how to approach innovations that are essentially new to the company, which, in turn, may decrease its growth potential significantly.

Furthermore, even if 1) a company’s risk appetite fits its economic position and outlook, and 2) the company estimates the nature and characteristics (radicality, reach, complexity) of the intended innovation correctly, and is prepared, if necessary, to learn new approaches, business model innovation is still loaded with risks. Hence, risk management is of paramount importance in any business model innovation process. The case studies show that incomplete management of risk may lead to partial success. A focus on technological aspects combined with insufficient attention paid to commercial aspects and, possibly, a “push” strategy, may lead to technical success but commercial failure (cf. e.g. Voss, 1988).

Also, too much bureaucracy delays innovation, even at the implementation stage, and goes at the expense of other innovations identified and waiting to be implemented. Previous research has reported different impacts of bureaucracy. Early research (e.g. Burns and Stalker, 1961) suggested a negative effect of bureaucracy throughout the innovation process. Later research (e.g. Zaltman et al. 1973, Kelly and Kranzberg 1975, Pierce and Delbecq 1977) showed that bureaucracy affects the implementation stage positively. However, Boer and During (2001) showed that uncertainty may remain high until the so-called trial-point of innovation (Downs and Mohr, 1976), i.e. the point in time that an innovation can really be trialed in practice, and is best dealt with using an organic, i.e. non-bureaucratic, management approach towards the innovation process. Innovations that are highly complex and whose trialability (Rogers, 1983) is low, such as for example business model innovations, suffer especially from a relatively late trial-point.

Finally, it appears that using a widely used approach such as the stage-gate process (Cooper, 1993) to manage a business model innovation process is not enough. The two companies’ experiences seem to suggest that incorporating dedicated risk management processes (Chapman and Ward 2004, Kendrick 2003, Keizer et al. 2002, HM Treasury 2004, Keizer and Halman 2007) into a business model innovation process, whether that process is stage-gate driven or not, can help reduce the likelihood of innovation failure.

6.5 Analytical Generalization

As mentioned earlier in Chapter 4, case studies results can be generalized into theoretical propositions and not to populations or universes (e.g. Yin, 2003). Accordingly, Table 6.4 is linking the data gathered and analyzed into testable propositions. Similarly to the analysis part of this chapter, we will use the same four categories to develop the propositions.
<table>
<thead>
<tr>
<th>Category</th>
<th>Cases analysis related text</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past, present and future risk appetite</td>
<td>“In both cases, the risk appetite of the top management team in general, and the CEO in particular, plays a significant role in determining which innovation challenges will be pursued”.</td>
<td><strong>Proposition 1</strong>: The top management has great influence on the risk appetite of the company. Fit between corporate strategy and the top management’s risk appetite should be one of the hiring/firing criteria for top managers.</td>
</tr>
<tr>
<td>preference of each company</td>
<td>“In times of prosperity both companies were more risk hungry, while in times of financial constraints both companies chose to reduce their risk appetite level by focusing more on retrenchments and taking more calculated risks in seeking future growth”.</td>
<td><strong>Proposition 2</strong>: The risk appetite of a company is a function of its economic position and outlook.</td>
</tr>
<tr>
<td>Characteristics of the business model</td>
<td>“Company Alpha is, indeed, a highly competent design company, pushing new products into the market place and with a successful history of technology development collaborations. However, they may have underestimated the complexities involved in establishing a successful operational collaboration through outsourcing”.</td>
<td><strong>Proposition 3</strong>: Even, or perhaps especially, if the radicality and reach of a business model innovation is low, previous successes with more radical and farther reaching innovations may lead a company to underestimate the process, particularly if the innovation does not build on the company’s experiences with previous innovations.</td>
</tr>
<tr>
<td>innovation cases, and their success rates</td>
<td>“The successful cases not only opened up whole new markets for the companies, but also increased their sales volume and profits significantly”.</td>
<td><strong>Proposition 4</strong>: Successful business model innovation increases a company’s turnover and profit significantly.</td>
</tr>
<tr>
<td>Rationality of choice under uncertainty and</td>
<td>“Both companies try to reuse successful business model innovation processes”; “…both companies try not to repeat failures made in the past. Consequently, the failed outsourcing attempts of company Alpha (cases C and G) has led the company to re-experiment with familiar, “pushed”, business model innovation processes, while</td>
<td><strong>Proposition 5</strong>: Instead of learning to improve, companies tend to “simply” repeat successful business model innovation processes and, equally “simply”, to drop unsuccessful approaches. Lack of experimentation.</td>
</tr>
<tr>
<td>complexity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
company Beta, based on the failure of case 3, has chosen to no longer push new ideas and technologies into the market place, without consulting their customers first”.

“Yet, it was also apparent to the management team that despite the fact that the decision making and implementation processes are well designed for technological success, the company does not really possess adequate processes to predict the possible success in the market place, i.e. commercial success. Consequently, the new management team is very keen to search for new, more structured ways to deal with risk-benefit projections and increase the likelihood of commercial success of future innovations. Those new processes, according to the company’s innovation director, are not meant to increase control but rather to reduce uncertainty as regards future sales”.

“…company (Beta) is still struggling with the question of whether or not they should control their innovation processes so tightly. One troublesome consequence that became apparent to the company recently was the fact that no new products/business models had been generated in the past two years, in spite of the fact that the company has doubled its R&D staff”.

“In effect, neither of the companies was satisfied with the stage-gate process as their dominant risk management approach, but they did not really know how to optimize the process”. We suggest:

| Proposition 6: An incomplete risk management process (e.g. aimed at technological success only) may lead to partial success (e.g. technological success but market failure). |
| Proposition 7: Too much bureaucracy delays business model innovation, even at the implementation stage, at the expense of other innovations identified and waiting to be implemented. |
| Proposition 8: Incorporating dedicated risk management processes into a business model innovation process, whether that process is stage-gate driven or not, can help reduce the likelihood of innovation failure |

**Table 6.4: Generalization of cases findings into propositions**
6.6 Conclusion

Companies today, in some industries more than others, invest more capital and resources just to stay competitive, develop more diverse solutions, and increasingly start to think more radically, when considering whether or not to innovate their business models. However, despite the understanding that business model innovation is a risky enterprise, many companies are still choosing not to apply any risk management processes through the business model innovation process. This chapter has therefore explored the role of risk and risk management in the practice of business model innovation.

The cases presented and analyzed here suggest that successful business model innovation increases a company’s turnover and profit significantly. Success, however, depends a great deal on the risk appetite of the company and the way it manages the risk involved. The former depends on the top management’s personality and their assessment of the company’s economic position and outlook, the latter on previous experiences with innovations.

Failing to learn how to approach innovations that are essentially new to the company may decrease a company’s growth potential significantly. However correctly a company assesses the nature and characteristics of the innovation, any business model innovation is loaded with risks. Hence, risk management is of paramount importance. Incomplete management of risk may lead to partial (e.g. technological) success and partial (e.g. commercial) failure.

Also, too much bureaucracy delays the process, even at the implementation stage, at the expense of other innovations identified and waiting to be implemented. A widely used approach such as the stage-gate process to manage a business model innovation process is not enough. Incorporating dedicated risk management into the process can help reduce the likelihood of innovation failure.

Finally, several approaches are possible to extend and test the line of propositions presented in this chapter, including more case studies, to shed additional qualitative light on the findings presented here, or a survey, especially for generalization purposes. However, in this thesis we will use action research (Chapter 8), aimed at drawing more robust and more refined conclusions regarding the role of risk management in business model innovation.
7. **DEVELOPING A GENERIC BUSINESS MODEL INNOVATION PROCESS**

“...mental models are important because they shape what decision-makers pay attention to, what they commit resources to and how they manage the process” (Bessant et al. 2010)

7.1 **INTRODUCTION**

The results drawn from the two case studies clearly suggest that management attention to innovation risks is essential, and inability to manage those risks adequately will inevitably manifest itself as failure. Proposition 8, in particular, suggests that incorporating dedicated risk management processes into a business model innovation process, whether that process is stage-gate driven or not, can help reduce the likelihood of innovation failure. Consequently, the present part of the thesis will continue to further develop the theory on business model innovation. Following research aim 3 (developing a model), we will propose a conceptual model for the business model innovation process supported by risk management processes.

The research question addressed in this part of the research was formulated as follows:

- To what extent, and especially how, can risk management help a company to deal with various risks throughout its business model innovation process?

The “how” question will be addressed in this chapter, in which we will propose a model suggesting how to integrate risk management processes in business model innovation process. The “extent” question, associated with (partly) testing the actual effects of applying the model, will be addressed in Chapter 8.

7.2 **ASSOCIATION - DEFINING RELATIONSHIPS (MODELS)**

According to Christensen, in the third phase of building a theory, researchers explore the association between the category-defining (business model innovation) attributes and the outcomes observed. In this phase, researchers make explicit what differences in attributes and differences in the magnitude of those attributes correlate most strongly with the patterns in the outcomes of interest. The output here, according to him, is usually referred to as a model.

According to Carlile and Christensen (2005), unlike normative theory building, where researchers provide the ability to predict what will happen in the future if companies take different innovative actions, the descriptive theory building phase “merely” needs to construct probabilistic statements of association representing average tendencies. They base their reasoning on the study of Kuhn (1962), who observed that confusion and contradiction typically are the norm during descriptive theory building. This phase is often.
characterized, according to Kuhn, by an over-abundance of categorization schemes because the phenomena generally have many different attributes.

### 7.2.1 Building the Model

Similar to Kuhn’s findings, the literature review chapter has illustrated that the business model concept is not well understood, innovation is just partly understood, and the combination of the two leads to a high level of uncertainty and fuzziness, particularly for companies that wish to pursue a high degree of business model innovativeness. Consequently, these companies are likely to face tremendous challenges and obstacles when attempting to innovate their business model.

Thus, in order to assess the extent to which risk management tools could help a company cope with various risks associated with attempts to innovate its business model, it is essential first to understand how to incorporate risk management in the context of business model innovation. Clearly, by looking into adjacent bodies of literature, those on product innovation and project risk management (Section 2.4.6), it appears that both fields have argued for the benefits of incorporating risk management into innovation activities, as well as for the need to incorporate it in one, or more, of the early gates of the innovation process.

However, it is not very clear why risk management should be applied only at the early stages of the innovation process. Why is it that other “gates” can be left out, and, more fundamentally, how can risks be managed adequately at other (more progressed) gates, if risk management is not applied there? Based on the two case studies’ results (Chapter 6), we believe that risk management should play a role throughout the entire innovation process (e.g. propositions 6 and 8).

Figure 7.1 presents a generic process that illustrates the possible integration of risk management within the overall business model innovation process. The model adopts Cooper’s “stage-gate” innovation process (Cooper 1993). However, unlike Cooper, who designed the process for product innovation, we related the process to the business model innovation process, and designed the model largely based on theory presented elsewhere (Chapter 2, Section 2.4 in general), as well as theory that we developed ourselves (Chapter 5, Figures 5.2, 5.4 and 5.5) and the case study findings presented in Table 6.4.

The reason for adopting a stage gate process is twofold. Firstly, based on the pre-analysis interviews, as well as company Alpha and Beta’s experiences, we found that many companies nowadays have adopted this model and incorporated it, in one way or another, into their innovation processes. Secondly, following Keizer et al. (2002) and Chapman and Ward (2004), Chapter 2 concludes that risk analysis should take place at the gates, i.e. between the stages, of the innovation process.
7.2.2 **EXPLANATION OF THE MODEL**

The purpose of this model is to describe a practical, i.e. linear and systematic, implementation of risk management in business model innovation. Stages one and two focus on visualizing the “as-is” business model\(^{26}\) of a company (core business building blocks; “as-is” strategy; leadership and culture). Then, the process will continue by following a “stage-gate” procedure ending with the implementation of the new business model. Each gate provides an opportunity for risk management activities. In this model we narrowed the process down to four core activities, namely:

1. **Identify** various risks – strategic/operational/cultural/financial/hazard risks (e.g. Appendix 2).
2. **Analyze** each of the risks identified.
3. **Evaluate** those risks – determine the level of risk that a company is willing to accept.
4. **Treat** the risks – the four possibilities are: avoiding, reducing, accepting and transferring/sharing the risks (e.g. DeLoach, 2003).

The purpose of the “gates” is to relax constraints, uncertainties and complexities throughout the business model innovation process, as well as to provide more certainty for managers regarding the path chosen. The first risk management “gate” is linked to the current (as-is) core business, strategy, leadership and culture. Identifying the risks at that stage can, for example, follow from a SWOT analysis. Then, through careful analysis and evaluation of each identified (strategic, operational, cultural, financial, hazard) risk, managers search for possibilities to treat those risks, which eventually results in three possibilities, namely: retrenchment (cost cutting), compliance with regulations, and/or search for innovation solutions (e.g. a new product/service-process-market position).

The second risk management “gate” begins by identifying the risks of each innovation possibility that was proposed in the idea generation phase. Here, too, users follow a systematic process of analyzing, evaluating and then treating those risks, which results, during the prioritization phase, in rejecting some ideas and selecting others for further processing.
Finally, the third gate facilitates the identification, analysis, evaluation and treatment of risks related to each downstream milestone. The purpose of this gate is therefore to systematically organize the anticipation and sense of urgency needed to prevent sloppy implementation processes by dealing with a large variety of strategic, operational, financial, cultural and hazard risks.

At all gates, the processes involved in identifying the risks are linked to the previous stages; that is, risks related to the company’s as-is business model, all possibly relevant ideas proposed, and milestones chosen, respectively. In contrast, the processes of treating those risks are related to the following phase, namely: treat the “as-is” current state by proposing possible innovation ideas; treat the large variety of ideas via prioritizing; and treat the risks associated with each milestone through the implementation process, respectively.

7.3 CONCLUSION

In this chapter, we were aspired to climb into the third phase of building a descriptive theory (Figure 4.2), suggested by Christensen (2006). At this stage we further developed our thinking, focusing, more particularly, on the risk involved in innovating the business model, where we concluded by proposing a generic business model innovation process, supported by risk management processes (Figure 7.1).

