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**SCHOOL OF BUSINESS, ECONOMICS AND LAW**

Master Degree Project in Innovation and Industrial Management

## **Innovations Unchained**

Open innovation within a closed system

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**Innovations Unchained:**

*Open Innovation within a closed System.*

By

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This master thesis project has been written as part of the M.Sc. program “*Innovation and Industrial Management*” at the University of Gothenburg – School of Business, Economics and Law in Sweden. The thesis was developed within a thesis work employment. No part of this thesis may be reproduced without permission by the author.

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## **Abstract**

### ***Purpose***

The following master thesis addresses research on and around the topic of open innovation within a closed system. This paradox will be analyzed upon a corporation which is part of a group of brands that act and operate in a similar industry. It addresses the opportunities and possible synergies which could be captured if the underlying group would open up their innovation processes towards each other. The thesis aims to provide understanding of how innovations and ideas at the different brands are managed and outlines how a transfer of innovations could be established. The focus lies on the transfer of innovations to and from *BRAND A* towards other brands within the group.

### ***Background***

The following thesis is part of the Master Degree Project within the M.Sc. program “*Innovation and Industrial Management*” at the University of Gothenburg – School of Business, Economics and Law in Sweden. The thesis was conducted within a thesis work employment at the *Innovation Management* department of *BRAND A*.

### ***Literature Review***

The research conducted for the thesis includes a literature review which assessed and analyzed relevant academic as well professional literature. The literature review has the purpose of providing a theoretical overview as well as identifying research white spots, from which theory and practical implications for the transfer of innovation, were derived. These theoretical findings were later used and consolidated with the empirical findings in order to draw a general conclusion.

### ***Methodology***

For the empirical research a qualitative method approach was chosen. Hereby, a focus group interview was performed, which was used to develop an interview guide in order to carry out semi structured qualitative interviews with key employees at different brands. The empirical data collected was analyzed, by applying an analysis, inspired by the grounded theory. The outcome helped to verify or falsify the implications drawn upon the theoretical research, and led to a general conclusion, implication and recommendations for *BRAND A*.

### ***Main Results***

The master thesis has shown that open innovation is not just a tool or method which firms can apply in order to integrate external ideas within their own innovation process. Open innovation can be considered a philosophy rather than a method. The theoretical research has shown, that open innovation can be used to explore and internalize new sources of innovation. Moreover, the master thesis has revealed that open innovation within the closed system of the *GROUP* can be an applicable framework which helps to use synergies and increase the success of innovation activities. In conclusion, there are three main ways to implement open innovation within the closed system and to transfer innovation: (1) *an innovation data-base*, (2) *multi-brand-workshops*, (3) *an online innovation community*.

### ***Keywords***

*innovation management, innovation process management, innovation transfer, open innovation, closed innovation, innovation diffusion, knowledge transfer, tacit and explicit knowledge, collaboration and cooperation, partnership, new product development, cross-industry-innovation*

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**Tillman Rödle**

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## List of Abbreviations

<i>IM:</i>	<i>innovation management</i>
<i>IP:</i>	<i>intellectual property</i>
<i>KPI:</i>	<i>key performance indices</i>
<i>NIH:</i>	<i>not-invented here</i>
<i>NPD:</i>	<i>new product development</i>
<i>NSH:</i>	<i>not-sold-here virus</i>
<i>OEM:</i>	<i>original equipment manufacturer</i>
<i>OI:</i>	<i>open innovation</i>
<i>R&amp;D:</i>	<i>research and development</i>
<i>SOP:</i>	<i>start of production</i>
<i>USP:</i>	<i>unique selling proposition</i>

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## 1 Introduction

*“If we make the best use of internal and external ideas, we will win.”*

(Chesbrough, 2006, p. xxvi)

Competition today is shaped and affected by continuous technological change, and globalization. One way to maintain a stable competitiveness and to establish a sustainable competitive advantage is to ensure and manage innovation. A corporation's innovativeness can be a key factor of its market success and ensure stable growth. But as more and more firms pay attention towards innovation and its management, it is still hard, if not impossible; to always make the right choices in terms of innovation and new product development while having limited resources. Often it is just impossible to be innovative and take a market lead on all fields without specializing and prioritizing research funds. Therefore, corporations do not only rely on their own internal innovation capabilities and move away from the old closed innovation paradigm, that says “[...] *successful innovation requires control.*” (Chesbrough, 2006, p. xx)

Managers used to think: “*If you want something done right, you’ve got to do it yourself.*” (Chesbrough, 2006, p. xx) But nowadays, opening up innovation processes and internalizing ideas and innovations from outside the companies is seen as a valuable source of innovation. The so called open innovation paradigm enables corporations to focus on their own R&D efforts without losing track of different approaches and solutions outside their point of view and R&D efforts.

However, if the context of innovation shifts from a closed setting towards an open paradigm, there is a need for change within corporate culture and the innovation process as well. One important aspect within this shift is that there is a rising attention towards business model and business model innovation. These can be useful frameworks to link technical decisions to economic outcomes which make an invention to an innovation. (Chesbrough, 2006, p. 63) Therefore, the thesis will address also the implication for corporations of business models and the opportunities within open innovation.

Despite the advantages of open innovation, it is often criticized by authors and organizations as well. Many organizations fear the openness will lead to the leakage of intellectual property, and unplanned disclosures of vital information. Moreover, open innovation is seen

as a bureaucratic limitation, since it involves a lot of coordination and drives away attention from the actual innovation process. Furthermore, open innovation is often seen as a hurdle towards the protection of innovative ideas and, therefore, threatens possible first-mover advantages. These factors discourage executives to increase managerial attention towards open innovation. They favor the old paradigm of relying only on internal R&D and innovation activities even though a balanced approach would be a driver for a successful innovation management approach.

However, taken into consideration one could diminish the disadvantages of an open innovation paradigm while fostering the advantages; open innovation would create value and profit for a corporation and would help develop a sustainable competitive advantage. One way of accomplishing such an approach, would be to apply open innovation within a closed environment. Therefore, organizations could open up their innovation processes and activities while keeping the control over the flow of information and the level of disclosure.

The following thesis will address the opportunities and challenges for the approach of an open innovation system within the closed environment of a corporate group. The thesis will also discuss the opportunities *BRAND A* can use and foster by transfer innovations within the closed borders of the *GROUP*, which it is part of.

## 1.1 Background

The thesis is written in cooperation with *BRAND A*, which is a European based industrial organization. *BRAND A* is a full entity of a *GROUP* which is also a European based industrial organization with over ten brands.

To meet new challenges and customer expectations, *BRAND A* executed the set-up of its new innovation management system with the goal to support clear brand positioning, creating a well-defined innovation profile and the focused usage of R&D resources. The project of setting-up an innovation management has been a project within a number of other restructuring projects which had support and commitment from upper management. With this new innovation system in place, *BRAND A* and the *GROUP* have the unique opportunity to use synergies and transfer innovation by the establishment of an open innovation process within the closed system of the *GROUP*. This allows interchanging ideas or concrete innovations and building economies of scale in the pre-development and using synergies and preventing double efforts while diminishing the risk combined with open innovation.

As *BRAND A* is part of over ten brands within the corporate *GROUP*, it would be possible to set up an open innovation system within a closed environment. To foster the opportunities coming with this large group of firms in terms of innovation management as well as R&D activities, the *GROUP* needs to ensure that synergies are used. Next to a coordination of strategies, and the collaboration in procurement, it is important to steer and control as well as cooperate in the management of innovation. As stated before, one way of doing so, would be the establishment of an open innovation system within the closed environment of the *GROUP*.

## 1.2 Research Question

To achieve the purpose and goals of the master thesis the following research question and sub research question shall be answered:

***“How can innovations be transferred between BRAND A and the GROUP?”***

- *How is open innovation applied today?*
- *How are innovations managed at the different brands within the GROUP?*
- *What are key success factors of innovation transfer?*

The thesis aims to provide an understanding of how innovation could be transferred between *BRAND A* and the *GROUP* it is part of. In order to answer the main research question, the thesis will outline how open innovation is applied and how innovations are managed at different brands within the group today. This aims to identify a possible processes of selecting innovations and partner for open innovation. Furthermore, it will provide information on how to align the management of innovation within the *GROUP*. In order to actually implement the transfer of innovation, the research will analyze factors of success for the process. Last but not least, the identification of possible processes and methods to actually implement the transfer of innovation and the set-up of open innovation within the closed system of the *GROUP* will be investigated.

## 1.3 Structure of the Thesis

The thesis is applying different methods to achieve the goal and purpose of the research and to answer the research question, all relying on a qualitative research paradigm. First of all, the following thesis will cover the literature review within the theoretical research to gain better understanding and holistic knowledge about relevant frameworks and concepts in innovation

management and other applicable fields. Following, an extensive description of the chosen methodology will be given. Afterwards, the findings of the empirical research will be presented and discussed. Next, the analysis will combine findings from both the theoretical and empirical research in order to draw conclusions. Hence, the individual cases will be analyzed upon the similarities and differences towards the theoretical findings, and a cross case will be performed. Finally, the thesis will answer the research questions, provide an overall conclusion, and give practical implication and recommendations followed by limitations and recommendations for further research.

## **2 Theoretical Research: Literature Review**

The following chapter provides a review of relevant literature in innovation research. To address the overall purpose of the thesis, the theoretical research will aim to analyze concepts of innovation management, open innovation, transfer of knowledge as well as transfer, diffusion of innovation, and cooperation and innovation.

The literature review has the purpose of providing a theoretical overview as well as identifying research white spots from which implications, hypotheses as well as syntheses were derived. The chapter will establish the theoretical framework which will, later within this thesis, be consolidated with the empirical findings, from which a new theory, a general conclusion and implications will be derived.