This research model has been tested in an action research study (research aim 4), reported in Chapter 8, which was aimed at drawing more concrete conclusions regarding the process of incorporating risk management in the business model innovation process (the “how”), as well as its success potential in facilitating a company with regard to innovating its business model (the “extent”). That study is best regarded as a pilot study for further research aimed at eventually developing a theory on the management of business model innovation.
8. EMPirical INvesTigation AnaLYsis II: ACTION RESEARCH

8.1 INTRODUCTION

A business model innovation process conducted by a small Danish company (Provital) provides the empirical basis for testing our proposed model (Figure 7.1). The chapter begins with a company description, followed by an explanation of the operationalization needed to apply the model. Based on Zuber-Skerritt’s (2001) action research cyclical process (Figure 4.3), we will then present a detailed narrative description of the action research performed. By unfolding systematically each of the application phases (i.e. plan, act, observe, reflect, revised-plan, [re]act, [re]observe, [re]reflect …), we will describe each phase and its achievement in improving the practice (business model innovation processes), as well as the practitioners’ understanding (for managing efficiently the process and the risks involved in that process) and consequently also in improving the current situation (company’s growth) as suggested by Carr and Kemmis (1986), in Chapter 4. The chapter then continues with an analysis and discussion of the action research findings, and we conclude the chapter by generalizing our findings and results into testable propositions.

8.2 Provital - COMPANY DESCRIPTION

Provital (http://www.provital.dk/) is a relatively new company (2008), a joint venture between two medium sized Danish companies.

Provital’s value proposition involves a new and revolutionary filtration system, which can be assembled in various ways and applied in multiple industries (e.g. pools, car wash, marine boats, drinking water). One of the strongest assets of their products resides in the fact that it both decreases costs and increases value (i.e. quality) to target customers, regardless of their industry.

Taking the changing focus of customers and nations towards more environmentally friendly products, and given the fact that there are few competitors to their offering on the global market, Provital assumes its cleansing system has the potential to revolutionize the market for water purification and, gradually, to help the company become a large and global player in a relatively short period of time.

The action research started in October 2008, and is currently still in progress.
8.3 OPERATIONALIZATION OF THE MODEL (TO FIT THE PROVITAL CASE)

Before the actual action research is performed it is essential to operationalize the model suggested, since it is impossible to test a purely conceptual model.

It should be noted, though, that this section has only partly operationalized the phases mentioned in the model (Figure 7.1). For example, the “Idea generation” and “Prioritizing” phases are not discussed in this section, or anywhere in this thesis for that matter\textsuperscript{x}. Yet, as the case narrative section will show, the operationalization phases mentioned here are sufficient for applying (part of) the model in an action research in Provital.

8.3.1 “AS-IS” BUSINESS MODEL

As the model suggests, the innovation process begins by visualizing the “as-is” business model (i.e. “as-is” core business, strategy, leadership and culture). Appendix 1 gives detail to that process, where, based on theory (e.g. Magretta 2002, Osterwalder \textit{et al.} 2004, Chesbrough 2006, Skarzynski and Gibson 2008, Hamel 2000, Chang and Mauborgne 2005), we designed that process as follows:

- **Step 1: Visualizing the “as-is” core business.** For each of the seven building blocks, we put forward a question, or line of questions, that facilitate managers in visualizing that specific block.

- **Step 2: Visualizing the “as-is” strategy.** Designed in three successive steps:
  - A couple of open-end questions to be put forward in order to give the managers the possibility to discuss (freely) their “as-is” strategy.
  - Based on the “Blue Ocean Strategy” (Chang and Mauborgne 2005), and in order to capture the state of play in the known market/s space, managers are then asked
to visualize their “as-is” strategic canvas, which is a graphic description of a
cOMPANY’S relative performance across its industry’s factors of competition.
- A SWOT analysis, performed in order to get an overall picture of the present
situation in relation to external factors, comprised of threats and opportunities,
coupled with an internal examination of strengths and weaknesses, which all
eventually help in forming a better fit between internal and external factors.
Additionally, SWOT analysis can also be one of the tools to be used in the
preliminary stages of decision-making and as a precursor to strategic planning in
various kinds of applications (e.g. Johnson et al. 1989, Bartol and Martin 1991).

- Step 3: Visualizing the “as-is” culture and leadership. Based on theory (e.g. Tidd
and Bessant 2009, Skarzynski and Gibson 2008, Hamel 2000, Chang and Mauborgne
2005), we designed a line of closed-end questions that required managers to rank their
answers on a scale from 1 to 10. The results were then visualized using a Radar Chart.

8.3.2 Risk Management Analysis

Based on theory (e.g. COSO 2004, Treasury Board of Canada 2004, The National
Affordable Homes Agency 2008) Table 8.1 illustrates the analysis process for each risk
factor identified.

<table>
<thead>
<tr>
<th>Likelihood (1-5)</th>
<th>Impact (1-5)</th>
<th>Inherent Risk</th>
<th>Medium and High Risks identified:</th>
<th>Risk treatment</th>
<th>Person in charge, and milestones</th>
<th>Residual Risk</th>
<th>Fit to the risk appetite of the company?</th>
<th>Further action planned</th>
</tr>
</thead>
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</tbody>
</table>

Table 8.1: Process for evaluation and treatment of risks

The core constructs in the table are operationalized as follows:

- Inherent risk assessment - [The likelihood of something happening] x [The impact if
it does happen]. For each risk identified, an inherent risk assessment is made, where:
  - “Low” risks (green color) are considered acceptable level; therefore no further
    action is needed.
  - “Medium” (orange color) and especially “high” (red color) risks are considered
    unacceptable and require further action.
<table>
<thead>
<tr>
<th>Impact</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
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</tr>
<tr>
<td>Major</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Minor</td>
<td>2</td>
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<tr>
<td>Insignificant</td>
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</table>

Likelihood:

<table>
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<th>Rare</th>
<th>Unlikely</th>
<th>Possibly</th>
<th>Likely</th>
<th>Almost Certain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

Table 8.2: Inherent risk assessment process

- **Risk treatment** - From risk management perspective, for each risk that was categorized as “medium” or “high”, the treatment process should be narrowed down to the following possibilities (e.g. DeLoach, 2003):
  - Avoiding the risk.
  - Reducing the risk.
  - Accepting the risk.
  - Transferring or sharing the risk.

Clearly, each risk brings with it a different treatment process. Some treatment processes can be tailored specifically to individual risks (e.g. action to reduce the risk), while others could treat clusters of risks simultaneously (e.g. share/transfer).

- **Residual risk** – is defined e.g. as “the exposure arising from a specific risk after action has been taken to manage it and making the assumption that the action is effective” (The National Affordable Homes Agency 2008).

- **Fit to the risk appetite of the firm?** – Risk appetite has been defined as the amount of risk, on a broad level, that an organization is willing to take on in pursuit of value. Or, in other words, the total impact of risk an organization is prepared to accept in the pursuit of its strategic objectives (KPMG 2009, p. 3), and may range from averse, through minimalist, cautious and open, to hungry (HM Treasury 2006; see Table 2.6). Consequently, non-fitting scenarios were those risks where the residual risk (remaining after treatment) was still considered as being higher than the risk appetite level of the firm, which then required further action planes to insure that the risk treatment choices will be reduced even further.
8.3.3 DEVELOPING EXPECTATIONS

“When you have eliminated the impossible, whatever remains, however improbable, must be the truth” Sherlock Holmes (From A. Conan Doyle, 1930)

Prior to the action research performed, we developed our expectations as to the possible scenarios that could occur in applying our theoretical model in practice, namely, that the process would be successful, partly successful or a failure (see Section 4.5.3 for further details). According to Popper (1963), every genuine test of a theory is an attempt to falsify it, or to refute it. Testability, according to him, is falsifiability. Accordingly, a successful case would suggest that the model was not falsified, and therefore more research is needed to test the validity of the model further. The second scenario (i.e. partly successful), would suggest that the model has been partly falsified. Further investigation is needed in order to learn what went wrong in which phase(s) of the model, and revise the model accordingly, before testing it again. The third scenario (i.e. failure) would indicate that the model has been falsified, and therefore rejected.

In that respect, it should also be recognized that practitioners should not only measure the operational use of the model by the “success” or the “failure” of a certain innovation, but also in terms of the extent to which uncertainties, complexities and consequent risks are reduced throughout that business model innovation process. The reason for doing so is the understanding that innovation is a “risky business”; as such, risk will never be eliminated completely.

8.4 CASE NARRATIVE

“...you cannot understand a system until you try to change it” (Lewin’s assertion, from Schein 1996:34)

8.4.1 PHASE I: ‘PLAN’

In addition to the development and operationalization of the research model in advance (Figure 7.1), an empirical inquiry of the company’s characteristics was required, as recommended by Zuber-Skerritt (2001), so that we could develop a pre-understanding regarding the company’s current status (i.e. before our intervention). In Provital’s case, “planning” was easy, since we had already worked with one of the parent companies in the past, in the Blue Ocean project (see Chapter 3). Hence, we were already prepared and knew what we were dealing with.

In short, since the company was very young (less than a year old at that time), there was only one official employee of the company – an R&D manager. Consequently, it was clear that we were dealing with setting up the business, rather than innovating an incumbent company’s business model. As a result, the process involved a shift from not having a
business model, to having one, in contrast with incumbent companies that transform their “as-is” business model into a new one (see Box-1, Section 2.3 for more details).

With that in mind, we considered the possibility of looking for another (existing) company to experiment with the model we had developed. However this option was not achievable at that time.

So, Provital was selected as the target company for experimentation. However, given the situation that we were dealing with a company in its infancy, rather than incumbent, and that the idea for innovation was already selected, we needed to “work” with the model developed, and to adjust its configuration to fit with the company’s conditions as best we could.

Accordingly, bearing those two downturns in mind, we decided to compare Provital’s “as-is” status with the proposed model (Figure 7.1), as well as with the generic innovation process suggested by Tidd and Bessant\textsuperscript{xii} (2004), in order to get a more concrete understanding of how to better fit the model with the company’s state.

It was clear, beforehand, that Provital already had an operational product, and an explicit (prototype) plan for setting up the business. Thus, as Figure 8.2 shows, the processes of “Search” and “Select” became irrelevant for our research. This raised some serious questions as to whether it was even worthwhile to continue and experiment with fragments of the model proposed.

However, we also kept in mind that previous research on risk management with relation to product innovation (e.g. Keizer \textit{et al.} 2002) and project management (e.g. Chapman and Ward, 2004) argued for the need to incorporate risk management, and the benefits of doing so, in the early phases of the innovation process. Consequently, based on our literature review (e.g. Section 2.4.6 and Table 2.8) we believed that the application of risk management at the early gates was not really called into question. It was the more progressive gates that needed to be investigated for risk management validation.

![Figure 8.2: Generic business model innovation process compared to Tidd and Bessant (2004)](image_url)
When all things came to an end, we decided to proceed with testing the partial model with Provital, and the process was designed as follows: start by visualizing the “as-is” business model of the company, skip the first and second gates, and move directly into developing milestones followed by a complete risk management analysis (third gate) and, finally, the implementation processes.

**8.4.2 Phase II: ‘Act’**

We designed our meetings with the company in the form of workshops. The first workshop took place in Provital’s office, on December 4th, 2008. Both the company’s (R&D) manager and (one of) the parent company manager were present. This workshop was more of an introduction to the planned project. We presented our research on business models, introduced the model, and asked the managers for their opinions about it. Both managers were very open-minded, and were very eager to start experimenting with the model. We also informed them that in order to keep track of the development progress, we planned to develop a Project Definition Report (PDR) that would facilitate us in describing the purpose, organization and management of the project. The purpose of the PDR was to build a general understanding and management commitment towards the planned strategic objectives and also to pinpoint both the responsibilities for and the boundaries of the project.

The second (January 22nd, 2009) and the third workshop (February 25th, 2009) were focused on visualizing the “as-is” business model of the company. The reason for having two workshops (rather than one) for visualizing the “as-is” business model, was because we were not satisfied with the first workshop results, since the questions that we used to visualize Provital’s “as-is” business model were not as satisfactory as we initially assumed. For example, it was our intention to design the process of visualizing the “as-is” business model as a self-task for managers to follow. However, through the second workshop (i.e. January 22nd) it became increasingly apparent that many of the questions that we put forward were not as clear as we originally presumed.

Consequently, after the second workshop we went back to revise the visualization process of the “as-is” business model, and tested it again in the third workshop – this time successfullyxii (Appendix 1 presents the table we used to visualize Provital’s business model).

Once the “as-is” business model was visualized, we realized that Provital had many potential industries, and many customer groups within these industries, that they could work with, for example:

- *Spa and pools companies* - Both for existing operational pools and pools that are under construction.
- *“Green” car wash stations* - Using only recycled (re-cleaned) water.
- *Public sector* - With focus on sewerage water recycling (still under testing).
- *Fish aquariums* - Sustaining clean and crystal-clear water in large aquariums (still under testing).
• *Marine boats* - Cleaning “gray water”, engine washing and ballast water (still under testing).
• *Trucks and cars* - Decreasing significantly the polluting smoke and gas, through engines’ tailpipes (still under testing).
• *Fish farms* - Fish industry: “Trucha” fish are able to live in very dirty water, but other fish types could be bred in fish farms if the water were cleaner (still under testing).
• *Public and private sector* - With focus on private houses’ water cleaning system (requires substantial change to the filtration unit size before making it operational).

During the third workshop we also learned that Provital’s local bank had crashed, due to the global financial crisis, and the company was in serious danger of going bankrupt. It was for that reason that we decided to apply the risk management analysis as soon as possible, so that we could facilitate the managers in making urgent, critical and strategic choices in order to secure the survival of the company.

We concluded the third workshop by jointly selecting one target segment for further analysis, namely the spa and pools industry. The reason for that was twofold. First, this was the only industry in which their system successfully passed the testing phase, and was ready to be launched. Second, given Provital’s limited capital resources, we thought it would be within their interests to start working within one industry, namely spa and pools construction, rather than spreading themselves too thin, and with that, increasing the risk of bankruptcy.

The *fourth* (March 16th, 2009), and the *fifth workshop* (March 19th, 2009) were focused on conducting a complete risk management analysis for milestones planned ahead. Taking confidentiality matters into consideration, the process of applying risk management is partially described in the operationalization, and analysis and discussion, sections of this chapter (Section 8.3 and 8.5).