For the literature review the following keywords were used:

**Keywords:** *innovation management, innovation process management, innovation transfer, open innovation, closed innovation, innovation diffusion, knowledge transfer, tacit and explicit knowledge, collaboration and cooperation, partnership, new product development, cross-industry-innovation*

### **2.1 Theoretical Framework: Innovation Management**

The challenge and importance of successful innovation management can be summarized by the following: *“Get it right and firms create value and profit, develop sustainable competitiveness, and become vibrant, fun places to work, attracting and retaining the most productive and creative staff. Get it wrong and firms can face serious, and perhaps terminal, problems through losing money, workers, and reputation.”* (Grant R. M., 2010, p. 1)

With this in mind, the following section will cover academic background on the theory of innovation management. It will explain the main elements of innovation management as well as define and distinguish innovation and invention. It will also address, and describe types and degree of innovation as well as innovation process management in theory. Moreover, it will provide an overview of sources of innovation, innovation strategy and the cross-industry-innovation management.

### 2.1.1 Definition: Innovation and Invention

One of the most difficult tasks, when researching on innovation management, is to explain what an innovation is. Defining it with a simple and single definition is a difficult, if not an impossible, task to do. As Kline and Rosenberg point out, innovation is neither a well-defined nor homogeneous nor linear process which can be captured to a certain moment of time. *“The process of innovation must be viewed as a series of changes in a complete system not only of hardware, but also of market environment, production facilities and knowledge, and the social contexts of the innovation organization.”* (Kline & Rosenberg, 1986, p. 275)

Single innovations are often the outcome of a long process within a series of interrelated innovations and inventions all combined in a system. (Kline & Rosenberg, 1986, p. 6) Generally, innovations and inventions are continuous processes which often result from the incorporation of countless different inventions and innovations. Hence, a product as we know it today, might be radically improved compared to the first models of its kind, due to many incremental changes and radical innovations during the decades. (Fagerberg, 2005)

However, in order to come closer to a definition, one should always distinguish the terminology “innovation” from the term “invention”. While an *“[i]nvention is the first occurrence of an idea for a new product or process [...]”* (Fagerberg, 2005, p. 4), an innovation can be defined as the first attempt to carry out the invention into practice. Despite the distinction, invention and innovation are often closely linked to each other. However, in most of the cases there is a time lag between them, which indicates the different requirements and infrastructure needed for the creation and the implementation of ideas. (Fagerberg, 2005, pp. 4-5)

Even though innovation is hard to define, a commonly used and known definition is given by the Oslo Manual:

*“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing, or a new organizational method in business practices, workplace organization or external relations.”* (OECD/Eurostat, 2005, p. 46)

To support and illustrate the statement concerning the complexity of defining innovation, the following table is providing an overview on a few other definitions given in the relevant literature:

**Table 1: Definitions of Innovation**

<i>Definition</i>	<i>Author</i>
<i>“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing, or a new organizational method in business practices, workplace organization or external relations.”</i>	(OECD/Eurostat, 2005, p. 46)
<i>“The strategic stimulus to economic development in Schumpeter’s analysis is innovation, defined as the commercial or industrial application of something new – a new product, process, or method of production; a new market or source of supply; a new form of commercial, business, or financial organization.”</i>	(Schumpeter, 1934, p. xix)
<i>“Innovation is much more than invention - the creation of a new idea and its reduction to practice – and it includes all the activities required in the commercialization of new technologies.”</i>	(Dodgson, Gann, & Salter, 2008, p. 2)
<i>“An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption.”</i>	(Rogers, 2003, p. 12)
<i>“To me, innovation means invention implemented and taken to market. And beyond innovation lies disruptive innovation, which actually changes social practices – the way we live, work and learn.”</i>	(Chesbrough, 2006, p. ix)

Nevertheless, most definitions have certain core elements in common with the preferred definition given above by the Oslo Manual.

### **2.1.2 Types and Degree of Innovation**

With this in mind, one shall also define the different extent and types of innovation. For instance, it is important to understand the difference between radical and incremental innovations. The terminologies radical and incremental describe the extent to which something such as a technology, has changed as well as the degree of novelty of an innovation. (Dodgson, Gann, & Salter, 2008, p. 54) In more detail a “[r]adical innovations



*include breakthroughs that change the nature of products and services, such as synthetic materials, and may contribute to the 'technological revolutions' [...]*". (Dodgson, Gann, & Salter, 2008, pp. 54-55) Incremental innovations on the other hand "*[...] include the 'million little things' that involve minor changes to existing products, which cumulatively improve the performance of products and services.*" (Dodgson, Gann, & Salter, 2008, p. 55)

According to the Oslo Manual, one can also distinguish between four main types of innovation: (1) product innovations, (2) process innovations, (3) marketing innovations and (4) organizational innovations. (OECD/Eurostat, 2005, pp. 47 - 51) Additionally, literature suggests further types, such as service innovations or business model innovations. Again this suggests the diversity of the term innovation and its usage within academic and non-academic literature.

Another dimension in terms of types of innovation is called continuous or discontinuous innovation, describing whether an innovation affects a current way of doing things or disrupts a process or habits. By enhancing discontinuous innovations, corporations can overcome a typical dilemma, and sustain existing success as well as explore new technologies and ways of thinking. (Dodgson, Gann, & Salter, 2008, p. 55)

An additional distinction one should look at is whether an innovation is architectural or modular. Modular innovations occur in components and subsystems without affecting or addressing the system which they may be part of. On the other hand, architectural innovations aim for a systemic improvement and do not focus on subsystems and components. (Dodgson, Gann, & Salter, 2008, p. 56)

All above elaborate on the complexity and diversity of the terminology innovation. As it is a very diverse, all-purpose framework within its core, it has to be adapted for each purpose, product, service and organization or industry.

### **2.1.3 Innovation Process Management**

*"Managing the execution of high and super-high system projects requires more than just detailed planning tools and sufficient technical and engineering skills."* (Shenhar, 1998, p. 42)

When talking about innovation processes, there are as many approaches as there are definitions for the term innovation. But as stated in the quote above, a proper process is vital

for the management of innovation. In theory, some literature refers to process models with four phases, other literature to models with up to ten. (Hartschen, Scherer, & Brügger, 2009, p. 11) Nevertheless, authors all agree that the steering and management of innovation processes are necessary if a corporation wants to sustain their innovativeness and growth.

Moreover, clear structured and defined processes are the guarantor for successful projects. However, for innovation and R&D processes, the effect is not as significant as for other projects. Innovation projects face a relatively high level of uncertainty. Nevertheless, a clear and structured innovation process can help minimizing the risk and help to execute projects successfully. (Gassmann & Sutter, 2011, p. 55)

As the quote above already indicates, the steering of processes is an important activity within an organization in general. It should not just end in itself, but rather help to organize different intellectual as well as physical activities. The steering of an innovation process has two main purposes, firstly to fulfill the innovation target, and secondly to keep the project within the economical boundaries, e.g. the budget. (Hauschildt & Salomo, 2011, p. 305) Hauschildt and Salomo further differentiate between tools of process steering, the basic elements of a project, and the fine-tuning. The basic elements of a project on the one hand, can be understood as the general purpose and are concentrated around the input and output side of a project. Examples for the basic elements within the input are project goals and project deadlines. On the output side, basic elements are resources and procedural steps. (Hauschildt & Salomo, 2011, pp. 305-306) Combined, the steering of innovation processes has the purpose to make the new product development efficient and effective by leveraging the instruments within it.

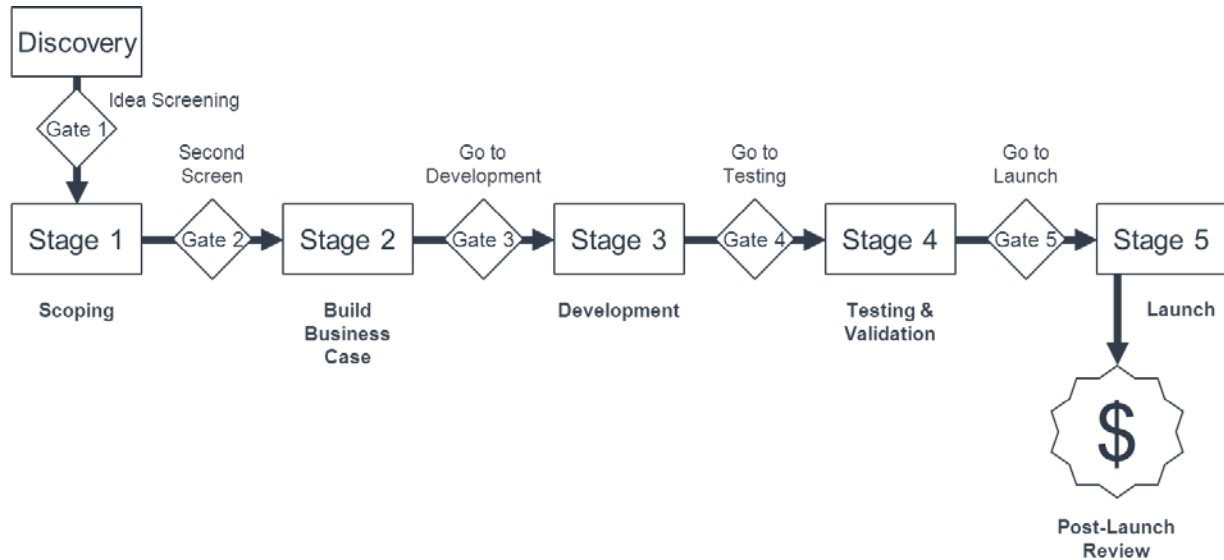
Many authors refer, when talking about innovation process management, to Cooper's stage gate models. The innovation process is hereby divided into different phases or stages and gates. A stage gate model is a blueprint for managing new product development. It consists of a series of stages, with each stage having a clear definition of task to be performed. These stages are followed by gates, which imply a decision of "go" or "no go". Meaning, at a gate it is to decide if an innovation project shall be continued or killed. (Cooper, 2008, pp. 214-215)

*"Fail earlier, succeed sooner."* – Michael Dell (Founder Dell Inc.)

An important feature of the stage gate model is that killing a project is actually a good thing since it allows a company to focus on more important or more innovative projects and

prioritizing its R&D efforts. The following figure illustrates a typical stage-gate system within new product development:

Figure 1: An Overview of a Typical Stage-Gate® System for Major NPD



Developed from: (Cooper, 2008, p. 215)

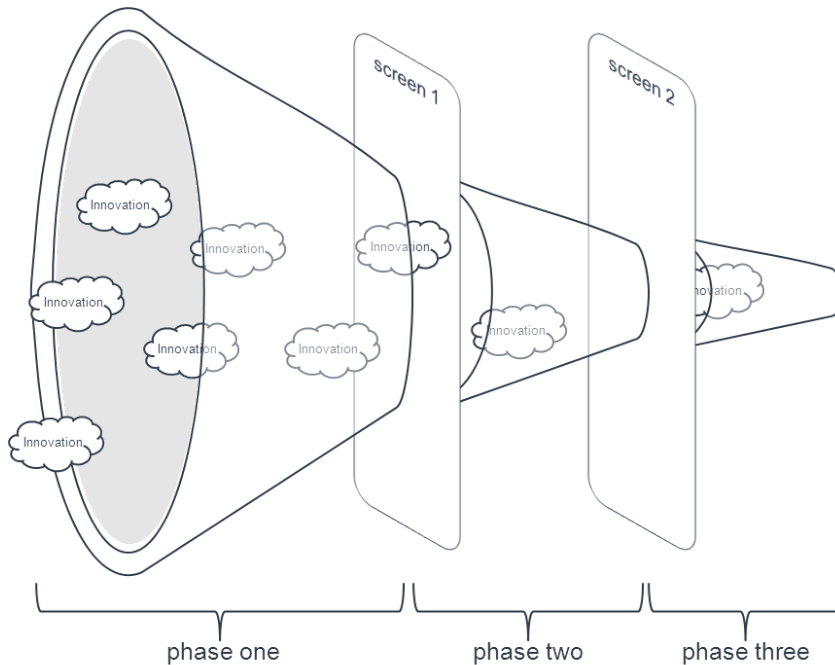
The main reason for using a stage gate approach, as the one above, is to split a project into smaller phases and tasks in order to reduce economical risk, improve and speed up the process of new product development. By doing so, a company has to keep in mind that there is a trade-off between risk with the size of the solution space and freedom within the development. (Hauschildt & Salomo, 2011, p. 310) The stricter a process is design the smaller is the freedom within the project outcome.

In the stage gate model above, Cooper starts his process with the discovery, the stage in which an idea screening takes place. This is followed by scoping activities; next a business case will be built around the idea. If it passes the gate, it will move on to the actual development, the testing and validation activities. The fifth and final stage is the launch of the new product or service. Cooper also incorporated a post launch review within his stage gate model.

In this example of a stage gate model for new product development, the author describes the process and journey from the ideation until the launch of the product. (Cooper, 2008, p. 215) Other authors suggest that after the stage gate process other processes will follow. Nevertheless, as said before, the main purpose of an innovation process such as the Cooper's stage gate model is to reduce economical risk and focus on R&D activities.

Often, the innovation process is also illustrated as a funnel since its main purpose is to reduce innovation projects to the once vital and promising. The figure below shows a typical innovation process illustrated as a funnel.

**Figure 2: Innovation Funnel**



*Developed from:* (Wheelwright & Clark, 1992, p. 124)

Innovation funnels simplify a typical innovation process within many organizations. Each innovation funnel is affected and adopted by the way a firm wants to identify, screen, and review an innovation in order to decide which innovation project originates from an idea to a new product. A main aspect of the innovation funnel, representing an innovation process, is that it is shaped as a funnel, meaning an organization needs to expand its knowledge base and access to information in order to increase the number of new ideas and innovations. While opening up the input and evaluating many ideas the funnel needs to narrow its neck. After steering in, conceptualizing and generating new ideas, the funnel helps to screen and focus R&D activities and resources on projects. The screening is based on a set of criteria which have to be established and to fit the organization's strategy, resources and capabilities. (Wheelwright & Clark, 1992, pp. 111-113)

#### **2.1.4 Source of Innovation**

An important part of understanding the management of innovation is to understand the source of innovation. Generally, innovation can have different sources, such as the recombination of

technologies and other forces as identified by Schumpeter: *“To produce other things, or same things by a different method, means to combine these materials and forces differently.”* (Schumpeter, 1934, p. 65) As Schumpeter describes, a key to new product or service innovations can be the combination of existing methods or forces. Here, a clear link to the purpose of the research can be identified.

In order to find new combinations as such, which lead to innovations, the integration of knowledge from different sources within the firm as well as external sources are required. The latter could be achieved by the integration of consultants, customers, suppliers, or universities and research institutes. (Dodgson, Gann, & Salter, 2008, p. 69) However, it can be all captured under an open innovation approach.

Theoretically, there are two main impulses which can act as a source of innovation, the so called market pull and technology push. Market pull, which is also known as demand pull, mainly concerns the satisfaction of customer needs. It aims to solve needs and problems and is initiated by individuals or groups who are able to articulate the underlying demands. (Brem & Voigt, 2009, p. 355) In organizations, these activities are commonly, but not only captured by sales and product managers.

Technology push can be defined as the stimulus which is initiated by internal or external research. In contrast to market pull, there is often no need for the underlying technical solutions. Therefore, technology is “pushed” into commercialization to make economic use of it. Due to the novelty, innovations that originated from technology push are often radical innovations, whereas market pull innovations often occur as incremental. (Brem & Voigt, 2009, p. 355)

In order for a firm to generate a sustainable innovation portfolio, it is important to find balance between market pull and technology push. Focusing simply on technology push for instance could lead to a so called *“lab in the woods approach”* (Brem & Voigt, 2009, p. 355), where the organization would lose its connection to what the customer actually demands. And as stated before, the core of any innovation is the commercialization. Otherwise, paying only attention towards what the market *“pulls”*, would lead to less radical innovation and less opportunities of differentiation. Henry Ford’s popular quote concludes this perfectly:

*“If I had asked people what they wanted, they would have said faster horses.”*

- Henry Ford

### 2.1.5 Innovation Strategy

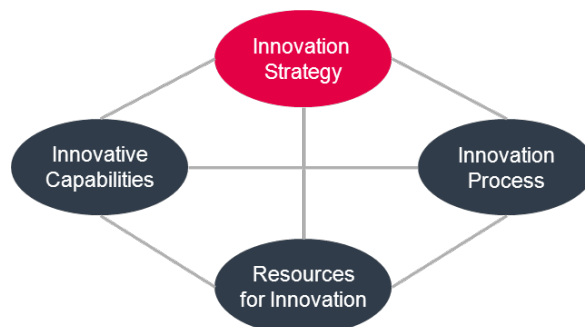
Another main category within innovation management is the innovation strategy a company can define for itself. *“An innovation strategy guides decisions on how resources are to be used to meet a firm’s objectives for innovation and thereby deliver value and build competitive advantages.”* (Dodgson, Gann, & Salter, 2008, p. 95)

Main duties of an innovation strategy are to assist a company when making strategic choices, prioritization, and decision about sequences. It shall match up new product development R&D objectives with the overall corporate objectives. In contrast to the overall business strategy of a corporation, an innovation strategy needs to comprehensively address uncertainty. (Dodgson, Gann, & Salter, 2008, pp. 94-95)

Many authors explain business strategy as an analogy to military strategy. One can distinguish between strategy and tactics in a military point of view as well as in a business sense. Within an innovation perspective, tactical matters refer to the improvement of operations, the management of R&D activities and how new products are to be developed. Strategic issues focus on the identification of a distinctive competitive advantage by assessment of the firm’s environment, e.g. technology and competition as well as other external opportunities and challenges. (Dodgson, Gann, & Salter, 2008, p. 95)

Unlike mainstream business strategies, an innovation strategy cannot simply rely on conventional analysis frameworks such as Porter’s five forces industry analysis. Due to the complexity of innovation and uncertainty, search and responsiveness become key factors and determinators of a successful innovation strategy. (Dodgson, Gann, & Salter, 2008, pp. 95-96) Figure 3 illustrates a simple model of innovation strategy with four interrelated elements which are involved in the process.

Figure 3: A simple model of innovation strategy



*Developed from:* (Dodgson, Gann, & Salter, 2008, p. 96)

In detail, the model above consists of the innovation strategy, the innovation process, the resources available for innovation and the innovative capabilities. All these elements form and influence a firm's innovation strategy and are interrelated. The innovation strategy itself often includes a target, the existing innovation efforts, the context in which the firm operates and the fit with the overall corporate strategy. The innovation process is a tool used to achieve the goals set by the innovation strategy. The innovation strategy can also determine which innovation process is most applicable to the firm's needs and resources. As discussed in 2.1.3 these processes can be relatively simple or complex, centralized or decentralized, etc. The resources for innovation are the available and dedicated assets a company owns or to which it has access. Examples would be financial resources, human resources, technological resources, etc. The last element which forms an innovation strategy is the innovative capability which is defined as the "[...] *capacity of an organization to purposefully create, extend, or modify its resource base [...]*". (Dodgson, Gann, & Salter, 2008, p. 96) In a nutshell, it enables and guides the assets and resources to be assessed, configured, and reconfigured. Summarized, the innovation strategy assists to pay attention on how capabilities, processes, and resources are best applied and developed in order to meet the overall corporate objectives. (Dodgson, Gann, & Salter, 2008, pp. 96-98)

Generally, innovation strategy is stated as very important in the academic literature due to its capacity to generate corporate value. For instance, innovations are considered as a key source of competitive advantages. Also, activities which are complex as R&D, product and service innovation can hamper a competitive position within the market if performed poorly. (Dodgson, Gann, & Salter, 2008, p. 99)

One can conclude that defining an innovation strategy can improve and help to capture market value, structure R&D activities and access a competitive advantage. Moreover, it helps to structure innovation management activities and match these with the overall business strategy as well as other targets.

## **2.2 Theoretical Framework: Open Innovation**

*"Open innovation means that valuable ideas can come from inside or outside the company and can go to market from inside and outside the company as well."* (Chesbrough, 2006, p. 43)

Unlike in the past, researchers nowadays suggest that firms need to adopt more porous and plastic models of innovation. Being open to external sources of innovation, technologies or simply ideas may enhance competitiveness by more fluid interactions between internal and external innovation activities. (Dodgson, Gann, & Salter, 2008, p. 67)

Otherwise, the old closed paradigm is best summarized by the following: “*Companies generate their own ideas and then develop them, build them, market them, distribute them, service them, finance them and support them on their own.*” (Chesbrough, 2006, p. xx)

The following section will cover a theoretical literature review on the topic of open innovation. The term and concept will be defined and the main concepts described. Moreover, the section will cover the concepts of technology spill over and the three archetypes of open innovation including the outside-in and inside-out processes.