We concluded the fifth workshop, and the risk analysis, by giving concrete details to immediate risks that needed to be addressed (some were more urgent than others), and gave a specific timetable and a comprehensive explanation, concerning how to manage (avoiding/reducing/accepting/transferring/sharing) each of the risks identified, and appointed a person accountable for completing each task.

After the fifth workshop, we felt that it was time to leave the company alone for a while, so we could see how they progressed, and if, and how, they took up the tasks we developed jointly.

**8.4.3 Phase III: ‘Observe’**

Late September 2009 (five months later), we called for a follow-up meeting to see whether “things” were proceeding according to plan. Although we found a number of initiatives completed, we realized that the company was only following parts of what had been
planned initially. Unfortunately, they had not succeeded in selling any additional products (in the first year they sold two systems to local customers – and nothing more). Yet, during that period, the company had also employed a new manager.

**8.4.4 Phase IV: ‘Reflect’**

An analysis of the first (complete) action research cycle showed that most of the initiatives planned at the early stage of the research had been completed. That is, we succeeded in applying the model and in following the process suggested, namely: to start by visualizing the “as-is” business model of the company; then, to pass over the first and second gates, and move directly into developing milestones followed by a complete risk management analysis (third gate).

However, the final phase, “implementation”, was not as successful as we assumed it would be (e.g. no further sales, limited system testing results). It was our understanding at that time, that the implementation processes are to be executed solely by the company’s managers, or, as the saying goes: “you can bring a horse to water but you cannot make him drink”. Unfortunately, we were wrong. New problems emerged (e.g. financial constraints) and, because of them, implementation processes were re-prioritized by the company’s managers. Also, we realized that we probably made a strategic error in focusing the company’s attention purely on the Danish market.

**8.4.5 Phase V: ‘Revised Plan’**

So, given that the company did not succeed in making any sales, we chose to revise our progress plan as follows. First, we still needed to insure that “action” would continue to take place according to the risk analysis and risk treatment results. Second, the focus this time would be to secure that implementation processes were applied successfully, in particular marketing and sales efforts (risk of the company going bankrupt if sales did not take place immediately). Third, given the financial constraints that the company was under, there was an urgent need to look for external investors that would financially support the company through its growth strategy plan. Finally, we needed to explore the possibility for the company to be “born global” (e.g. Knight, 1997).

**8.4.6 Phase VI: ‘[Re]Act’**

Given the task overload, both for the management team and the research group, we thought it would be within everybody’s interest if we shared the planned tasks with other people who were not a part of the current research team. Consequently, we chose to proceed as follows:

- Facilitate Provital’s managers with marketing and selling their products in local markets first. For that reason, we hired a marketing specialist.
- Explore the possibilities for the company to penetrate EU or global market(s).

In the process of exploring the globe for potential target markets, we decided to focus the company’s attention particularly towards the Californian market due to several reasons:
• California is running low on water resources.
• It is a region with a vast amount of public pools.
• There is a ‘green consciousness’ present within the region, meaning there is a political and consumer awareness on energy-saving policy and climate change.
• It is considered to be a lead-market.
• It is an ICI network related region (e.g. companies located in the Silicon Valley).

Luckily, we had the opportunity to share the Californian challenge with an excellent group of first semester MSc students in International Technology Management. Their task was to explore the possibility for Provital to penetrate the Californian market and build a business model around that.

Although the results of the students were inconclusive regarding the question whether Provital could penetrate the Californian market, nonetheless, the data they had gathered (e.g. pool locations, contact persons, competitive products pricing) gave us ample information, so we could continue and work further on the “Californian challenge” together with the company.

In addition to the marketing and selling efforts, the sixth workshop (February 1st, 2010) focused, amongst other things, on another urgent theme, namely the need to find an investor that would financially support the company in order to insure its survival. After some failures, the company finally succeeded, shortly after this meeting, to attract an investor, a local venture capitalist, and, thus, the survival of the company was no longer in question (at least not in the short term).

The seventh (follow-up) workshop (April 16th, 2010) focused on studying the results drawn from the marketing specialist’s efforts, and particularly on the new potential customers who were interested in purchasing the products as a result of that selling effort. The company mapped the (approx. 30 new) customers on a line of: Leads ➔ Initial contact ➔ Needs and requirements ➔ Meeting ➔ Offer ➔ Order ➔ Follow-up.

Once the numbers of present and potentially new customers started to emerge, we were struck by the results of the marketing efforts: Provital had earned 77,000 EUR in new sales, while 4,000,000 EUR in turnover was, potentially, waiting ahead (i.e. situated at the phases of: “needs and requirements”, “meeting”, or “offer”).

8.4.7 Phase VII: [RE] ‘Observation’ and ‘Reflection’

In reflection, it seems that our new strategy was successful. The risks identified, and the treatment choices that followed, as well as their timing, played an important role in Provital’s success, particularly in putting more focus on urgent matters that needed to be dealt with immediately, such as finding an investor and putting more emphasis on the marketing and selling efforts in local markets (first). Other urgent risk treatment choices were prioritized to be first on the “to do list” and towards the end of the study, the company was treating those risks, which were associated with (amongst others):
• The company’s ability to secure IPR on the system.
• Provital’s visibility on the Internet, to increase sales potential.
• Obtain skilled employees to support growth.
• Attract relevant and competent partners through the process of internationalization.
• Insure that the system operates successfully in other industrial settings before selling it (in Danish market first).

The global strategy in general, and the Californian market in particular, is still relevant for the company, but it was their choice to experiment with it in a later phase.

All in all, the (pilot) action research was a success story. It is still questionable to what extent our intervention has, indeed, directly affected the winning outcome, but this is a known bias associated with conducting an action research study (e.g. Guba 1996, McNiff 2001, Clark 2000).
<table>
<thead>
<tr>
<th>Time line</th>
<th>Action taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul - Aug 2008</td>
<td>Preparations, learning about the company.</td>
</tr>
<tr>
<td>Nov - Dec 2008</td>
<td>-</td>
</tr>
</tbody>
</table>
| Jan - Feb 2009| ● Second and third workshops – visualizing the “as-is” business model of Provital.  
                   ● Local bank collapse.                                                   |
| Mar - Apr 2009| Fourth and fifth workshops – risk management analysis.                       |
| May - Jun 2009| Observation and interviews regarding the company’s progress (+ preparing the first PDR report). |
| Jul - Aug 2009| Observation and interviews regarding the company’s progress.                 |
| Sep - Oct 2009| ● New manager for the company was hired.                                    |
|              | ● Follow-up meeting to discuss the company’s progress.                       |
| Nov - Dec 2009| Reflection and revising action plans.                                        |
| Jan - Feb 2010| ● 7th semester students explored the potential of the company to pursue global market(s) (California first) – semester project assignment. 
                   ● Marketing expert consultant joined the team to execute line of marketing and selling workshops with the company. 
                   ● Sixth workshop (with focus on identifying a venture capitalist) |
| Mar - Apr 2010| ● The company succeeded in attracting a venture capitalist                  |
|              | ● Seventh workshop – studying the results from the selling and marketing efforts. |
|              | ● Provital is finally selling                                                 |
| May - Jun 2010| Keep monitoring (observing) Provital’s progress…                             |

Table 8.3: Action research time line
8.5 DATA ANALYSIS AND DISCUSSION

Based on the case narrative, this section will analyze the results in view of the research question proposed, give more concrete details on the process we applied to identify, evaluate, analyze and treat various risks, and present initial findings regarding the “how” and the “extent” to which risk management can help a company in the complex and uncertain process of business model innovation.

Similar to the procedure reported in Keizer and Halman (2007), the data was analyzed in three successive steps:

- Risk management literature review – with a focus on developing a list of key strategic, operational, cultural, financial and hazard risk factors (Appendix 2).
- Pre and post analysis of semi-structured interviews – for understanding better the disparity between the expected and the actual contribution of applying risk management, as well as the importance and seriousness of applying risk management in the business model innovation process.
- Content analysis – in order to enable us to draw valid case conclusions, the risks identified by the company’s managers during the workshops were checked against the potential risks outlined on the basis of our previous literature review. Through that process we identified similarities and differences, and the outcome of this process was a list of risks, separated into four categories (1. strategic risks, 2. operational and cultural risks, 3. financial risks, and 4. hazard risks) with 22 critical risk issues. Due to confidentiality reasons, we could not enclose that risk analysis report. However, Table 8.4 illustrates the analysis process for each risk factor identified.

Process description – As mentioned in the operationalization section of his chapter, and with a focus on the third gate shown in Figure 8.2, the risk management process involved four phases. First, for each risk criterion (financial, operational & cultural, strategic or hazard), potential risks were identified. Then, each risk was analyzed qualitatively by assessing both the probability of the risk to occur and the relative impact that risk would have. For those risks that were rated as “medium” or “high”, an “action needed to be taken” description was made focused on a possible solution, i.e. avoiding, reducing, accepting, transferring or sharing the risk (e.g. DeLoach, 2003), along with appointing a person in charge and determining the expected target date of completion. Finally, the process of treating each risk was analyzed in terms of the residual risk, remaining after action had been taken to manage it, and its fit to the risk appetite level of the firm.
<table>
<thead>
<tr>
<th>Likelihood (1-5)</th>
<th>Impact (1-5)</th>
<th>Inherent Risk</th>
<th>Medium and High risks identified:</th>
<th>Risk treatment</th>
<th>Person in charge, and milestones</th>
<th>Residual Risk</th>
<th>Fit to the risk appetite of the company?</th>
<th>Further action planned</th>
</tr>
</thead>
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<tr>
<td><strong>Strategic Risks:</strong></td>
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<tr>
<td>5</td>
<td>4</td>
<td>High</td>
<td>S1 - Confidential</td>
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<td>Low</td>
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<td>No further action is needed.</td>
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<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
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<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
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<td>3</td>
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<td>O2 - Confidential</td>
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<tr>
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<td>1</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
<td>No further action is needed</td>
</tr>
<tr>
<td><strong>Financial Risks:</strong></td>
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<td>Confidential</td>
<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
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<tr>
<td>1</td>
<td>5</td>
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<td>Confidential</td>
<td>Low</td>
<td>Fit</td>
<td>No further action is needed.</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
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<td>H2 - Confidential</td>
<td>Confidential</td>
<td>Confidential</td>
<td>High</td>
<td>No Fit</td>
<td>Confidential</td>
</tr>
</tbody>
</table>

Table 8.4: Evaluation and treatment of risks in Provital
As mentioned in the methodological chapter (Section 4.5.2), our intention in performing the action research was to:

- Put the model developed (Figure 7.1) into a field test to analyze its application, and through that,
- Explore the possible business model innovation effect – with relation to the achievement of the model developed in facilitating managers with innovating their business model successfully (Research Question 2).

We decided to select three categories for measuring whether the application of the model should be considered as being successful, partly successful or a failure (see Section 4.5.3 for more details). Accordingly, the following section will analyze, and discuss, each of the categories proposed with relation to the action research results.

8.5.1 RISK MANAGEMENT APPLICATION BENEFITS

Our observations and experiences from the workshops and interviews suggest that Provital has gained valuable benefits from experimenting with risk management. The company’s managers argued that risk management is assisting them both in managing various risks across the enterprise efficiently, as well as in prioritizing their strategic, operational and financial choices through their business model innovation process.

According to Provital’s R&D manager, many of the risks identified were not new to them, but through the process of analyzing those risks they realized that they did not really know how to manage those risks effectively. Furthermore, rating risks low, medium or high helped them to better understand what needed to be done and in what order. Consequently, risk management assisted them mostly in mitigating known risks. By explicitly describing how to treat each risk identified and deal with the uncertainty and complexity expected in the course of the process, they were better prepared for and more aware of the risks that they were willing to accept.

This has inevitably reduced the risk level (inherent risks vs. residual risks), and with that also the overall uncertainty and complexity associated with the innovation process, since it became clearer to them what needed to be done and when, and who should be the person in charge to insure implementation of the “risk- treatment” task involved. This way, now that they knew how to organize better, they could proceed with more certainty with their business model innovation process.

Furthermore, according to Provital’s R&D manager, risk management also served as a compass for the company to keep track of its strategic goals, and for him in particular in prioritizing his working task plans. Running daily operational routines is hard enough, and focusing on small issues instead of the more important and urgent ones can be very distracting. Keeping an “action needed to be taken” table for those risks that were rated as “medium” or “high”, kept him focused and certain that he would find the time to address them.
Additionally, he also found risk management to be a very efficient tool. Dividing the larger problem into different criteria and steps that are relatively easy to understand guided him through that business model innovation process. All in all, the company’s managers were very satisfied with experimenting with the risk management process, and the R&D manager in particular stated that he intended to continue working with risk management in future innovation processes, as well as with prioritizing his daily/weekly/monthly operational plans.

These finding strengthens previous studies results (e.g. COSO 2004, Ernst & Young 2006, Treasury Board of Canada 2004, The National Affordable Homes Agency 2008, ERM survey 2008), which argued for the multiple benefits that a company can gain if it would apply risk management throughout its innovation processes (Chapter 2, Section 2.4.5).

8.5.2 TIMING

When the R&D manager was asked whether risk management should be applied once, or as an ongoing part of the innovation process, he argued for the latter. According to him, risk management is a process that needs to be looked at throughout the innovation process of a company. He felt it is particularly important to apply risk management at the early phases of the innovation process, but since competition today is so dynamic and fragile, today’s certainties can very easily become tomorrow’s new challenges – e.g. their bank crashed during the global financial crisis.

Thus, as strategies and innovation plans may need to be changed frequently and/or radically, new risk analyses are needed all the time, both with respect to new innovations and also in different phases of a single innovation process. By continually analyzing organizational risks systematically, according to the R&D manager, Provital would be able to stay ahead of its competitors, be more flexible and cope better with changing conditions that are both internal and external to the organization.

As mentioned earlier, previous research has reported different results regarding the application timing of risk management through innovation/project management. Keizer et al. (2002), for example, suggested applying the risk management process only once, at the end of the feasibility phase (i.e. end of the selection of idea phase). Chapman and Ward (2004) proposed that risk management should be an ongoing part of project management, followed by an iterative loop back to the (early) defining phase to refine or redefine the basis of analysis of sources of uncertainty revealed to be important. However, similar to Keizer et al. (2002), Chapman and Ward also argued that the risk management process should start at the early phases of the project and end at the planning phase, before allocating and executing the planned project. This planning phase in the Chapman and Ward model can, to a great extent, be compared to the feasibility phase in Keizer et al.’s study (Chapter 2, Figure 2.9).

The findings drawn from our action research study, however, is strengthening our initial assumption, and model developed, namely, that risk management processes should be applied through the entire business model innovation process, stages and gates.
8.5.3 CHALLENGES AND PITFALLS

The study showed that risk treatment choices need to be considered in a comprehensive manner when looking for appropriate and holistic solutions. Every change in the organization also brings with it new problems, challenges and risks. Consequently, if each risk is handled individually, treating one operational risk may very well result in new strategic challenges. Consequently, in addition to managing strategic, operational, cultural, financial and hazard risks simultaneously, it is also recommended to manage risk management in few channels simultaneously because new products or other innovations may have side effects on, or even cannibalize (e.g. Tidd and Bessant 2009), existing or potentially new products, and this should be addressed and recognized before, during and after the innovation process.

Accordingly, risk management should be applied both as a process to each product or project, as well as an overall process to the company’s corporate strategy. Yet, Provital’s R&D manager also observed that an over-abundance of risk management can also be problematic to the organization if the company overloads the system with too many processes, which are not only time consuming but can also be very confusing for staff members to cope with. This touches on previous research, which has reported different impacts of bureaucracy, namely a negative effect throughout the innovation process (e.g. Burns and Stalker 1961), a positive effect during the implementation stage (e.g. Zaltman et al. 1973, Kelly and Kranzberg 1975, Pierce and Delbecq 1977), and a trialability (Rogers 1983) related proposal (e.g. Boer and During, 2001). For further details see Chapter 6, Section 6.4.

Yet, in our study, although we did argue for the importance of applying risk management processes through the entire innovation process, the results regarding the right balance, or volume, of risk management application through business model innovation process are still inconclusive.

Additionally, we also identified that by incorporating risk management in business model innovation processes, starting at the beginning of (in this case) the third gate (risk identification), followed by risk analysis at the gate, and treatment choices that took place in the following stage (after the gate), the company could reduce significantly many of the uncertainties and complexities that they were facing through that business model innovation process. They were much more clear about the treatment initiatives of “what to do”, and “how to do it”, as well as in processing the timing (“when to do it”) of each treatment choice, where the most urgent ones could be addressed first, and, consequently, could be tackled with more commitment from the management team.

These findings correspond with Courthey et al.’s (2003) results, who argued that if a company underestimates or fails to manage uncertainties adequately, it would lead the company to develop strategies and operational processes that:

- Neither defend against threats nor take advantage of opportunities.
Assume that the world is entirely unpredictable, which will then lead them to either abandon planning processes (i.e. too uncertain - too risky), or simply follow their gut instinct (i.e. "just do it"). In the latter case, the innovation process will be perceived as no more than a gamble.

However, it should also be noted, that in the process of testing the model for its validation, particularly with relation to the risk treatment initiatives developed during the stages (between the gates), we also observed that the initial treatment choices made at the gates, were not always implemented in full by the company (Section 8.4.3 and 8.4.4). New problems emerged (e.g. financial constraints) and, because of them, implementation processes were re-prioritized by the company’s manager.

Consequently, it is still questionable whether managers should be too strict in insuring that implementation processes, decided at the gates, are being carried out purely “as planned”, or, alternatively, advice the innovation team to perceive gate (treatment) choices as (merely) possible suggestions through implementation/treating processes.

8.5.4 MODEL TESTING RESULTS

On an aggregate scale, the analyses of the three categories discussed in the previous sections indicate that the application of the model in the Provital case should be considered a success:

- Application benefits: Provital gained multiple benefits from applying the model. It has reduced the risk level (inherent risks vs. residual risks), and with that also the overall uncertainty and complexity throughout the entire innovation process, and, consequently, they could proceed with more certainty with their business model innovation process. Additionally, by mitigating (mostly) known risks, they were better prepared for, and more aware of, the risks that they were willing to accept.

- Timing: it appears to be important to apply risk management processes through the entire innovation process i.e. during the stages and at the gates. By continually analyzing organizational risks, the company was able to be more flexible and cope better with changing conditions both internal and external to the organization.

- Challenges and pitfalls: We observed that the company’s manager stressed the importance of applying risk management both to each product and project, as well as to the company’s corporate strategy. Yet, the results regarding the right balance, or volume, of risk management application during the business model innovation process, and its generalizability, are still inconclusive. These challenges and pitfalls, however, are largely associated with bureaucratic issues, rather than in challenging the validity of the model itself.

Consequently, the model proposed was not falsified. However, it is too soon to conclude that the model is valid – more research is needed and proposed in Section 9.3.1.
### 8.6 Analytical Generalization

<table>
<thead>
<tr>
<th>Category</th>
<th>Action Research case analysis - related text</th>
<th>Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Management</strong></td>
<td>&quot;... [applying risk management processes in business model innovation processes] has inevitably reduced the risk level (inherent risks vs. residual risks), and with that also the overall uncertainty and complexity throughout the entire innovation process, since it became clearer to them what needed to be done and when, and who should be the person in charge to insure implementation of the “risk-treatment” task involved. This way, now that they knew how to organize better, they could proceed with more certainty with their business model innovation process&quot;.</td>
<td></td>
</tr>
<tr>
<td><strong>Application Benefits</strong></td>
<td>“Risk management assisted them mostly in mitigating known risks. By explicitly describing how to treat each risk identified and deal with the uncertainty and complexity expected in the course of the process, they were better prepared for and more aware of the risks that they were willing to accept.”.</td>
<td></td>
</tr>
<tr>
<td><strong>Timing</strong></td>
<td>“According to him (Provital manager), risk management is a process that needs to be looked at throughout the innovation process of a company. He felt it is particularly important to apply risk management at the early phases of the innovation process, but since competition today is so dynamic and fragile, today’s certainties can very easily become tomorrow’s new challenges”.</td>
<td><strong>Proposition 9:</strong> The implementation of risk management processes within the overall business model innovation process reduces the level of risk related to uncertainty and complexity of, or associated with, developing new business models.</td>
</tr>
<tr>
<td><strong>Timing</strong></td>
<td></td>
<td><strong>Proposition 10:</strong> Managing risks through the business model innovation process will assist a company in aligning risk-treatment processes with the risk appetite level of the firm.</td>
</tr>
<tr>
<td><strong>Timing</strong></td>
<td></td>
<td><strong>Proposition 11:</strong> The likelihood of launching a successful new business model can be increased if risk management processes will be applied throughout the entire business model innovation process i.e. stages and gates.</td>
</tr>
</tbody>
</table>

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“By continually analyzing organizational risks systematically... Provital would be able to stay ahead of its competitors, be more flexible and cope better with changing conditions that are both internal and external to the organization”

**Challenges and Pitfalls**

“Consequently, in addition to managing strategic, operational, cultural, financial and hazard risks simultaneously, it is also recommended to manage risk management in few channels simultaneously because new products or other innovations may have side effects on, or even cannibalize (e.g. Tidd and Bessant, 2009), existing or potentially new products, and this should be addressed and recognized before, during and after the innovation process”.

“...risk management should be applied both as a process to each product or project, as well as an overall process to the company’s corporate strategy”.

**Table 8.5: Generalization of action research findings into propositions**

| Proposition 12: Embedding risk management process in business model innovation process promotes organizational self-learning and flexibility, and gives more focus, through implementation processes, to strategic choices made at the gates. |
| Proposition 13: Securing sustainability of a company through the business model innovation process can be increased by aligning the company’s corporate strategy and (future) goals with risk treatment choices made at the gates. |
8.7 CONCLUSION

The aim of this chapter was to draw more concrete conclusions regarding the process of incorporating risk management in business model innovation processes (the “how”), as well as its success potential in facilitating a company with regard to innovating its business model (the “extent”). Based on our study, we suggest the following benefits and possible pitfalls, when incorporating risk management in the business model innovation process.

Risk management reduces the level of risks related to uncertainty and complexity associated with developing a new business model. Managers are much more focused on identifying problematic issues (know what to do), and in putting explicit plans and timetables into place for resolving/reducing identified high and medium rated risks (know how to do it).

Furthermore, managing risks assists a company both in 1) aligning the company’s corporate strategy and (future) goals with risks treatment choices made at the stages, and in 2) aligning risk treatment processes with the risk appetite level of the firm. In such a way, managers are also more confident about the strategic choices made during the innovation process, and it is also relatively easier for them to share their vision and future plans with their staff members, as well as in prioritizing their operational plans.

Also, the results are indicating that the likelihood of launching a successful new business model are increased dramatically if risk management is applied throughout the entire business model innovation process, i.e. during the stages and at gates. This supports the operational use of our model (Figure 7.1).

Yet, it has also been argued that an over-abundance of risk management can also be problematic to the organization if the company overloads the system with too many processes, which are not only time consuming but can also be very confusing for staff members to cope with. Nonetheless, by having the right “balance” of risk management processes, companies could promote organizational self-learning and flexibility via coping better with changing internal and external conditions.
9. DISCUSSION

Given the largely exploratory nature of this study, we plotted the research course so it would reside predominantly within the descriptive pyramid domain, mentioned earlier by Christensen (Figure 4.2). Research question one was therefore designed as descriptive (explorative), and offered an exploration and tentative explanation of two industrial companies’ experiences in innovating (relatively successfully) alternative/supplementary business models, and the risk challenges related to that.

On the basis of the insight obtained from the theoretical review (Chapter 2), empirical background (Chapter 3), the business model theory developed (Chapter 5), and the two case studies, we felt that we had sufficient data to proceed beyond the statements of correlation (descriptive) and into the normative domain, and to focus our attention also on the definitions of what might cause the outcome of interest (Christensen, 2006). In our case, the outcome of interest is a successful business model innovation, and we argue that the main “cause” is adequate management of the complexities, uncertainties and risks involved in that process.

Accordingly, research question two was designed as a partly descriptive, partly normative inquiry, and focused on (partly) testing the model proposed (Figure 7.1). Through that process, we were particularly interested in further exploring the operational use of the model (descriptive), and in developing an initial understanding as to the actual effect, or rather the actual “extent” to which incorporation of risk management can help a company successfully innovate its business model, if at all (pilot normative inquiry).

9.1 THEORY FINDINGS

9.1.1 UNCERTAINTY, COMPLEXITY, RISK AND RISK MANAGEMENT

According to Christensen (2006), the primary challenge for researchers, in proceeding from the descriptive to the normative level, is in assessing causation, since it is difficult to separate the contribution of the initiative from all of the other potential factors that might affect outcome (Cook and Campbell, 1979). However, it is our understanding that all business model innovation failures are associated with the same “simple” fact, namely that the organization is failing to manage adequately the risks involved in that process. That statement is also supported by Kaplan’s findings (Business summit, Harvard University, October 14, 2008) – see Chapter 1.

An investigation of the main causes of business model innovation failures (KPMG global survey, 2006) shows that obstacles to business model innovation are usually associated with five core groups of risk factors, namely: strategic risks; operational risks; financial risks; cultural risks; and external hazard risks.

Table 9.1 presents the original list of business model innovation barriers, and the percentage of senior executives recognizing the importance of these barriers, drawn from
the KPMG survey. We added an additional column namely, Risk Criteria’, to illustrate the linkage between each (business model innovation) barrier identified, and the risk criteria/s associated with it.

<table>
<thead>
<tr>
<th>Barrier for business model innovation</th>
<th>Percentage of 336 (worldwide) senior executives respondents</th>
<th>Risk Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertain business environment</td>
<td>50.3%</td>
<td>• External hazard risk</td>
</tr>
<tr>
<td>Resistance from employees</td>
<td>46.7%</td>
<td>• Cultural risk</td>
</tr>
<tr>
<td>Lack of strategic vision in senior management</td>
<td>36.3%</td>
<td>• Strategic Risk</td>
</tr>
<tr>
<td>• Cultural risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal barriers between soils in the business</td>
<td>36.3%</td>
<td>• Cultural risk</td>
</tr>
<tr>
<td>• Operational risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory hurdles</td>
<td>31.9%</td>
<td>• External hazard risk</td>
</tr>
<tr>
<td>Insufficient resources to invest in new business model</td>
<td>31.9%</td>
<td>• Operational risk</td>
</tr>
<tr>
<td>• Financial risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty in merging different corporate cultures (e.g. between different business units, recently acquired business, etc.)</td>
<td>28.3%</td>
<td>• Cultural risk</td>
</tr>
<tr>
<td>• Operational risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of available cash or capital</td>
<td>22.9%</td>
<td>• Financial risk</td>
</tr>
<tr>
<td>Inflexible IT system</td>
<td>21.4%</td>
<td>• Operational risk</td>
</tr>
<tr>
<td>Resistance from shareholders/investors</td>
<td>16.4%</td>
<td>• Strategic Risk</td>
</tr>
<tr>
<td>• Financial risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflexibility of suppliers</td>
<td>12.2%</td>
<td>• Operational risk</td>
</tr>
<tr>
<td>Other</td>
<td>12.2%</td>
<td>• (mostly) Hazard risks</td>
</tr>
</tbody>
</table>

Table 9.1: Main barriers to innovating companies’ business models with relation to the core five risk factors groups (original source: KPMG, 2006).

So, given the “simple” understanding that all business model innovation failures are associated with the same problem of failing to manage the risks involved in that process adequately, it can be equally “simply” understood that the solution resides in having adequate risk management processes in place throughout the business model innovation process.

However, as the two case studies and the action research results indicated, the process of managing risks adequately is not necessarily as simple and linear (i.e. “the more the better”), as we initially thought it would be. The action research analysis showed that having too many risk management (and control) processes may result in doing more harm than good, since it can overload the system with too many processes, which are not only time consuming, but can also be very confusing for staff members to cope with. The case studies showed that having too few risk management processes in place, and/or failing to
manage risks adequately, will inevitably manifest itself as a failure (e.g. propositions 3, 5, 6, 8).

Also, by attempting to manage, or reduce, various risks implicitly/partly, using a stage gate model and control processes, companies may well reduce some of the risks, but neglect to identify, and therefore also manage adequately, many other potential risks that, unfortunately, will impact the company and manifest themselves as failures.

In that respect we have identified two impact levels experienced by both case companies, namely: “tolerable impact” and “catastrophic impact”.