### **2.2.1 Definition: Open versus Closed Innovation**

As it is for innovation, it is also hard to define the concept of open innovation in a single definition. Again, it is important to distinguish between two concepts - open and closed innovation. “*Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external path to market as the firms look to advance their technology.*” (Chesbrough, 2006, p. xxiv) In contrast, closed innovation is a model “[...], in which a company maintained complete control over all aspects of the innovation process and discoveries were kept highly secret.” (Lindegaard, 2011, p. 2)

### **2.2.2 Technology Spill over and Open Innovation**

Of all innovations created, about 80 % are re-combinations of already known knowledge, whereas only a small percentage is based on technological novelties and new developments. Therefore, the source or origin of many innovations is based on the new combination of already existing knowledge, expertise, technologies, and business models. In the past, these re-combination processes mainly took place within companies. By multidisciplinary teams and creativity workshops, firms try to make new usage of expertise and technologies already existing within the corporation. (Enkel & Horváth, 2010, pp. 293-294)

Due to shorter product life cycles and increasing competition, the practice to stay within the corporations’ borders is decreasing and companies evolves towards an insourcing outside the firms’ spheres of knowledge and technologies. An example for the spill-over of knowledge



and technology is the adaptation of BMW from the gaming industry for their *iDrive* navigation system. BMW adapted the intuitive architecture and HMI technology of gaming joysticks, which had already been developed with a large focus on easy and fast usage and intuitive practice. (Enkel & Horváth, 2010, p. 294)

In the last decade, a lot of corporations realized that traditional business and product development and the funding of R&D was unsustainable. Due to increasing cost of internal R&D and NPD, combined fierce competition, more and more companies use open innovation approaches within their R&D activities. (Brez, 2009, p. 21)

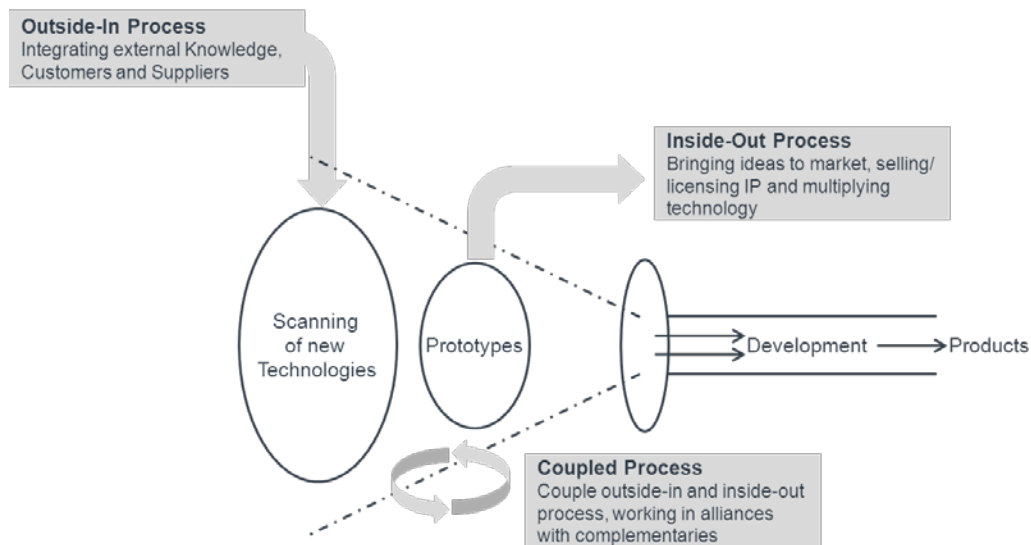
By talking about open innovations most authors understand the systematic usage of external sources for knowledge and research. Open innovation offers potential increase in efficiency and effectiveness for the development of product and service. Moreover, it can reduce the time to market or *SOP* (start of production) while reducing the financial risk of innovation projects. However, the efficiency of an open innovation system highly depends on the right degree between internal and external development. (Enkel & Gassmann, 2009, p. 6)

### **2.2.3 Three Archetypes of Open Innovation**

Analyzing the application of open innovation approaches, Gassmann and Enkel identified three archetypes of core processes, namely the (1) outside-in process, (2) inside-out process and the (3) coupled process.

The figure below shows the three archetypes of open innovation processes. Firstly, the outside-in process which is enriching the corporation's own knowledge and expertise by integrating suppliers, customers as well as external knowledge sources in order to increase the firm's own innovativeness. Secondly, the inside-out process which describes the spin-off and exploitation in external markets, other than the firm's current market, by selling IP multiplying technology by channeling ideas to the external environment. Last but not least, Gassmann and Enkel name the coupling process, which links outside-in and inside-out by incorporating alliances with complementary companies. (Gassmann & Enkel, 2004, pp. 9-14)

**Figure 4: Three archetypes of open innovation processes**



Developed from: (Gassmann & Enkel, 2004, p. 7)

As stated before, the figure above illustrates and summarizes the process archetypes of outside-in, inside-out, and the coupled process. The reality shows that many corporations such as IBM mainly used the outside-in process in order to increase the innovativeness. (Gassmann & Enkel, 2004, pp. 6-7) For the underlying research, the coupled process is to be considered most, since it allows the usage of elements from both the outside-in and inside-out process to increase innovativeness.

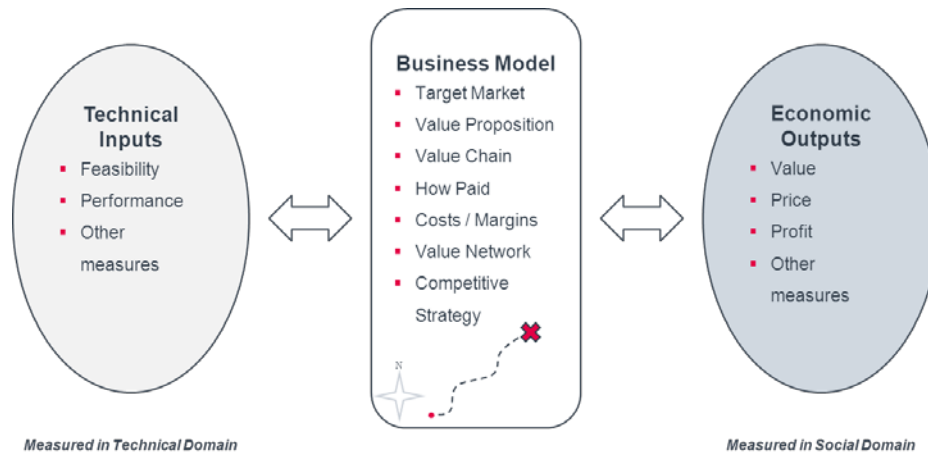
#### 2.2.4 Connecting internal and external Innovation

Chesbrough argues that companies which want to apply and exploit open innovation need to combine and connect internal research with external ideas, followed by a deployment of both their own business as well as the external businesses. Thereby, business models take a useful role as link of technical decisions to economic outcomes. (Chesbrough, 2006, p. 63) Moreover, Chesbrough explains: “Firms can create and capture value from their new technology in three basic ways: through incorporating the technology in their current business, through licensing the technology to other firms, or through launching new ventures that exploit the technology in new business arenas.” (Chesbrough, 2006, pp. 63-64)

However, in the case of *BRAND A* and other brands within the *GROUP*, another way to commercialize their innovations is to transfer, or spin-off, and offer the innovations and technologies to each other. Meaning, one could, if applicable, share the cost of development with other brands without giving up knowledge to externals.

Moreover, Chesbrough explains the importance of the appropriate business model. "[T]he firm's realization of economic value from its technology depends on its choice of business model, rather than from some inherent characteristic of the technology itself." (Chesbrough, 2006, p. 69) Business models can be understood as a cognitive map across domains. In the case of innovations, these domains are mostly the (1) technical domain, and the (2) social domain. The following figure illustrates this relationship. (Chesbrough, 2006, p. 69)

Figure 5: The Business Model as a Cognitive Map across Domains



Developed from: (Chesbrough, 2006, p. 69)

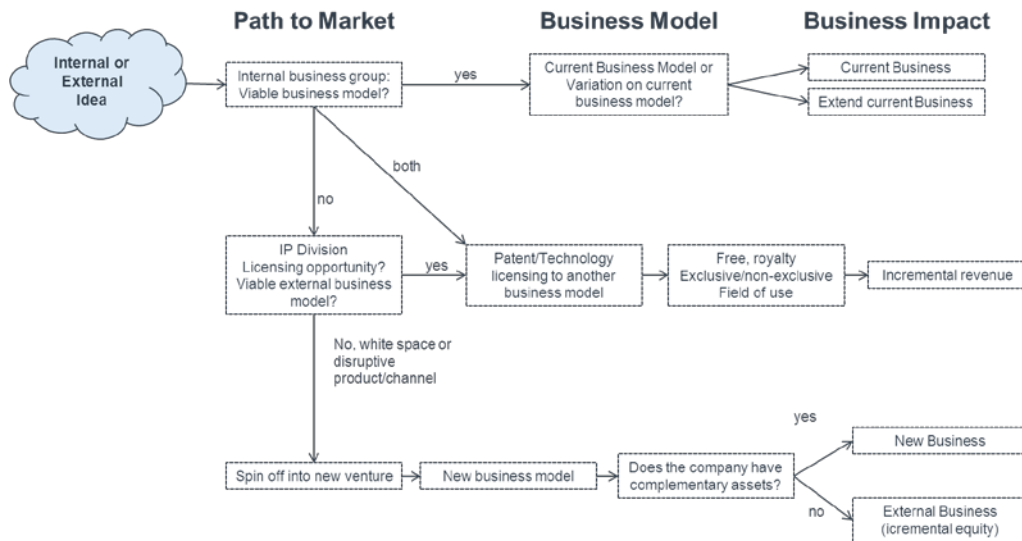
Moreover, he explains that managers tend to get trapped within their own cognitive filters and biases; they base decisions on whether an innovation fits to their current business model. Therefore, they tend to screen out information that conflicts with their current business model which leads towards a cognitive trap, resulting in the loss of business model opportunities. (Chesbrough, 2006, pp. 69-70)

Therefore, risky radical innovations combined with a wrong or inappropriate business model leads to a dilemma. Hence, corporations should always consider if a technical innovation automatically derives a business model or one needs to be created in order to exploit and commercialize the innovation. This entails the major challenge of making the transition from closed to open innovation. Innovations developed within an open innovation system often do not fit with the current sales strategies and business models. "If we're not selling it in our own sales channels, we won't let anyone else sell it either." (Chesbrough, 2006, p. 186)

Chesbrough summarized, a similar behavior as the one described above as the not-sold-here virus (NSH-Virus). Similar to the not-invented-here phenomena, the NSH-Virus limits corporations to make use of the inside-out process to its fullest. (Chesbrough, 2006, p. 186)

Therefore, it is always important to consider alternative paths to the market in terms of business model innovation. The figure below illustrates possible ways to market of internal as well as external ideas.