- “Tolerable impact” is associated with those failures that, despite their impact, do not prevent the innovation process becoming a success. Failures at this level manifested themselves in both companies as, for example:
  
  o Setbacks and unexpected (unpleasant) surprises during the innovation process (e.g. paperwork, which has very little impact on output effectiveness and forces the innovation team to spend a lot of time on completing checklists instead of managing the process forward; incorrect prediction of selling volume in the market place, i.e. commercial success).
  
  o Goals and objectives that were decided upon in one gate required redefinition during the innovation process in a latter gate, due to a misfit between strategic choices made in one gate, and operational processes applied at the following stage.
  
  o Accepted solutions that were delayed until a later phase (e.g. new product/business model ideas are waiting in the pipeline, but cannot become operational as long as the project in progress is not completed).
  
  o Implemented solutions that were less effective or appealing than anticipated (e.g. some of the product innovation processes in company Alpha seemed initially, on the drawing board, to be very promising, but as the innovation process evolved, the product lost its appeal, either because of budget constraints, or due to technological “know how” limitations).
  
  o Schedule and budget overruns, (e.g. control processes delaying the innovation process, and forcing the management team to allocate more resources to the project).

Those symptoms of managing under conditions of uncertainty, and more, are also well documented in the uncertainty literature (e.g. Galbraith 1973, Sayles 1974, Schroeder et al. 1986, During 1984 – see Section 2.4.2 for more details).

- “Catastrophic impact”, is associated with those failures that result in a complete project failure. In cases C and G, company Alpha may have underestimated the complexities involved in establishing a successful operational collaboration. In Case 3, company Beta may have failed because the company pushed a radically new product into the market without any idea of how customers would respond.

Furthermore, the case studies also indicated that the extent to which feasible strategies are implemented depends on the organization’s awareness of the possibility that it will have to conduct activities that are more uncertain and complex, and therefore also riskier, than is the
norm. There is a need, therefore, to understand the co-dependency that exists between uncertainty, complexity, risk and risk management. Risk should be perceived as a function of the uncertainty and complexity related to innovation. The higher the level of innovation uncertainty and complexity, the higher the risks a company faces when innovating its business model, and, consequently, the more rigorously risk management should be applied.

![Figure 9.1: Complexity-uncertainty risk associated scale](image)

**Everything has to fit…**
The action research case analysis argued, among others, for the importance of breaking down uncertainty and complexity, and consequently, risk, into different criteria and steps that are relatively easy to understand and can better guide practitioners through that process. By dividing the larger problem into many small risks, the company may find itself in a better position to address the relevant complexities and uncertainties involved in that process. Each risk treatment process should be managed, with relation to its uncertainty and complexity repercussions. Such a process, of managing each risk separately, and consequently, all risks together, leads the organization to manage the innovation process in a more coherent, certain and rational way.

That being said, it is also important not to lose the bird’s-eye view over the entire innovation process. Microscopic management of various risks can be deceiving, if the innovation target is not serving as a compass to the entire process. It can also be risky getting into too much detail if one is not considering also the interdependency of various risk treatment processes to one another, to the innovation process, and even to other innovation processes taking place presently and/or planned ahead (e.g. Tidd and Bessant, 2009).

For example, the action research has shown that new products, or other types of innovations, may have side effects on other existing or potentially new products, and this should be addressed and recognized before, during and after the period in which the innovation process takes place. Consequently, there is a need to insure that the treatment of
each risk should fit to that of other risks within the same category, which are residing within the same gate, and within the same innovation process, as well as to other innovation processes that are taking place in the organization (present and future), and, gradually, to customer demand and the environment.

![Diagram of risk treatment fit model]

**Figure 9.2: Risk treatment fit model**

This underlying conceptual theme of “fit” has generally been invoked with respect to the relationship between strategy and structure, rather than to risk management processes (e.g. Galbraith 1977, Galbraith and Kazanjian 1986). Miles and Snow (1994), in particular, discussed the importance of organizational fit both externally (e.g. between the firm and its environment), and internally (e.g. organizational structure, management systems and management ideology to chosen strategy). More importantly, they argue for the importance of the dynamic of fit. Where “minimal fit” is necessary for insuring a company’s survival, “tight fit” frequently results in excellent administration, and “early fit” may enable a company to sustain an unusually high level of performance over an extended period of time (referred also by them as the “Hall of Fame” – an imaginary, outstanding, place of recognition). Yet, they were also aware of the fact that “fit” has its limitations as well, where even “Hall of Fame” companies may suffer from downturns in performance (e.g. due to unexpected external hazard impact).

Akin to Miles and Snow (1994), Figure 9.2, is also advocating the importance of insuring internal and external fit, but from an innovation and risk management perspective. We argue that the process of managing risks adequately throughout innovation processes is (also) stressing the importance of fit and alignment.

Where the theoretical review (Section 2.4.5), and the ten retrospective case studies results (e.g. proposition 1), have both argued for the importance of aligning risk appetite with strategy (e.g. ERM survey, 2008), and the action research results have, additionally, stressed the importance for insuring an adequate strategic-operational fit, via:
- Aligning the company’s corporate strategy and (future) goals with risks treatment choices made at the stages (Proposition 13).
- Aligning risk-treatment (operational) processes with the risk appetite level of the firm (proposition 10).

9.1.2 Business Model Innovation Classification

As the cases suggest, there are many possibilities for innovating a company’s business model. A company can, for example, strategically choose to innovate the core business fundamentally by transforming the entire business from “as-is” into a completely new one. Cases 1, for example, as well as the three examples presented in Box-1 (Chapter 2), are illustrations of such innovation scenarios.

Business model innovation can also come in the form of mergers or acquisitions (e.g. case 2). In such cases, business model innovation is considered to be a highly risky process, since the company partly, and sometimes even completely, abandons its original business and core processes, and develops a completely new business that encompasses new processes the company was not familiar with in its past, a process that brings with it a high level of uncertainty, complexity and therefore also risks.

An alternative process to innovate a business model would be to keep the core business fully operational (“as-is” followed by continuous improvements), and alongside it, to develop additional business models aimed at serving new markets and operating in other industries than those the company was familiar with. Company Alpha, for example, was particularly successful in launching such business model innovation initiatives, as illustrated in Figure 9.3.

![Figure 9.3: Company Alpha’s business model innovation initiatives](image)

Embedding Chesbrough’s (2007) open business model innovation thinking (discussed in Chapter 2) into our business model innovation template (Figure 9.4) results in four possible business model innovation processes:
- Internal competences are used to innovate the existing core business (case 1).
- External and internal competences are used to innovate the existing core business (case 2).
- Internal competences are used to innovate outside the existing, i.e. create a new, core business (cases A, B, C, G and 3).
- External and internal competences are used to innovate outside the existing, i.e. create a new, core business (cases D, E and F).

Figure 9.4: “Closed” and “open” classification to innovate the business model

All in all, on an aggregate scale, and following on from Chesbrough’s (2007) open business model innovation – model (Chapter 2, Figure 2.4), it could be argued that business model innovation possibilities can be perceived under three categories, namely:

- Level of business model openness – i.e. innovating the “as-is” core business or (also) outside it.
- Internal and/or external competences used through the innovation process.
- Number of operational business models that the company is running simultaneously.

Figure 9.5 illustrates what we argue to be the business model innovation “cube”, where we have placed companies Alpha and Beta’s business model innovation cases in the accurate boxes for illustration. As the model suggests, the bottom left box (i.e. single business model, internal competences, core business) is a highly risky business model innovation initiative, given that the company is radically innovating its core business – if the
innovation process fails, the company will no longer have an operational business, and will therefore cease to exist.

Alternatively, the upper right box (multi business model, internal and external competences, external to the core), gives a more open view (Chesbrough, 2007) of business model innovation. In this case, a company chooses to create a new business while still keeping the “as-is” core business fully operational – if the business model innovation initiative fails, the company could continue operating in existing markets, provided that the financial losses (due to the failure) were not too large.

Yet, given that all “radical” business model innovations are loaded with risks, it is still highly questionable which of the initiatives should be the preferred one to pursue. Open, network-based innovation also brings with it many (other) risks, and with that, new challenges. Obstacles associated with network-based innovation can manifest themselves as e.g. difficulties in finding a common value for the network partners to work with; in understanding the synergy (i.e. “who’s doing what?”); in insuring trust between partners; in developing a joint profit formula; in securing sustainability to the new business; in securing intellectual property rights (e.g. Chesbrough 2007, Tidd and Bessant 2009, Miles et al. 2005, Dodgson et al. 2006, Ahmed and Shepherd 2010).
9.1.3 Business Model is the “Basis” of All Innovation Types

The business model was traditionally assumed to be only one type of innovation, amongst other innovation possibilities. In Section 2.2.2.1 we mentioned three common approaches to discuss the innovation possibilities of an organization:

- Schumpeter (1911) discussed four possibilities: products, services, processes, and models.
- Tidd and Bessant (2009) also mentioned four categories: products, processes, position, and paradigm (i.e. business model).
- Doblin Consultant Company (http://www.doblin.com/), who gave more detailed innovation grouping, argued for 10 various types of innovation.

Table 2.2, presented here again as Table 9.2, illustrates the similarities, as well as the differences, between the three approaches.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Product (and services)</td>
<td>Product performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product system</td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td>Service</td>
<td></td>
</tr>
<tr>
<td><strong>Processes</strong></td>
<td>Process</td>
<td>Enabling process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Core process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Channel</td>
</tr>
<tr>
<td><strong>Models</strong></td>
<td>Paradigm</td>
<td>Business model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Network and alliances</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer experience</td>
</tr>
</tbody>
</table>

Table 9.2: Types of innovation - comparison

Tidd and Bessant touch on all four categories mentioned by Schumpeter (1911), and add an additional category, namely “position”, associated with innovating the (target customer) market segment(s) of the company. Doblin Consultant Company, however, did not mention the target customer as a “type” of innovation, but gave more details on the other three categories mentioned by Tidd and Bessant (2009), and added three other categories, associated with: (new) network and alliances; company branding; and customer experience (related more to new customer relationship and feeling, rather than to new customer segments/markets - i.e. “position”).
A more detailed analysis revealed that the “channel” innovation, proposed by Doblin Consultant Company, can be embedded in the core process innovation category, related to the primary activities of the value chain (e.g. Porter, 1985), and should therefore be excluded from the list. Also, it is not quite clear what the business model category actually means. In Doblin Consultant Company the business model innovation was associated purely with the question of “how do we make money?”. This question, as we have illustrated through our research, is associated merely with the revenue stream of the firm (e.g. Osterwalder et al. 2004).

Also, by looking at the description of business model innovation type, mentioned by Schumpeter (1911), and Tidd and Bessant (2009), we could only identify those examples that are associated with a complete transformation of the core business into a new one, as illustrated for example in Box 1 (Section 2.3.2), and in case 1. However, as the previous section has illustrated, we believe that business model innovation can also take place outside of the core business and manifest itself in the form of e.g. a new business unit, outsourcing, licensing, spin offs and the like (e.g. Skarzynski and Gibson 2008, Chesbrough 2007).

So, all things considered, we could identify 10 innovation types, eight of which are related directly to Doblin Consultant Company, a Revenue Stream innovation category, which replaced the business model innovation type in Doblin Consultant Company, and an additional innovation type, adopted by Tidd and Bessant (2009), namely, Position innovation. Both Table 9.3 and Figure 9.6 illustrate the relationships between each innovation type suggested, and the relevant building block associated with it.

<table>
<thead>
<tr>
<th>Type of innovation</th>
<th>Building block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Product performance</td>
<td>Value proposition</td>
</tr>
<tr>
<td>2. Product system</td>
<td>Value proposition</td>
</tr>
<tr>
<td>3. Service</td>
<td>Value proposition</td>
</tr>
<tr>
<td>4. Core process</td>
<td>Value chain (primary activities)</td>
</tr>
<tr>
<td>5. Enabling process</td>
<td>Value chain (support activities)</td>
</tr>
<tr>
<td>6. Network and alliances</td>
<td>Partner network</td>
</tr>
<tr>
<td>7. Brand</td>
<td>Core competences</td>
</tr>
<tr>
<td>8. Customer experience</td>
<td>Customer relationship</td>
</tr>
<tr>
<td>9. Position</td>
<td>Target customer</td>
</tr>
<tr>
<td>10. Revenue stream</td>
<td>Profit formula</td>
</tr>
</tbody>
</table>

Table 9.3: Fit of innovation types to the business model building blocks
Figure 9.6: Fit of innovation types to the business model building blocks

Accordingly, it can be argued that business model innovation by and large encompasses all innovation types, and should therefore be considered as the overall platform of all innovations rather than being a single type on its own, separated from all others by definition and process characteristics.

This hypothetical statement is supported even further by our previous considerations regarding the processes, or rather the space for business model innovation. We argued that any change can rightfully be called a business model innovation, but some changes are more radical and/or complex than others, and some (e.g. radical product innovation, incremental process improvement) are better understood than others (e.g. a holistic, new to the world departure from all business models known so far). Consequently, we get around the eternal discussion of when a business model innovation is indeed radical or incremental, simple or complex, far reaching or not, and, instead, portray the space in which any business model innovation can be positioned in terms of its degree of innovativeness in terms of radicality, reach and complexity (Figure 5.5).

Furthermore, in addition to existing theory (e.g. Tidd and Bessant, 2009 – Figure 5.3), our empirical investigations (i.e. the ten retrospective cases and the action research) results, provide evidence that strategy, culture and leadership are, indeed, essential elements to consider as part of the overall business model innovation process, and, consequently, should also be considered as part of the overall business model template (e.g. Figure 9.6).

Proposition 1 discussed the importance of insuring a fit between corporate strategy and the top management (leadership) risk appetite, while proposition 13 discussed the importance of aligning a company’s corporate strategic goals with its (risk treatment) efforts.

Proposition 5 argued implicitly that cultural (and leadership) readiness for change is essential. “Instead of learning to improve, companies tend to “simply” repeat successful business model innovation processes and, equally “simply”, to drop unsuccessful approaches. This,
lack of experimentation, with new business model processes and lack of learning from failures decreases the growth potential of a company significantly”.

Finally, proposition 12 stressed the benefits of applying risk management in a business model innovation process with relations to organizational culture (i.e. “...promotes organizational self-learning and flexibility”), and strategy (i.e. “gives more focus, through implementation processes, to strategic choices made at the gates”).