**Figure 6: Alternative Paths to Market**



*Developed from:* (Chesbrough, 2006, p. 188)

As described before, the business model can act as the intermediary between a technological innovation and its path to market and commercialization. In the figure above, an internal or external idea can fit the current business model, not fit the current business model, or somehow be in between. Depending on this fit, the business impact might be addressing the current business or requiring a new business. It suggests that next to commercialization by current sales channels, firms can also license out the patent or technology to another business model, or spin the idea off into a new venture. (Chesbrough, 2006, p. 187)

In conclusion, business models can be seen as the connecting link for open innovation. That means business model innovations can help generate revenue from the application of open innovation processes and therefore make them applicable and profitable.

### 2.3 Theoretical Framework: Transfer of Knowledge

The following section will provide basic understanding of the types of knowledge and processes of how knowledge can be transferred. It aims to elaborate the significance of how knowledge should be transferred and draw implications for the research question.

### 2.3.1 Definition: Knowledge and Knowledge Transfer

To understand the linkage between knowledge or knowledge transfer and the transfer of innovation, it is important to understand what these terminologies mean. The Oxford dictionary defines knowledge as “[f]acts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.” (Oxford Dictionaries, 2014)

In the literature, knowledge transfer in an organizational context is defined similar to knowledge transfer on a personal level in cognitive psychology. Therefore, one can define knowledge transfer in organizations as the “[...] process through which one unit (e.g., group, department, or division) is affected by the experience of another.” (Argote & Ingram, 2000)

In comparison, literature defines knowledge transfer at an individual level as “[...] how knowledge acquired in one situation applies (or fails to apply) to another.” (Argote & Ingram, 2000) In the following chapters, more similarities to individual knowledge are given when discussing the types and methods of knowledge transfer.

### 2.3.2 Types of Knowledge: Tacit and Explicit Knowledge

In order to understand organizational knowledge and its implications towards the transfer of innovation, one needs to distinguish between two different types of knowledge – tacit and explicit knowledge.

In the literature, tacit knowledge is defined “[...] as the knowledge that is non-verbalizable, intuitive and unarticulated. Tacit knowledge is learned through collaborative experience and is difficult to articulate, formalize and communicate.” (Cavusgil, Calantone, & Zhao, 2003, p. 8) Moreover, tacit knowledge can be further explained as “[...] ‘the knowledge of techniques, methods and designs that work in certain ways and with certain consequences, even when one cannot explain exactly why.’” (Alwis & Hartmann, 2004, p. 375) Moreover, “[...] tacit knowledge is highly personal and hard to formalize and therefore, difficult to communicate to others [...]”. (Alwis & Hartmann, 2004, p. 375)

Also, tacit knowledge can occur individually and collectively. For example, an employee’s schemes, habits, skills as well as abstract knowledge would be examples for individual tacit knowledge. Collective tacit knowledge is for instance a corporation’s routines and culture. (Cavusgil, Calantone, & Zhao, 2003, p. 8)

In divergence to what is defined above, explicit knowledge is “[...] *codified and transferable in formal, systematic methods, such as in rules and procedures.*” (Cavusgil, Calantone, & Zhao, 2003, p. 8) Similar to tacit knowledge, explicit knowledge can also occur as collective and individual. Hence, collective explicit knowledge is for example guidelines and other corporate rules, or standard procedures. Individual explicit knowledge is knowledge which is easily formalized, documented and can be taught in a fairly manner. (Cavusgil, Calantone, & Zhao, 2003, pp. 8-9)

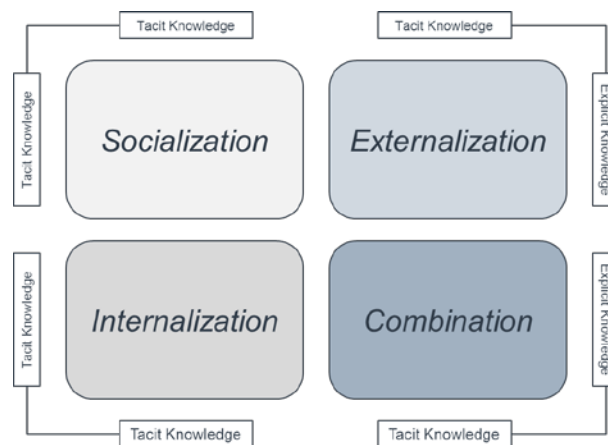
### 2.3.3 Knowledge Transfer

*“The most fundamental principle of knowledge management is that knowledge accumulation requires human beings to specialize.”* (Grant R. , 2001, p. 146)

Most literature implies that within knowledge transfer there are two main actors involved, first of all, a knowledge provider, and second of all, a knowledge receiver. However, other terminologies such as knowledge source, knowledge recipient, knowledge provider and knowledge seeker are also known. The knowledge transfer mechanism can be understood as a vehicle by which knowledge can be transmitted between actors who seek an exchange. As much attention as paid to the transmission mechanism should also be paid to the incorporation of knowledge as well as the storage and administration. (Jasimuddin, Connell, & Klein, 2012, pp. 197 - 198) A sustainable knowledge management can insure the success of knowledge transfer.

To insure the success of knowledge transfer one needs to influence success factors. In literature it is argued, “[...] *that the learning intent of a firm is a key determinant of inter-firm learning because the stronger the intention to learn, the higher the chance that knowledge will be transferred [...]*”. (Lawson & Potter, 2012, p. 1231) Hence, one can define the learning intent as the desire of a recipient to learn and incorporate new knowledge from its provider. This means that in order to increase the success of knowledge transfer, one needs to increase the motivation of the receiver to actually incorporate knowledge.

**Figure 7: Nonaka's four Modes of Knowledge Conversion**



Developed from: (Spencer, 1997, p. 1)

As described before, depending on the type of knowledge, the process or approach of learning needs to be adapted. The figure above illustrates Nonaka's four modes of knowledge conversion. If knowledge needs to be converted, one could apply Nonaka's framework.

For instance, the process of transferring tacit knowledge from one individual to another can be performed by socialization. The process to convert tacit knowledge into explicit knowledge is called externalization, which represents the next step. It entails for example the articulation of an individual's own tacit knowledge, e.g. images or ideas into words and pictures or analogies. Once knowledge is explicit, it is easier to transfer as a combination. Last but not least, Nonaka describes the process of understanding and translating explicit knowledge into tacit knowledge, which he calls internalization. (Spencer, 1997, pp. 1-2)

#### 2.3.4 Implications for Transfer of Innovation

*"Knowledge Transfer is vital to innovation, and for competitiveness."* (Weidenfeld, Williams, & Butler, 2010, p. 604)

Incorporation and collaboration with key partners, such as suppliers, in new product development has become more important. Integrating such partners in the product development and innovation processes is always connected and highly depends on the ability of an organization to share knowledge with another. (Lawson & Potter, 2012, p. 1229)

Furthermore, Alexander and Childe explain: *"One source of innovation can be the transfer of knowledge across groups or networks of companies and organisations, [...]."* (Alexander & Childe, 2012, p. 208)

Moreover, many firms find it difficult to actually absorb the knowledge they want to transfer from another corporation outside its own boundaries. Absorptive capacity can be defined as *“the ability to value, assimilate, and apply new knowledge [...]”*. (Lawson & Potter, 2012, p. 1232) The importance can be highlighted by the empirical evidence, *“[...] that firms possessing high levels of absorptive capacity are more likely to experience lower transfer costs and a faster speed of knowledge transfer [...]”*. (Lawson & Potter, 2012, p. 1232)

It can be concluded that knowledge transfer is a difficult task to actually perform successfully. One could see that there is a difference in the type of knowledge, either tacit or explicit knowledge, connected with a different complexity of the transfer. Furthermore, the success of a transfer of knowledge depends on the absorptive capacity and the leaning intent of the recipient. All these components should be kept in mind when one attempts to transfer knowledge within innovation processes and new product development.

## **2.4 Theoretical Framework: Diffusion of Innovation**

This section will review relevant literature on the field of diffusion of innovation. The goal is to provide an overview of common frameworks and basic understanding in order to derive implications for the research question.

### **2.4.1 Definition: Diffusion of Innovation**

As this thesis discusses the sources of innovation, one should also address the diffusion of innovation as such. Diffusion of innovation can be defined as: *“Diffusion is the process in which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system.”* (Rogers, 2003, p. 11)

### **2.4.2 The Diffusion Process of Innovation**

The definition given above is the most influential model and theory around diffusion of innovation and origins from Rogers. Generally, he describes the diffusion as a process by which innovations are adopted and used by others. His model emphasizes on the product-lifecycle and on the general diffusion of new ideas, practices, and habits. (Dodgson, Gann, & Salter, 2008, pp. 86-87)

Rogers elaborates that the *“[...] innovation-decision process [...] [is] the way in which an individual or other decision-making unit passes from first knowledge of an innovation, to forming an attitude towards it, deciding to adopt or reject it, implementing and using it, and*



*confirming the decision.*” (Dodgson, Gann, & Salter, 2008, p. 87) Moreover, within this decision process five stages are to identify, namely knowledge, persuasion, decision, implementation, and confirmation. (Dodgson, Gann, & Salter, 2008, p. 87)

Aligned with the theory of the S-curved product-life-cycle, there are different patterns of adaption of innovation over time. Initially, there is low attention towards innovation and new ideas, after this period of awareness building, a phase of acceleration follows and the innovation becomes popular. This stage is followed by a saturation phase, emphasized by the end of the S-curve as the market or industry matured. (Dodgson, Gann, & Salter, 2008, p. 87) Rogers’ model of diffusion is described in the literature to base on two elements which affect the diffusion of an innovation mainly: *“the technical features of the innovation itself and the social factors that shape the decision to adopt. These two aspects interact and mutually shape each other, determining the diffusion path.”* (Dodgson, Gann, & Salter, 2008, p. 87)

In general, for society as well as for companies, the literature distinguishes between three pillars on which the success of an introduction of an innovation, (e.g. product, process, or service) rests. These pillars include the diffusion (1), the invention (2), and the commercialization (3). (Hall, 2005, p. 478)

Furthermore, for the underlying research of this thesis, it is most important to look at the different elements of a typical diffusion process. Rogers differentiates between four different main elements of the diffusion process, namely innovation (1), communication channels (2), time (3), and the social context (4). (Rogers, 2003, pp. 12 - 24)

If and when an individual or a corporation decides to adopt an innovation is determined by the traits of the adopter. Rogers’s model characterizes adopters into six categories: innovators, early adopters, early majority adopters, late majority adopters, and laggards. In the literature, the diffusion also focusses on the factors that influence the choices and abilities of adopters. (Dodgson, Gann, & Salter, 2008, pp. 88-89) Hereby is meant, that the willingness and ability to adopt and to learn is influenced by the *“[...] skills, motivation, and capabilities rather than the fundamental properties of the innovation itself.”* (Dodgson, Gann, & Salter, 2008, pp. 88-89)

Additionally, as analog to the theoretical framework of the transfer of knowledge, also for the diffusion of innovation it is important to examine the incentive of the adopter. As for organizations, one of the main reasons to adopt from others within a competitive market is to

maintain profitability, market share and position. Moreover, a “[...] *non-adoption of an innovation that is adopted by other organizations in the market environment may result in competitive disadvantage.*” (Talukder, 2014, p. 15) Generally, the incentive to adopt an innovation is stimulated by the strategic importance and potential implications for efficiency and effectiveness for the organization. (Talukder, 2014, p. 15)

### **2.4.3 Implications for the Transfer of Innovation**

Discussing the diffusion of innovation, it is important to understand that it is also seen as a source of innovation for both society as well as corporations. By adapting innovation from others - e.g. competitors or even a different industry - companies could introduce new products and extend their portfolio with lower risk. For some companies it is even a valid strategy to never be the first to market but rather to be the fast follower. This might decrease the potential to differentiate but also reduces risk of failing on new product development.

But as for society, also valid for corporation, there will be no diffusion without an actual invention. (Hall, 2005, p. 479) This again shows the connection and dependence of innovation and invention, and that a single focus to be fast follower might not lead to being innovative.

## **2.5 Theoretical Framework: Innovation Cooperation and Cross-Industry-Innovation**

*“Coming together is a beginning; keeping together is progress; working together is success.”*

– Henry Ford

The following section will discuss the frameworks and literature around innovation cooperation and cross-industry-innovation. It will help to define the terminologies and analyze its implications for the research focus.

### **2.5.1 Definition: Innovation Cooperation and Cross-Industry-Innovation**

Cooperation is the collaboration between equal organizations in terms of rights and economic power. *“Innovation cooperation means active participation in joint R&D and other innovation projects with other organizations (either other enterprises or non-commercial institutions).”* (Knell & Srholec, 2006, p. 6) For organizations innovation cooperation is

often seen a solution to increasing complexity of research and development, increasing global competition and technology progress. (Knell & Srholec, 2006, p. 6)

Cross-industry-innovation can be defined as the transfer of know-how and solutions upon the boundaries of industries and markets. It is based on the analysis of analogies between technologies, patents, solutions, knowledge etc. among different industries. (Enkel & Dürmüller, 2011, pp. 215-216)

### **2.5.2 Innovation Cooperation**

Due to its rising relevance, innovation management is no longer just an internal activity, which corporations have to master. As explained before, innovations can have different sources and origins. Many firms cooperate with others in order to spread risk, and combine expertise and resources to achieve a “win-win” situation. For instance, if a supplier cooperates with an OEM, together they could come up with more innovative solutions for the OEM while the supplier will have the monopoly to supply the new solution.

### **2.5.3 Cross-Industry-Innovation**

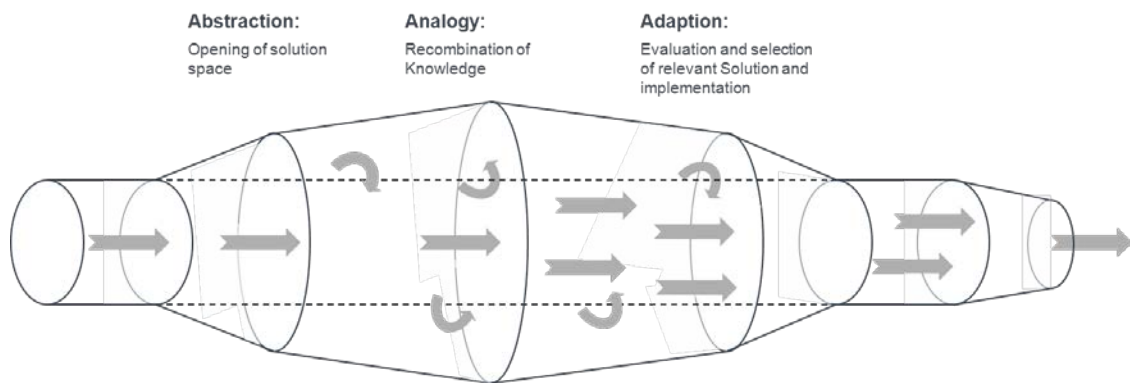
The level of innovativeness of most organizations is limited by the boundaries of its own industry. By executing cross-industry approaches, there is a high probability that the solutions developed are radical and innovative. (Enkel & Dürmüller, 2011, p. 217)

Therefore, cross-industry-innovation strategies and frameworks are often used for the systematical generation of radical innovation. Radical innovations are often enabling firms to have a competitive advantage and higher profits. (Enkel & Horváth, 2010, p. 294)

Similar to open innovation, cross-industry-innovation also has two main purposes which can be differentiated into an outside-in and inside-out process. As for open innovation, outside-in entails the integration of external solutions, knowledge from other industries, etc. into the current firm portfolio and inside out the opposite. (Enkel & Dürmüller, 2011, pp. 217-218)

Within the actual cross-industry-innovation process, the literature suggests three different phases, namely abstraction, analogy, and adaption. The figure below illustrates a typical cross-industry-innovation process. These phases are applicable for both the inside-out and the outside-in process.

**Figure 8: Cross-Industry-Innovation-Process**



*Developed from: (Enkel & Horváth, 2010, p. 301)*

The first phase, the abstraction phase, generally entails the opening of the solution space. Within this phase, it is important to be able to generate independence from the actual problem or product. The phase is one of the most challenging ones, since it asks to re-think and think outside an engineer's own expertise and knowledge. The overall goal is to re-formulate the problem or the solution in order to make it more generic and general. (Enkel & Dürmüller, 2011, pp. 220-221)

Once the problems and functions are abstracted, the next phase, the analogy phase, can be initiated. The abstractions from the prior phase are used to find solutions within the other industry. Due to the amount and complexity within the abstracted solutions, a selection and prioritization of the possible solutions needs to be done. The more open a question or problem is formulated, the more variety in solutions within the other industry can be identified. Otherwise, a broader abstraction will lead to more complexity and need of resources for the following adaption phase. (Enkel & Dürmüller, 2011, pp. 222-223)

Once possible analogies are identified, the last phase within the cross-industry-innovation process can follow. Within the adaption phase, analogies are to be evaluated and selected in order to find the best and easy-to-implement fit to the specific problem. This means that even though there is a possibility of many options which provide a good or very good solution to the problem, others might be easier to implement or develop. (Enkel & Dürmüller, 2011, pp. 223-224)

Both a more systematic transfer and a total independent solution could be the outcome of a cross-industry-innovation process. Nevertheless, it would be most favorable to find a balance

between methodic-systematic and a creative-chaotic approach within the process. (Enkel & Dürmüller, 2011, p. 224) This would ensure the best practice for a successful outcome.

#### 2.5.4 Implications for the Transfer of Innovation

The main limitation is given by the typical innovation process itself. Most innovation processes focus on the internal development of innovation projects. Therefore, an innovation process limits the amount of projects to the beginning of the process. This is a main attribute of the innovation funnel, which usually favors the innovativeness as described before. But with the cross-industry-innovation approach, organizations must allow to open up the solution space later on again in the process. This allows them to fully use the creative potential of divergence and convergence. (Enkel & Dürmüller, 2011, p. 219)

In order to transfer innovation within a group of companies, which operate in similar industries while still producing different products and using different approaches to problems, the cross-industry-innovation framework could be very helpful. Since there would be a high amount of analogies within the problem solving and the fulfillment of customer needs, there would be many solutions, processes, and methods which could be adapted from each other.

#### 2.6 Summary and Critical Analysis

Innovation can be a driver for growth and competitive advantages, which can lead to profitability. However, being innovative with radical ideas is becoming tougher, more complex, and is combined with higher risk of failing. Due to the matured stage of many industry lifecycles, markets are very competitive and it is hard to generate USPs.

As the theoretical research has shown, frameworks around innovation management and open innovation are very complex and have a high interrelation to many other domains. It can be found that innovation management is always balance of risk and opportunities. Therefore, tools and frameworks such as innovation strategies, stage-gate processes, and opening up the innovation process for external idea input and output, can help to limit the risk and increase the outcome. Nevertheless, many different factors are highly influential on the success of an innovation. Moreover, the integration of outside knowledge is a broadly accepted standard as to increase the success of any business as “[...] *strategic resources and new sources of knowledge lie beyond the traditional boundaries of the firm.*” (Lawson & Potter, 2012, p. 1228)

As for the actual transfer of knowledge, the literature review has shown, that success of a transfer of knowledge depends for once on the type of knowledge. Whether the content is tacit or explicit knowledge, highly differs the way how the transfer has to be approach and the complexity of the transfer itself. Since the transfer of innovation most likely includes a lot of transfer of tacit knowledge organizations need to take these into account.