9.2 ANSWERS TO THE RIDDLES

Based on the case study results, and our findings in view of existing theory, described above, we will discuss in this section the results of the two research questions.

Research Question 1:
Chapter 6 explored the role of risk and risk management in the practice of business model innovation (RQ1). The reason for conducting this investigation was the understanding that companies today, in some industries more than others, invest more capital and resources just to stay competitive, develop more diverse solutions, and increasingly start to think more radically when considering how they should innovate their business models. However, despite the understanding that business model innovation is a risky enterprise, most companies are still choosing not to apply any risk management processes through their innovation process.

The two retrospective cases presented and analyzed in this thesis propose that successful business model innovation depends a great deal on the risk appetite of the company and the way it manages the risk involved. The former depends on the top management’s personality and their assessment of the company’s economic position and outlook, the latter on previous experiences with innovations. Failing to take risks, and failing to learn how to approach innovations that are essentially new to the company, may decrease a company’s growth potential significantly.

Also, however correctly companies assess the nature and characteristics of the innovation, any business model innovation is loaded with risks. Hence, risk management is of paramount importance. Incomplete management of risk may lead to partial (e.g. technological) success and partial (e.g. commercial) failure. Lastly, a widely used approach such as the stage-gate process to manage a business model innovation process is not enough. We propose that incorporating dedicated risk management into the process can help reduce the likelihood of innovation failure.

Furthermore, Section 9.1.1, and particularly Table 9.1, enhanced our understanding that most, if not all, business model innovation failures are associated with the same “simple” fact, namely that the organization failed to manage the risks involved in that process adequately, and is associated with the same five core groups of risk factors, namely: strategic; operational; financial; cultural; and external hazard risks (see Appendix 2 for
more details). This statement is also supported by Kaplan’s findings (Business summit, Harvard University, October 14, 2008. See Chapter 1).

It has also become apparent that the extent to which feasible strategies are implemented depends on the organization’s awareness of the possibility that it will have to conduct activities that are more uncertain and complex, and therefore also riskier, than is the norm (Figure 9.1). Risk is a function of the uncertainty and complexity related to innovation. Therefore, the higher the level of innovation uncertainty and complexity, the higher the risks a company faces when innovating its business model, and, consequently, the more (rigorously) risk management processes should be applied.

**Research Question 2:**

Based on the RQ1 results, we realized that business model innovation involves a certain level of risk. Innovating a business model in a complex and uncertain world only increases the risks. Indeed, companies and their managers are beginning to recognize that taking, while at the same time controlling, risks is fundamental to developing and implementing a sustainable competitive business model. Consequently, leading companies are looking for ways to handle the risks involved in innovating their business model.

Accordingly, RQ2 was formulated as: **To what extent, and especially how, can risk management help a company to deal with various risks throughout its business model innovation process?**

By continuing to follow Christensen’s (2005) procedure for building a descriptive theoretical understanding, Chapter 7 proposed a generic process to business model innovation, supported by risk management processes.

This model has then been tested in an action research study (research aim four), reported in Chapter 8, which was aimed at drawing more concrete conclusions regarding the process of incorporating risk management through business model innovation processes (the “how”), as well as its success potential in facilitating a company with regard to innovating its business model (the “extent”).

Based on the action research, we suggest the following benefits and possible pitfalls, when incorporating risk management in the business model innovation process.

The implementation of risk management processes within the overall business model innovation process reduces the level of risks related to uncertainty and complexity of, or associated with, developing a new business model. Managers are much more focused on identifying problematic issues (know what to do), and in putting explicit plans and timetables into place for resolving/reducing identified high and medium rated risks (know how to do it).

Furthermore, managing risks through a business model innovation process assists a company both in 1) aligning the company’s corporate strategy and (future) goals with risks-treatment choices made at the stages, and 2) aligning risk-treatment processes with
the risk appetite level of the company. In such a way, managers are also more confident about the strategic choices made during the innovation process, and it is also relatively easier for them to share their vision and future plans with their staff members, as well as in prioritizing their operational plans.

Also, the results indicate that the likelihood of launching a successful new business model could be increased if risk management processes are applied throughout the entire business model innovation process i.e. during the stages and at the gates. These findings support the operational use of our model, proposed in Figure 7.1.

Yet, the action research results have also indicated that having too much risk management can also be problematic to the organization if the company overloads its innovation process with too many risk management processes that are not only time consuming but possibly also confusing for staff members to cope with. Nonetheless, by having the right “balance” of risk management processes, companies could promote organizational self-learning and flexibility via coping better with changing internal and external conditions (e.g. proposition 12).

So, management attention to business model innovation risks, and integration of risk management throughout the entire innovation process, is essential. However, the discussion presented in Section 9.1.1 suggests that microscopic management of various risks can be deceiving, if the innovation target is not serving as a compass to the entire process. It can also be risky getting into too much detail if one is not considering also the interdependency of various risk treatment choices with each other, the innovation process, and even other innovation processes taking place at the same time and/or planned ahead (Figure 9.2).

Yet, in the challenge of finding the right balance when incorporating risk management into business model innovation processes (i.e. avoiding having too little, or too much), the results are still inconclusive.

Additionally, another level to discuss the “how” question was considered through the development of business model innovation classification, where we argued that on an aggregate scale, one can perceive business model innovation possibilities under three levels of analysis, namely: degree of business model openness; (supply of) competences used through the innovation process; and number of operational business models that the company is running simultaneously (Figure 9.5). The bottom left box (i.e. single business model, internal competences, core business) presents a highly risky business model innovation initiative, given that the company is radically innovating its core business, which then, if the innovation process should fail, would leave the company without an operational business. Alternatively, the upper right box (multi business model, internal and external competences, external to the core), gives a more open view (Chesbrough, 2007) to business model innovation. In this case a company chooses to create a new business while still keeping the “as-is” core business fully operational. Should the business model innovation initiative fail, the company could still continue to operate in existing markets. Yet, as mentioned in Section 9.1.2, given that all “radical” business model innovations are
loaded with risks, it is still highly questionable which of the initiatives should be considered as less risky.

9.3 METHODOLOGY REFLECTION

“[a] primary concern of every consumer of management theory is to understand where it applies and does not apply” (Christensen, 2006 p.52).

In the methodological chapter (Section 4.4.6), we have argued that while both qualitative and quantitative researchers need to test and demonstrate that their studies are credible (valid and reliable), the credibility in quantitative research depends mostly on some sort of instrument construction, while in qualitative research “the researcher is the instrument” to insure credibility (Patton, 2002). In other words, in quantitative research different researchers, using the same instruments/procedures will arrive at similar results. However, in qualitative research, where the research occurs in natural settings and involves the response of humans in the process of change, it is often difficult to replicate the study results (Burns, 2000). For that reason, according to Patton (2002), reliability is restricted by the number of observers involved in the study, the response of informants who provide data, and the natural response and bias of the researchers as they are involved in the study for a lengthy period of time. In Chapter 4, Sections 4.4.6 and 4.5.4, we described our (planned) initiatives to secure high level of credibility (i.e. validity and reliability) to the overall research performed.

However, once the actual research had been initiated, various challenges manifested themselves and required our attention, and had a negative impact on the research, relative to the quality criteria we had set to ourselves at the start of the research.

First empirical analysis – the case studies at companies Alpha and Beta

Data validity – In company Alpha, we had limited access to the relevant data. There was only one company manager whom we could interview and, consequently, the data gathered was restricted to his viewpoint. Yet, we did have access also to relevant internal company documents – the information in the documents was consistent with the interview results.

In company Beta, we conducted face-to-face, mediated, group and third party (students) interviews. Additionally, relevant internal company documents were available to us as well. That way, given that more sources of evidence were used for gathering the data, we could insure a higher level of credibility, compared to the company Alpha case.

Findings credibility – In spite of these downturns, especially as regards the company Alpha study, we still feel confident that the propositions developed through the cross analysis of the ten cases are reasonably credible (i.e. valid and reliable) as we deployed the following:

- Construct validity tactics:
  o Triangulation – we used multiple sources of evidence (interviews and internal documents - mentioned above)
We insured a fit between the research aims, research question, and the consequent data gathered (and analyzed thereafter).

- Key informants (both the author’s supervisors and managers that were interviewed) reviewed draft case study reports.

- Internal validity tactics:
  - We performed pattern-matching in our cross case analysis (Eisenhardt 1989).

- External validity tactics:
  - We focused the data gathering and analysis on similar criteria.

- Reliability tactics:
  - Most interviews were recorded. Several interviews were partially transcribed for more in-depth analysis.
  - For third party (student) interviews, the data was gathered by interviewing the students themselves.
  - Companies’ documents have been received both electronically and physically (both of which have been saved in individual files).

Second empirical analysis – the action research at Provital

As mentioned in the methodological chapter (Section 4.5.4), action research uses different measures of validity and reliability than other forms of qualitative/quantitative research since it is taking a more democratic, empowering and humanizing approach, via assisting managers in extending their own understanding of their situation, and helping them to resolve identified problems (Guba, 1996).

As recommended by Lewis (1998), Greenwood and Levin (2000), Dick (1993), Duffy (1987), Fielding and Fielding (1986), and Maxwell (2005), we used the following tactics:

- Data triangulation – multiple sources of evidence were used, namely primary and secondary data; face-to-face interviews; mediated interviews; and group and third party (ICI process leader) interviews.
- Two action research cycles were performed – this increased our understanding, and facilitated us in refining the initial conceptual framework (e.g. Lewis, 1998).
- Data gathering process – pre and post analysis of semi-structured interviews were conducted for understanding better the disparity between the expected and the actual contribution of applying risk management, as well as the importance and seriousness of applying risk management in the business model innovation process (e.g. Keizer and Halman, 2007).
- Iterative triangulation – is recommended in situations where the research topic is novel and underdeveloped, but at the same time a body of relevant literature exists (Lewis, 1998). Accordingly, the business model innovation process model, was developed based on existing studies, rather than on data collected directly from the company.

Consequently, we consider the five propositions developed to be credible as well.
However, we also experienced several problems related to the process of testing the model developed:

- We studied a company in its infancy. Consequently, it was clear that we were dealing with setting up the business, rather than innovating an incumbent company’s business model. As a result, the process involved a shift from not having a business model, to having one, in contrast with incumbent companies that transform their “as-is” business model into a new one.
- Provital already had an operational product and an explicit (prototype) plan for setting up the business. Thus, as Figure 8.2 shows, the processes of “Search” and “Select” became irrelevant for our research.

Thus, we needed to “work” on the model developed and adjust its configuration to fit with the company’s conditions as best we could. In so doing, we also had to keep in mind that previous research on risk management related to product innovation (e.g. Keizer et al. 2002) and project management (e.g. Chapman and Ward, 2004) argued for the need to incorporate risk management, and the benefits of doing so, in the early phases of the innovation process. Consequently, based on those two adjunct bodies of literature, we argued that the application of risk management at the early gates was not really called into question. It was the more progressive gates that needed to be investigated for risk management validation.

In effect, the action research should be considered as a small scale (e.g. Polit et al. 2001) pilot study (e.g. Lancaster and Williamson 2004, Ruxton and Colegrave 2006), aimed at pre-testing or “trying out” our proposed generic business model innovation process (e.g. Baker, 1994). There are many benefits of conducting pilot studies. Teijlingen and Hundley (2001), for example, argue that pilot testing can facilitate practitioners and researchers (amongst others) with:

- Developing and testing the adequacy of research instruments (or a model).
- Assessing the feasibility of a (full scale) study/survey.
- Identifying logistical problems that might occur using proposed methods.
- Determining what resources are needed for a planned study.
- Assessing the proposed data analysis techniques to uncover potential problems.
- Convincing funding bodies that the main study is feasible and worth funding.
- Convincing other stakeholders that the main study is worth supporting.

Nonetheless, it should also be recognized that pilot testing has its limitations, too. There is, for example, the danger of making inaccurate predictions or assumptions on the basis of pilot data; problems arising from contamination; and problems related to funding (Teijlingen and Hundley, 2001).

So, we did a small-scale pilot study of fragments of the business model innovation model (Figure 7.1). That study did not falsify the model, but does not say much about the model as a whole or its generalizability to different situations. Furthermore, we cannot know if the results also represent long-term effects. Thus, the theory may not yet be robust — more
research is needed in order to validate the operational use of the entire model (see Section 8.5.4 for more details), in different situations (e.g. incumbent firms), and to measure long-term effects of applying the model. All in all, given these limitations combined with the highly explorative nature of this study, where we have entered “terra incognita”, the results from this research (ten case studies and the action research) should be considered as tentative theory.

9.3.1 FURTHER RESEARCH TRAJECTORIES

The two empirical investigations that were performed in this research involved ten retrospective case studies and an action research, both of which are based on mostly qualitative data. There are several well-documented advantages to this methodology, such as richness and depth, but also weaknesses related to, amongst others, comprehensiveness and generalization.

From a theory building perspective, Carlile and Christensen (2005) suggest that the descriptive part of theory building is a preliminary stage, which researchers generally must pass through in order to develop more advanced normative theory. According to them, “the ability to know what actions will lead to desired results for a specific company in a specific situation awaits the development of normative theory in this field” (Carlile and Christensen 2005, p. 4).

Furthermore, Christensen (2006) also recommends applying quantitative techniques such as regression analysis in the third phase of building descriptive theory, which are typically very useful in determining more explicitly what differences in attributes and their magnitude correlate most strongly with the patterns in the outcomes of interest.

Thus, in order to improve the theory, and after we followed the inductive process by climbing the pyramid in these three steps – observation, categorization, and association, there is a need to cycle from the top to the bottom of the pyramid (Figure 4.2) in a deductive process, in order to test the propositions (and the research model) that were inductively formulated/developed. By testing the new proposed theory in a new setting, anomalies (theory that can be falsified) can be found, which then provide an opportunity to improve the existing theory.

Accordingly, the case study results and propositions developed can, and should be, tested on a larger scale. Thus, we propose to conduct a mix of comparative and longitudinal case studies as a first step, aimed at enriching and sharpening the findings presented here. Thereafter a larger case or questionnaire-based survey may be used to test and generalize each proposition developed.