The literature around the diffusion has shown, that organizations can have different incentives to adopt innovations from others. The diffusion generally follows the stages similar to its product-lifecycle.

A common way to transfer innovation and diffuse knowledge and expertise, while sharing and reducing economical risks, is partnership and cooperation within innovation development. Here the literature put a lot of attention towards cross-industry-innovation processes as a source of radical innovation. The literature review emphasized the different processes to adapt and use cross industry knowledge.

In conclusion, there was evidence that open innovation could help to increase the innovativeness of an organization. But almost all authors connected risks and limitations with the framework of open innovation as well. Furthermore, the literature points out that open innovation highly depends on the corporate culture and the incentives of learning. Most of the time open innovation requires change in the processes and structure of a firm but mainly within the corporate culture. But if performed well and given the required freedom and resources open innovation can be the fuel to the innovation engine as the following quote suggests.

*“When people with different knowledge and perspectives interact, they stimulate and help each other to stretch their knowledge for the purpose of bridging and connecting diverse knowledge.”* (Cuppen, 2012, p. 30)

### **3 Methodology**

*“Without systematic unity, our knowledge cannot become science; it will be an aggregate, and not a system.”* (Kant, 1781)

The following section will cover and outline the methodological approaches used in this master thesis in order to achieve the purpose and goals of the conducted research. The chapter

will outline the research strategy, research design and elaborate on the performed empirical data collection. Last but not least, the chapter has also the purpose to elaborate on the analysis performed in this thesis.

### **3.1 Research Strategy: Qualitative Paradigm**

According to Bryman and Bell, a research strategy is the general orientation to the conduct of business research. Moreover, research can be distinguished between quantitative and qualitative research. (Bryman & Bell, 2011, p. 26) Generally, quantitative research can be considered as a research strategy which emphasizes on quantification whereas qualitative research emphasizes on words rather than quantification in the collection and analysis of data. In more detail, quantitative research mainly aims to test theory and entails a deductive approach to relate to the conducted research and theory. On the contrary to build a relationship between theory and research, qualitative research emphasizes on an inductive approach with the main purpose of generating theory. (Bryman & Bell, 2011, pp. 26-27)

Due to the goal and nature of the conducted research as well as its complexity, a qualitative research approach was chosen to collect empirical data. Main reasons for this decision were that qualitative research enables researchers to derive theoretical concepts from collected data. Moreover, due to the unstructured approach of qualitative research, it is possible to emerge concepts out of data collection in a flexible and adaptive manner. Overall, the chosen approach allows a contextual understanding of behavior, values and beliefs. This again favors the choice of qualitative over quantitative research in order to pursue the purpose of the research. (Bryman & Bell, 2011, pp. 410-411)

### **3.2 Research Design**

According to Bryman and Bell “[.] [a] *research design provides a framework for the collection and analysis of data. A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process.*” (Bryman & Bell, 2011, p. 40) To achieve the goals and answer the pursued research questions, different qualitative research methods have been chosen.

At the beginning of the research process, a focus group interview has been conducted. The participants were personnel from the innovation management department at *BRAND A*. The focus group framework is a form of group interview which encloses elements of two

methods. First of all the group interview in which several people discuss a given topic, and second of all, a focused interview, meaning that the participants or interviewees have been according to particular situations in which they have been involved and their specific expertise. (Bryman & Bell, 2011, p. 503) The results of the focus group interview were used to get first insight into the topic, select relevant literature and develop the interview guide for the primary data collection.

Moreover, semi-structured interviews have been carried out with key personnel in the different brands within the *GROUP* for data collection. Semi structured qualitative interviews refer to a series of questions an interviewer asks led by an interview guide. (Bryman & Bell, 2011, p. 718) In comparison to structured interviews, semi structured interview allow a degree of freedom within the questions asked in order to cover different fields and create a holistic picture of the conducted field of research.

### **3.2.1 Data Collection: Focus Group & Qualitative Semi-Structured Interviews**

For the empirical research, different sources of data collection were used. Data was primarily collected by first hand sources such as the focus group interview which was performed in the beginning, and the semi-structured qualitative interviews. Furthermore, secondary sources of data were used to complement the information gathered during the interviews. Here data was collected through articles, internal presentations and documents, as well as external company presentations and annual reports.

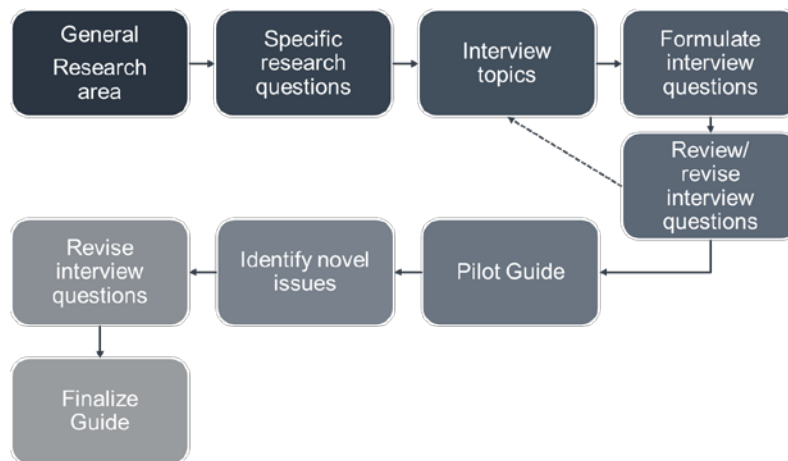
As mentioned before, a focus group interview was performed with the innovation management department of *BRAND A*. The purpose of the focus group interview was to provide a general overview of the topic, discuss the chosen scope, collect and evaluate the expectations *BRAND A* would have towards the research. Through using this information, the scope and purpose of the research was adapted and specified. Therefore, different methods were chosen, such as a SWOT and PRE-Mortem analysis. Finally, the empirical findings from the focus group interview were used to develop an interview guide for the major data collection, the semi-structured interviews with key personnel within innovation management of the different brands.

For the primary data collection by semi structured qualitative interviews an interview guide was developed. The complete interview guide can be found in the appendix (7.1) on page V.



The interview guide was developed by using the framework of Bryman and Bell for formulating questions for an interview guide. (Bryman & Bell, 2011, p. 477)

Figure 9: Formulating questions for an interview guide



Developed from: (Bryman & Bell, 2011, p. 477)

The performed interviews were audio recorded and later generally transcribed. These transcripts were later reviewed and coded. Due to confidentiality policies, the transcripts are not included in this thesis.

### 3.2.2 Execution of the Interviews and Transcription

The interviews were executed according to the interview guide. The interview guide was designed as a guideline in order to encounter the desired outcomes by leading the interviewee through the content and fields of interest. Hereby, main fields of interest were defined and lead-questions were asked in order to encounter the content. If the interviewee already discussed the topics the interviewer was able to skip the concerned questions.

Three of the seven interviews were held in person. They took place in a quiet environment at the technical development centers of each company. The other four interviews were conducted by telephone. All interviews were audio recorded and later on transcribed. The transcription was started right after the interview to ensure more accuracy. Moreover, only the content of the discussion and answers were transcribed, meaning no sounds and non-verbal communication such as fillers or pauses were taken into account in the transcription. The transcripts were later on used for the analysis.

### 3.2.3 Sampling

For the empirical data collection, 21 employees and contact persons, which are involved in the pre-development, technology management or innovation management of different brands within the *GROUP* were contacted by email. In the email request, the persons were given a short research proposal and the request for participation in a qualitative interview.

The response rate on the email request was 66 %, of which 86 % were responding positively to the request. Of these remaining 12 persons, 7 were chosen as a sample after a short pre-interview. These were chosen due to their responsibilities at their brands. The criteria by the sampling was performed, are the chosen interviewees have to be responsible for either or both the pre-development or innovation management processes or phase at their specific brand. Moreover, the focus lied on the management of product innovation as well as business model innovation and not process innovation. Additionally, an innovation manager of *BRAND A* was selected for data collection.

Resulting of this sampling, the following table provides an overview on the persons chosen for the empirical research:

Table 2: Overview participants Qualitative Interviews

Brand	Number of Interviews performed	Number of Interviewees	Department/ Function	Interview	Telephone Interview
<i>BRAND A</i>	1	1	<ul style="list-style-type: none"> <li>▪ Innovation Management</li> </ul>	x	
<i>BRAND B</i>	3	3	<ul style="list-style-type: none"> <li>▪ Technology Management</li> <li>▪ Technological Foreseeing Future research and trend Transfer</li> <li>▪ Innovation Management</li> </ul>		<ul style="list-style-type: none"> <li>x</li> <li>x</li> <li>x</li> </ul>
<i>BRAND C</i>	1	1	<ul style="list-style-type: none"> <li>▪ Pre-Development, Patents, Innovation</li> </ul>		x
<i>BRAND D</i>	1	2	<ul style="list-style-type: none"> <li>▪ Head of Innovation Management</li> <li>▪ Doctorate Candidate Innovation Management</li> </ul>	x	
<i>BRAND E</i>	1	2	<ul style="list-style-type: none"> <li>▪ Innovation Development</li> <li>▪ Innovation Concepts</li> </ul>	x	

The table above provides an overview of the interviews performed. It indicates the company, how many interviews were performed, with how many different interviewees, the department or functions the interviewees hold, and if a face-to-face interview or a telephone interview was performed.