Additionally, as mentioned earlier, the results drawn from the action research should be considered as a pilot (action research) study (e.g. Lancaster and Williamson 2004, Ruxton and Colegrave 2006), aimed at pre-testing or “trying out” the model proposed (Baker, 1994). Thus, the theory is not yet robust, and more research is needed.
Accordingly, we propose to proceed through three successive steps:

- **Validate the operational use of the entire model** – as Figure 8.2 shows, we needed to “work” on the model developed and adjust its configuration to fit with the company’s conditions as best we could. Consequently, the operational use of the entire model is still in question, and needs to be tested for (mostly) risk management validation in all three gates. Thus, we propose to begin with a full scale testing of the model in a company, where the first and second gates (leading to idea generation and prioritizing) could be tested as well for their risk management application – as suggested by the model.

- **Test the model developed in different situations** – assuming that a full scale test has failed to falsify the model, too, we recommend to then conduct a multiple action research study, aimed at testing the model through business model innovation initiatives of various companies, preferably of different size (i.e. SMEs and large firms) and within various industries. In that respect, it should also be recognized that practitioners should not only measure the operational use of the model by the “success” or the “failure” of a business model innovation, but also in terms of the extent to which uncertainties, complexities and consequent risks are reduced throughout the innovation process. The reason for doing so is the understanding that innovation is a “risky business”; as such, risk will never be eliminated completely.

- **Measure long-term effects of applying the model** – once the application of the model has been tested in various industrial settings, and assuming that it has yet to be falsified, we propose to proceed with a questionnaire-based survey to analyze, retrospectively, not only the short term effects of applying the model (through the actual innovation process), but the long term effects of its application e.g. in avoiding cannibalization and securing sustainable growth.

Finally, following on from the network based business model innovations article (Appendix 3), the unit of analysis should be extended from the single company level to the network level, in order to develop a better understanding of network-based business models, and the (innovation) challenges related to that.

### 9.3.2 Research Contribution

The impact of this work can be measured mostly with focus on theory.

Based on Christensen’s (2005) three-step procedure, we provided a (descriptive) theoretical understanding to the business model concept and its innovativeness space. Furthermore, we introduced the seven building blocks of a given business model (Table 5.1), followed by a business model template (Figure 5.4), and business model innovation model that is supported by risk management processes (Figure 7.1).

Then, we considered one of the ongoing debates in innovation theory, namely that of measurement. Various suggestions on how to measure innovativeness have been proposed
in the literature. This thesis suggests getting around that eternal discussion by suggesting measuring innovativeness in a three-dimensional “both-and” (rather than “either-or”) space of otherwise accepted scales: radicality (how new), reach (new to whom) and complexity (how much is new). One of the benefits is that this also solves the question of when we can talk about business model innovation, or for that matter, any form of (complex) innovation (Figure 5.5).

Finally, an initial attempt was made to develop business model innovation types. We introduced the business model innovation cube (Figures 9.4 and 9.5), suggesting that business model innovation possibilities be perceived under three levels of analysis, namely: degree of business model openness; (supply of competences used through the innovation process; and number of operational business models that the company is running simultaneously.

The contribution to practice is limited due to the generalization limitations of this research. Although it should be noted that the action research failed to falsify the proposed generic business model innovation process (Figure 7.1). Consequently, more research is needed in order to validate the operational use of the model.
10. SUMMARY AND CONCLUSION

“If I have seen a little further it is by standing on the shoulders of giants”
(Isaac Newton, 5th of February, 1676)

10.1 SUMMARY

It has been traditionally assumed, especially by practitioners, that business model innovation is associated purely with disruptive innovation to the core business of organizations. In this thesis, however, we adopted a broader (Osterwalder et al. 2004) definition to describe the business model and, based on that definition, we developed, through cross theoretical analysis of various business model research gurus, a theory on business models and their innovation, supported by risk management.

Given the largely exploratory nature of this study, entering “terra incognita” (Chapter 2), we were faced with our first research challenge, namely, to clarify the business model concept and its innovation possibilities (research aim 1). In the process of doing so, we followed Christensen’s (2006) procedure for building a descriptive theoretical understanding, and systematically analyzed most articles and reports published on business models since the early nineties. Then, based on the various researchers’ perspectives and assumptions, we identified relevant inconsistencies, which, consequently, led us to propose possible supplementary solutions, by means of:

- Clarifying the core components of the business model (Table 5.1).
- Proposing a business model template (Figure 5.4).
- Further developing our understanding regarding the business model innovativeness space (Figure 5.5), defined by three scales: radicality, reach and complexity.

Once the first research aim was met, we could proceed to investigate our first research question (associated with the second research aim of the study), namely, to learn what is the role of risk and risk management in the practice of business model innovation?

The reason for conducting this investigation as part of the overall research was the understanding that business model innovation involves a certain level of risk, and innovating a company’s business model in a complex and uncertain world only increases the risks. Yet, despite the considerable amount of literature on risk management, its processes have not yet been fully incorporated, proactively, into other core business decision-making processes, such as strategic planning, capital allocation and performance management (Deloitte ERM survey 2008), and certainly not into business model innovation processes.

This practical lack of knowledge regarding how to use existing, and in developing potentially new, tools/approaches for managing innovation risks adequately, has led many companies to “simply” disregard, and therefore not apply, any risk management throughout their business model innovation processes. This is particularly important in view of pressures to increase stakeholder value, improve earnings, and raise the innovation
success rate. Given these circumstances, we were particularly interested in exploring whether companies that innovated their business model successfully have found alternative, adequate, ways for managing the risks involved and, then, to what effect.

We analyzed the business model innovation experiences of two industrial companies. These companies were selected due to their uniqueness and high success rate, but, still, different experiences in considering and implementing “not more of the same” innovations. The case analyses suggested that despite the high percentage of successful innovations, both companies are still experiencing high levels of uncertainty and complexity during their innovation processes, and, consequently, they are still struggling in finding new processes for reducing the risks involved in that process. Furthermore, the cross-case analysis suggested that successful business model innovation increases a company’s turnover and profit significantly. Success, however, depends a great deal on the risk appetite of the company and the way it manages the risk involved. The former depends on the top management’s personality and their assessment of the company’s economic position and outlook, the latter on previous experiences with innovations.

Failing to learn how to approach innovations that are essentially new to the company may decrease a company’s growth potential significantly. However correctly a company assesses the nature and characteristics of the innovation, any business model innovation is loaded with risks. Hence, risk management is of paramount importance. Incomplete management of risk may lead to partial (e.g. technological) success and partial (e.g. commercial) failure.

Also, too much bureaucracy delays the process, even at the implementation stage, at the expense of other innovations identified and waiting to be implemented. A widely used approach such as the stage-gate process to manage a business model innovation process is not enough. Incorporating dedicated risk management into the process can help reduce the likelihood of innovation failure.

Based on the cross-case analysis, we developed eight propositions:

**Proposition 1**: The top management has great influence on the risk appetite of the company. Fit between corporate strategy and the top management’s risk appetite should be one of the hiring/firing criteria for top managers.

**Proposition 2**: The risk appetite of a company is a function of its economic position and outlook.

**Proposition 3**: Even, or perhaps especially, if the radicality and reach of a business model innovation is low, previous successes with more radical and farther reaching innovations may lead a company to underestimate the process, particularly if the innovation does not build on the company’s experiences with previous innovations.
Proposition 4: Successful business model innovation increases a company’s turnover and profit significantly.

Proposition 5: Instead of learning to improve, companies tend to “simply” repeat successful business model innovation processes, and to equally “simply”, drop unsuccessful approaches. Lack of experimentation with new business model processes and lack of learning from failures decreases the growth potential of a company significantly.

Proposition 6: An incomplete risk management process (e.g. aimed at technological success only) may lead to partial success (e.g. technological success but market failure).

Proposition 7: Too much bureaucracy delays business model innovation, even at the implementation stage, and goes at the expense of other innovations identified and waiting to be implemented.

Proposition 8: Incorporating dedicated risk management processes into a business model innovation process, whether that process is stage-gate driven or not, can help reduce the likelihood of innovation failure.

Then, based on the cross-cases results, we could proceed into the third and fourth research aims of:

- Developing a model, suggesting how to integrate risk management processes into business model innovation process, and
- Testing the model developed, within a company, for possible effect analysis.

In the process of meeting those two research aims, research question two was designed as follows: To what extent, and especially how, can risk management help a company to deal with various risks throughout its business model innovation process?

Once the “how” question was theoretically answered (i.e. presented in the thesis as the generic business model innovation process, supported by risk management processes -illustrated in Figure 7.1), we could proceed to the fourth research aim and test the model to develop insight into the “extent” to which it can help when incorporating risk management into business model innovation processes. Accordingly, an action research was performed in a small Danish company (Provital) for possible effect analysis.

The case narrative gave details to the action research process performed, as well as to some of the downsides and constraints that we have had to deal with through that process.

Based on the analysis of our data, we suggest the following benefits and possible pitfalls, when incorporating risk management in the business model innovation process.

Applying risk management during and as part of a business model innovation process
reduces the level of risk related to uncertainty and complexity of, or associated with, developing a new business model. Managers are much more focused on identifying problematic issues (know what to do), and in putting explicit plans and timetables into place for resolving/reducing identified high and medium rated risks (know how to do it).

Furthermore, active risk management assists a company both in 1) aligning the company’s corporate strategy and (future) goals with risk treatment choices made at the stages, and 2) aligning risk treatment processes with the risk appetite level of the firm. In such a way, managers are also more confident about the strategic choices made during the innovation process, and it is also relatively easier for them to share their vision and future plans with their staff members, and to prioritize their operational plans.

The action research results also indicated that it is recommended to apply risk management processes throughout the entire business model innovation process i.e. stages and gates, given that today’s certainties can very easily become tomorrow’s new challenges.

Yet, the results have also shown that having too many risk management processes can also be problematic if the company overloads the system with too many processes, which are not only time consuming but possibly also very confusing for staff members. But nonetheless, by having the right “balance” of risk management processes, companies could promote organizational self-learning and flexibility via coping better with changing internal and external conditions.

On an aggregated scale, the analyses of the three categories (i.e. Risk management application benefits; Timing; Challenges and pitfalls) indicated that the application of the model in Provital case should be considered as being a success. Consequently, the model proposed (Figure 7.1) was not falsified, and therefore more research is needed in order to validate its operational use (see Section 9.3.1 for more details).

Based on the action research results, we developed five additional propositions:

**Proposition 9:** The implementation of risk management processes within the overall business model innovation process reduces the level of risk related to uncertainty and complexity of, or associated with, developing new business models.

**Proposition 10:** Managing risks through the business model innovation process will assist a company in aligning risk-treatment processes with the risk appetite level of the firm.

**Proposition 11:** The likelihood of launching a successful new business model can be increased if risk management processes will be applied throughout the entire business model innovation process i.e. stages and gates.

**Proposition 12:** Embedding risk management process in business model innovation process promotes organizational self-learning and flexibility, and gives more focus, through implementation processes, to strategic choices made at the gates.
Proposition 13: Securing sustainability of a company through the business model innovation process can be increased by aligning the company’s corporate strategy and (future) goals with risk treatment choices made at the gates.

In the discussion presented in Chapter 9, we reflected on the overall research performed. In the process of doing so, in the “theory finding” (Section 9.1), we analyzed the propositions developed, linking them to relevant theories, and argued for both similarities as well as contradictions that exist between the empirical findings reported here and existing theory.

We started by discussing the importance of understanding the co-dependency that exists between uncertainty, complexity, risk and risk management; and argued that risk should be perceived as a function of the uncertainty and complexity related to innovation. The higher the level of innovation uncertainty and complexity, the higher the risks a company faces when innovating its business model (Figure 9.1). Then, in order to stress the importance of “system thinking” when choosing a risk treatment alternative, we proposed the risk treatment fit model presented in Figure 9.2.

Section 9.1.2 then continued by discussing possible business model innovation types associated with Chesbrough’s (2007) open innovation theory (Figure 9.4). Furthermore, we introduced the “business model innovation cube”, which suggests that managers can perceive business model innovation possibilities under three levels of analysis, namely: degree of business model openness; (supply of) competences used through the innovation process; and number of operational business models that the company is running simultaneously (Figure 9.5).

We then completed the theory finding (Section 9.1.3) by proposing ten different types of innovations (Table 9.3), and argued that the business model should be considered as the “basis” for all innovations types, rather than being a single type on its own, separated from all others by definition and operationalization (innovation) processes (Figure 9.6).

Based on the cases results, and the speculations of the theory findings mentioned above, section 9.2 offered a comprehensive discussion to the two research questions results. Then, section 9.3 gave a methodological reflection to the overall research performed, followed by further research trajectories, and research contribution to theory and (limited) to practice.
10.2 CONCLUSION

In summary, the present research produced the following results:

- A business model template (Figure 5.4).
- A proposed three dimensional business model innovation scale (Figure 5.5).
- Eight propositions addressing the key words in research question one (Section 6.5).
- A generic business model innovation model, supported by risk management processes (Figure 7.1)
- Five propositions addressing the key words in research question two (Section 8.6).
- A complexity-uncertainty risk associated scale (Figure 9.1).
- A risk treatment fit model (Figure 9.2).
- A “closed” and “open” classification to innovate the business model (Figure 9.4)
- The business model innovation cube (Figure 9.5).
- Suggested theoretical view on perceiving the business model as the “basis” of all innovation types (Figure 9.6).

These results are strongly interconnected and related to one another. The development of the business model template (and its seven core building blocks), as well as the three-dimensional business model innovativeness scale, was necessary for analyzing the ten retrospective case studies, and to develop the (first) eight propositions. The results drawn from the eight propositions provided the platform for the development of the generic business model innovation model, supported by risk management processes. The development of the model was necessary for conducting the action research, and in developing five additional propositions. Finally, the theoretical findings in general, and Figures 9.1, 9.2, 9.4, 9.5 and 9.6 in particular where developed in reflection to the overall research performed. Together these results should be regarded as tentative theory. Further research, in the form of multiple case studies and a questionnaire-based survey (see Section 9.3.1 for further details), is needed to expand, refine, test, and validate (or alternatively - falsify) the theories that were inductively developed in this thesis.

All things considered, this research so far has led us to believe that business model thinking and business model innovation matter. Despite its fuzzy definition and operationalization, it is increasingly capturing the attention of academics as well as company managers. Consequently, it is being proposed as a new, more sustainable, line of innovation and a new way to meet the challenges of global competition. According to the IBM survey (2006, p.1), “new products and services remain a priority, but they (companies) are placing increasing emphasis on differentiating themselves through innovation in the basics of their business models”. Accordingly, company managers are beginning to realize that the source of sustainable competitive advantage is expanding from an excellent product, process or service innovation performance, to having more holistic business model innovation capabilities. The results drawn from this thesis could help reduce the confusion regarding the business model concept and its innovation processes, and allow us to design and communicate business model research more rigorously.
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## APPENDICES

### APPENDIX 1: TEMPLATE USED TO VISUALIZE PROVITAL’S “AS-IS” BUSINESS MODEL


### STEP 1: VISUALIZING THE “AS-IS” CORE BUSINESS

<table>
<thead>
<tr>
<th>Building Block</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Value proposition</td>
<td>What are the products and services we offer today?</td>
</tr>
<tr>
<td>2. Target customer/s</td>
<td>I. Who is/are our target customer/s? (e.g. male? female? wealthy people? Danish speakers? PC users? Supermarkets? Building constructors? ...)</td>
</tr>
<tr>
<td></td>
<td>II. In which geographies do we operate today? (countries/regions)</td>
</tr>
<tr>
<td>3. Value chain primary activities</td>
<td>I. Who are our suppliers, and what is the ordering process? (e.g. receiving raw materials and distributing them to manufacturing as they are required by demand (lean thinking)? Keep a large sum of raw materials in-house ready for production when needed? ...)</td>
</tr>
<tr>
<td>(activities and resources that we use to create our value/s)</td>
<td>II. Manufacturing process? (e.g. fast and simple? time-consuming and complex? In-house? Outsourced? Licensed? Off-shored?).</td>
</tr>
<tr>
<td></td>
<td>III. How are the warehousing and distribution channels used to deliver the finished goods?</td>
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<tr>
<td></td>
<td>IV. Marketing and sales efforts?</td>
</tr>
<tr>
<td></td>
<td>V. Service? (After sales support activities such as: customer online support; repairs services; etc.)</td>
</tr>
<tr>
<td>4. Core competencies</td>
<td>What are our Core competencies? (e.g. assets, technology, IPR, know how, close relationships with customers and/or suppliers …)</td>
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<td>----------------------</td>
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</table>
| 5. Partner network   | I. Who are our current network partners?  
II. What sort of partnerships are we involved in? (e.g. strategic alliances, joint-ventures, outsourcing, licensing…) |
| 6. Customer relationship | What sorts of relationship/s do we have with our target customer/s? (e.g. physical, virtual, digital – personal, peers, mass awareness). |
| 7. Profit formula     | I. What are our major costs in delivering our offering? (e.g. production; distribution; labor and utilities; sales and marketing expenses…).  
II. How do we make money? What do we charge our customers for? (e.g. direct sales; free at first - pay later; Razor and razor blade like; public auction on the web; free for first tier customer earnings from second tier (e.g. Facebook, Google); third party sell products and we earn percentage from the profits; pyramid like; paying per use time (e.g. car renting)… ) |

**STEP 2: VISUALIZING THE “AS-IS” STRATEGY**

I. (from our customers’ point of view) How different are we from our competitors?

II. How sustainable is our differentiation? Is it protected by core competencies and/or strategic assets that we and only we have? (e.g. IPR; unique partner relation; exclusivity on sales)

III. Are we competing in a “blue ocean” (no competition) or in a “red ocean” (high competition)? – create the strategic canvas below
<table>
<thead>
<tr>
<th>Value Elements</th>
<th>Your Company</th>
<th>Competitor 1</th>
<th>Competitor 2</th>
<th>Competitor 3</th>
<th>Competitor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Differentiator (CD)</td>
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<td>CD 1</td>
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<td>CD 2</td>
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<td>CD 3</td>
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<td>CD 4</td>
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<td>CD 5</td>
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<tr>
<td>CD 6</td>
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<tr>
<td>CD 7</td>
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<tr>
<td>Strengths</td>
<td>Weaknesses</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
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<tbody>
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</tbody>
</table>

**Step 3: Visualizing the “As-is” Leadership and Culture Status**

Are we truly committed to developing and implementing continuous innovation capability within our firm?

1. Leaders are highly motivated, honest, self-confident, intelligent and have adequate job-related knowledge (0 - 10)

2. Change is encouraged, accepted and managed adequately in the business (0 - 10)

3. We, as leaders, are involved with customers, suppliers and other internal and external stakeholders to explore our future innovation possibilities (0 - 10)

4. We have a culture of openness where people can talk freely and exchange knowledge and new ideas (0 - 10)

5. We promote a non-blaming culture (0 - 10)

6. We recognize and appreciate people’s efforts and achievements, and give strong focus for increasing the spirit and motivation of our employees (0 - 10)

7. All employees share and contribute towards achievement of our vision/mission (0 - 10)
VIII. We are very good at communicating and sharing knowledge across the organization (0 - 10)

IX. We monitor on a regular basis the changes in the marketplace (field research + desk research) (0 - 10)

X. We have a highly productive R&D department (or linked to a third party research institute/company) to secure the continuous innovation capabilities of our firm (0 - 10)

XI. We have highly skilled employees who are performing their job to the highest standard possible (0 - 10)
Appendix 2: List of Risk Factors Cited From The Literature

Sources:
- KPMG (2005), Rethinking the business model, Global Business Model survey EIU/KPMG, The economist unit intelligence, Hong Kong.

1. Strategic Risks
- Lack of strategic vision (or fuzzy vision) in senior management.
- New or foreign competitor.
- Entering new (unknown) markets.
- Public boycott & condemnation.
- Offensive advertising.
- Negative media coverage.
- Timing of business decisions moves.
- Loss of intellectual property.
- Market share battles.
- Pricing and incentive wars.
- Attacks on brand loyalty.
- Foreign market protectionism.
- Product – market alignment.
- Customer relationships.
- Supplier relationships.
- Dealer relationships.
- Inadequate management oversight.
- Ineffective planning.
- “Gotta have products” program launch.
- Mergers and industry consolidation.
- Ethics violations.
- Budget overruns.
- Customer demand.
- Seasonality and variability.
- Technology (error) decisions.
- Unplanned expenses.
- Joint venture/alliance (conflict) relations.
• Union relations, labor.
• Perceived quality.
• Disagreements and contract frustrations.
• Product development process.
• Product design and engineering.
• Expansion of emerging markets.
• Emergence of new technology.
• Changing customer requirements/buying habits.
• Increased competition from new entrants.
• Poor alignment of actions to goals
• Poor monitoring of results

2. Operational Risks
• HR risks - key skills shortage, personnel.
• Warranty/product.
• Recall campaigns.
• Restriction of info. Access/egress.
• Theft and embezzlement.
• Loss of key equipment.
• Vandalism, extortion.
• Dealer distribution.
• Network failure.
• Logistic provider failures.
• Logistic route or mode disruptions.
• Loss of key personnel.
• IT system failure (e.g. hardware, software, LAN, WAP, computer virus...).
• Information management problems.
• Accounting or internal controls failures.
• Health and safety violations.
• Service provider failures.
• Supplier business interruption.
• Tier 1,2,3…n supplier problems.
• Government inquiries.
• Work place health and violence.
• Loss of key supplier.
• Loss of key customer.
• Inflexibility of suppliers.
• Operator errors.
• Accidental damage.
• Quality “spill”.
• Failures to deliver materials, goods, etc.
• Utilities failures: communications, electricity, water, power, etc.
• Machine effectiveness.
Access to raw materials.
“Lean” constraints - operations/manufacturing.
Technology Maturity.
Potential new equipment installation/re-location.
Part transfer/manufacturing change request.
Technology uncertainty.
Product liability.
Insufficient resources to invest in new business model.
Inflexible IT system.
Resistance from shareholders/investors.

3. Cultural Risk
- Poor leadership.
- Poor empowerment.
- Poor goal definition.
- Poor participation in teams.
- Poor communication and access to information.
- Difficulties in merging different corporate cultures (countries/business units/mergers/acquisition…).
- Lack of trust.
- High bureaucracy.
- Internal barriers between silos in the business.
- Staff resistance to change.

4. Financial Risks
- Shareholder activism.
- Credit default.
- Adverse change in industry regulations.
- Interest rate fluctuations.
- Counterparty risk.
- Equipment, facilities, business acquisition and divestitures.
- Currency and foreign exchange rate fluctuations.
- Financial markets instability.
- Return On Investment (ROI) risks.
- Lack of liquidity/cash.
- Asset valuation.
- Transaction processing errors.
- Accounting/tax law changes.
- Uncompetitive cost structure.
- Revenue management.
- Inadequate/inaccurate financial controls and reporting.
- Economic recession.
- Adverse changes in environmental regulations.
• Health care and pension costs.
• Debt and credit rating.
• Rising interest rates.
• Investment uncertainty (i.e. new technology, stocks…).

5. **Hazard Risks**
• General liability.
• Property damage.
• Loss of key facility.
• Building/equipment/wild fire.
• Third party liability.
• Directors and officers liability.
• Mold exposure.
• Cargo losses.
• Geopolitical risks.
• Severe hot/cold weather.
• Earthquake.
• Flooding.
• Terrorism/sabotage.
• Disease/epidemic.
• Tornado/hurricane/typhoon/tsunami/volcanic eruption.
• Animal/insect infestation.
• Ice storm/hail damage.
• Workers compensation.
• Boiler or machinery explosion.
• Deductible limits.
• Building collapse.
• Building subsidence and sinkholes.
• Lightning strikes.
• Wind damage.
• Heavy rain/thunderstorms.
• Land, water, environmental pollution.
• Increased focus on corporate social responsibility.
• Rising prices of oil and other raw materials.
• Regulatory hurdles.
• Macro vulnerability: Political, military, economic, ecological, social, technical
• Micro vulnerability: Physical (expensive) material needs protection, personal security
• Threats - deliberate events: Terrorism, sabotage, espionage, crime, vandalism, self-destructive actions/behavior
• Hazard Accidental events: Frequent accidents and/or human errors.
APPENDIX 3: “FROM SINGLE TO NETWORK-BASED BUSINESS MODEL INNOVATION”

This article was published in the *International Journal of Entrepreneurship and Innovation Management* (Vol.12, No. 2, 2010, pp. 122-137). However, it should be noted that this paper was developed in the early phases of the research, and for that reason, it is not consistent with the chapters of the thesis. For example, in this paper we have used Osterwalder’s nine building blocks as the framework for analyzing the components of the business model, rather than the seven building blocks that were suggested in the thesis.

This paper is associated both with chapter 3, the pre-research analysis, and linked to the NEWGIBM project as well as the ‘further research’ section of the thesis, discussed in chapter 9. In this paper we try to enhance our understanding regarding business models, where we transfer the unit of analysis from the single company level, to the network level perspective, where we speculate that innovating business models to become network-based is a complex venture, but critical for the survival of many companies.

FROM SINGLE TO NETWORK BASED BUSINESS MODEL INNOVATION

Peter Lindgren, Yariv Taran and Harry Boer

Abstract: In today’s complex, knowledge and innovation driven economy innovating business models and their architecture is in growing demand. Innovating business models to become network-based is a complex venture, but critical for the survival of many companies. Business model innovation is not widely researched, though. This paper examines the development of new business models in three networks, and focuses on the challenges related to that.

A key finding concerns the network partners’ very different business models and success criteria related to the innovation process and outcomes. The network partners’ value equation in a new network-based business model is complex to understand but nonetheless important to drive and lead the model from idea - through the innovation process - to the market. Another interesting finding is the big difference in network construction and demand of change to the individual network partners’ business models.

Keywords: Innovation, Business Model, Network, Multiple Case Study.

ENDNOTES

i It was for that reason that it was the authors’ choice to write the thesis in a plural (‘we’) rather than in singular (‘I’) mode.

ii Systemic viewpoint – Is a holistic view who claims that there are no single and independent parts, but rather that the parts are the function of the whole. Defined as (e.g.): “The management thinking that emphasizes the interdependence and interactive nature of elements within, and external, to an organization” (Business Dictionary, 2010).

iii A more detailed explanation of the similarities and differences between the two companies’ business model innovation experiences can be found in the cases analysis section (Chapter 6).

iv Interviews were made with companies mid manager’s levels (e.g. innovation manager; technology manager), where in company Alpha we had 18 hours of interviews in total, and in company Beta 7 hours of interviews in total.

v In company Alpha we had three sources (managers) to discuss the business model cases with, however the access to company Beta was very limited, and we could discuss the cases only with one manager.

vi Tidd and Bessant (2009).

vii The analyses of the cases were measured by their profitability, where successful cases were highly profitable for the company, partly successful cases were the ones with small profit margins, and failure cases were those who failed to bring any profits.

viii Appendix 1 illustrates the process we have used to visualize Provital’s business model.

ix Planned as further research

x Based on our experience and knowledge of the company’s managers’ preference, we categorized Provital as residing within the “Open” domain, i.e. “willing to consider all options and choose the one that is most likely to result in successful delivery while also providing an acceptable level of reward”.

xi Tidd and Bessant’s (2009) model has incorporated an additional element to the innovation process, namely: ‘Capture’, associated with managing intellectual property (e.g. knowledge management; learning capabilities). Although the capture element is indeed essential for managing innovation efficiently, mostly with insuring continuous
innovation capabilities to the firm, we found it rather difficult to apply it in this comparison, due to the fact that it is somewhat intangibly oriented.

Unfortunately, the actual details of their business model, as well as the risk management process conducted, could not be incorporated in the thesis due to confidentiality matters.

In that respect, in Appendix 3 we present our findings associated with the case studies performed as part of the NEWGIBM project (see Chapter 3 for more details), which suggested various differences, and possible challenges, between firm-level and network-level business model innovations.

Strategy, culture and leadership are just three factors identified in the literature to enhance the success of innovation processes. Other factors may include for example the management processes of intangible assets (e.g. intellectual capital and knowledge management). Tidd and Bessant (2009), for example, refer to this as the “Capture” phase of the innovation process. Yet, we have found it difficult explicitly to position intangible values in the business model template. One way to resolve this issue would be to use the “culture and leadership” criteria as the platform for the development of an additional, sub-model template, characterized as a “knowledge-based business model” (e.g. The Kaieteur Institute for knowledge management). This issue, however, is still under research.