### 3.2.4 Method of Data Analysis: Coding and Grounded Theory

As one of the most central processes within the grounded theory coding entails reviewing transcripts, labeling, separating, compiling, and organizing data. Mainly open coding was performed in this thesis. Open coding is “[...] *the process of breaking down, examining, comparing, conceptualizing and categorizing data [...]*” (Bryman & Bell, 2011, p. 578) . Generally, it leads to the generation of concepts, which are clustered into categories. (Bryman & Bell, 2011, p. 578)

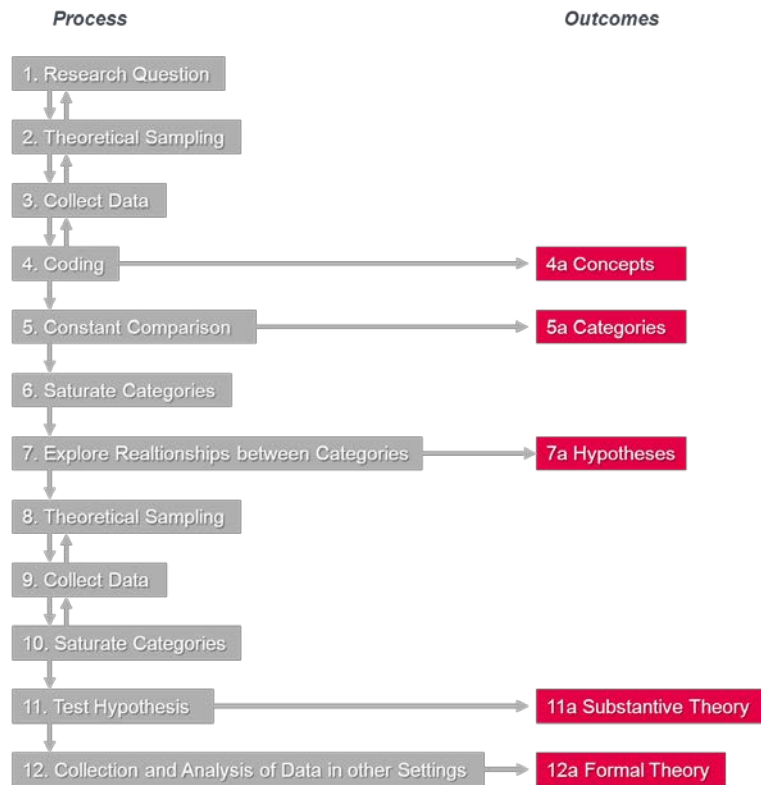
#### ***Grounded Theory***

In order to analyze the collected qualitative data the research builds on an analysis approach which relies on and is inspired by the grounded theory. This approach allows to minimize the objectives and drawbacks of qualitative research. In the literature, grounded theory is defined as “[...] *theory that was derived from data, systematically gathered and analyzed through the research process.*” (Bryman & Bell, 2011, p. 576) By using grounded theory a close relationship between data collection, analysis and eventual theory is created. A main feature of grounded theory is that it focuses on the development of theory from data. Moreover, grounded theory is often iterative, or recursive, “[...] *meaning that data collection and analysis proceed in tandem, repeatedly referring back to each other.*” (Bryman & Bell, 2011, p. 576)

As Bryman and Bell distinguish, there are several tools and outcomes in grounded theory. The tools the grounded theory is using are (1) theoretical sampling, (2) coding, (3) theoretical saturation, (4) constant comparison. (Bryman & Bell, 2011, p. 577) Theoretical sampling (1), as a defining property of ground theory, helps to collect data in order to create theory. (Bryman & Bell, 2011, p. 443) Coding (2) is a key process within grounded theory. Hereby, the transcripts created from the audio are reviewed and labels are given to component parts which hold potential theoretical significance. (Bryman & Bell, 2011, p. 578) Theoretical saturation (3) is a process, which refers to two phases of the grounded theory process. First, the coding of data, and seconds the collection of data. Last but not least, comes the aspect of constant comparison (4). It refers to the process of maintaining a close connection between conceptualization and data. (Bryman & Bell, 2011, p. 577)

As said before, Bryman & Bell distinguish between process and outcomes. The following figure illustrates the process and outcomes within the framework of grounded theory:

**Figure 10: Process and outcomes in grounded theory**



*Developed from: (Bryman & Bell, 2011, p. 580)*

Outcomes can be concepts, categories hypotheses, substantive theory and formal theory.

One of the main ideas of the grounded theory is that data collection and analysis occur in parallel, which is illustrated in the figure above. The arrows pointing in certain steps in both directions, which emphasizes on the repetition of some steps. The research begins with the general research question; in step (2), relevant incidents are theoretically sampled. Afterwards (3) relevant data was collected and one began to code the data. Here open coding may generate first concepts (4a). As explained before, the constant movement of the first steps may lead to the need for more data and a repetition of the theoretical sampling. In step (5), constant comparisons are performed and categories are generated. Step (6) is the saturation of categories during the coding process. Step (7) aims for an emerging of hypotheses by the exploration of relationships between categories. If needed, further data can be collected in step (9) via theoretical sampling in step (8). And again in step (10), the collected data is likely to be governed by the theoretical saturation principle. In step (11), the emerged hypotheses are tested which may lead to a substantive theory (11a). In step (12), these substantive theories can be explored by using the grounded theory processes in relation

to different settings, different than in which it was created. Step (12) then leads to the generation of a formal theory which can be related to abstract categories. (Bryman & Bell, 2011, p. 580)

### 3.3 Quality of Research

According to Bryman and Bell the most important and prominent criteria for the evaluation of a research project are reliability, replication, and validity. (Bryman & Bell, 2011, p. 41)

The concept of reliability refers to the issue whether or not the results of a research study are repeatable. This refers to the question if the measures applied for concepts are consistent. The concept concerns mainly quantitative research since it indicates if a measure is stable or not. (Bryman & Bell, 2011, p. 41) Replication refers to the degree to which a performed research and its results can be reproduced. (Bryman & Bell, 2011, pp. 41-42)

Validity is the integrity of the conclusions which are derived from the research. It can be considered as one of the most important criterion of the quality in research. Main types of validity include measurement validity, internal validity, external validity, and ecological validity. (Bryman & Bell, 2011, pp. 42-43)

When assessing the quality of qualitative research, it is important to evaluate the reliability and validity even though most authors point out more relevance to quantitative research. In their opinion alternative criteria should be addressed when assessing qualitative research. As many authors discuss most argue that primary criteria or evaluating qualitative research, are trustworthiness and authenticity. Trustworthiness itself can be determined by four categories: *Credibility, transferability, dependability, conformability* (Bryman & Bell, 2011, p. 395)

Authenticity for example raises questions around the wider political impact of research with criteria such as *fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity*. (Bryman & Bell, 2011, p. 399) To assess and ensure the quality of the research, authenticity is not as important for this particular research as trustworthiness.

On a professional dimension, referring to the applicability of the results in practice, the quality of the research was ensured by involving the department of cooperation in the research. The author validated his outcomes and the conclusion drafts with a representative of the department in charge to manage the cooperation activities of *BRAND A* within the

*GROUP*. This validation increased the overall quality of the research and its conclusions. Furthermore, the author became regular feedback from the academic and professional supervisor to ensure the quality of the research.

## **4 Empirical Research**

The following chapter includes the findings of the empirical research. As stated in the method chapter, different qualitative research methods were chosen to collect empirical data. The chapter provides (4.1) the findings of the focus group interview and the findings of (4.2) four of five qualitative interviews which were performed with five different participating companies. Due to formal limitation, (number of pages) the empirical findings of *BRAND E* are not included in this academic version of the thesis.

### **4.1 Findings Focus Group Interview**

The following section outlines the findings of the focus group interview performed at the beginning of the thesis project. The purpose of the focus group interview was to provide a general overview of the topic, discuss the chosen scope, collect and evaluate the expectations and objections *BRAND A* would have towards the research. As mentioned in the part in which the methodology was presented, the findings of the focus group interview were used to re-set the scope of research and to develop the interview guide for the semi structured interviews which follow in part 4.2.

#### **4.1.1 Execution**

The focus group interview is a form of group interview, where several participants addressing a particular topic. The focus lies on the interaction between the participants and the joint construction of meaning. (Bryman & Bell, 2011, p. 715) The focus group interview was inspired by this definition and purpose, but adapted to the nature of the research project.

The focus group included personnel of the innovation management department at *BRAND A*. Different tasks were given as teaser questions for a warm-up phase. The entire interview and discussions were audio recorded and later a transcription was done. This was used as base for the empirical findings below. Due to the confidentiality of the research an overview of the transcript and participants are not given in the appendix of the academic version of this thesis.

#### 4.1.2 Results: Discussion, Pre-Mortem, SWOT

##### ***ICE-Breaker Exercise: Open Innovation in One Word?***

At the beginning, the participants were asked to write down on a paper one word which describes best open innovation for them. Each participant was afterwards asked to explain why the chosen word represents best his or her approach to open innovation. The following answers were given:

- *Unlimited*
- *Customer*
- *Collaboration*
- *Creativity*
- *Interdisciplinary*

In the discussion many concepts which could also be found in the literature came up. *Unlimited* was referred to breaking up the boarder of a company and which is closely related to another key concept stated in *Collaboration*. It is important that a company doesn't stay behind "closed walls" when collaborating and working together with others. Furthermore, *Customer* was chosen because the company should integrate their customers into the innovation process for idea generation in order to get feedback for their products. Another word, which represented OI for one participant was *Creativity*. By connecting different knowledge domains, creativity can be generated. The inclusion of external knowledge and experts enables the company to generate a higher level of creativity. Last but not least, *Interdisciplinary* was named. It refers to the fact that in OI allows cross functional teams from different industries to work together.

##### ***PRE-Mortem Analysis***

In order to identify flaws and limits of the proposed research project, the focus group was asked to perform a PRE-Mortem analysis. A PRE-Mortem analysis can be defined as a managerial method, which asks the focus group to assume that the thesis project has failed. Assuming this, they were asked to retro analyze and determine what potentially could lead to the failure of the project. After collecting and discussing all kinds of threats and reasons for a potential failure, everything was clustered in the following main categories:

- Lack of acceptance
- Lack of understanding of innovation processes within the group
- Sabotage of an open innovation process
- Research scope might be too general
- Relevance: theory vs. practice
- Wrong factors of success
- Lack of value created by the process
- Lack of ease to use the developed tools and methods
- Quality of the empirical data collection

As said before, the insights generated by this analysis were both incorporated in the interview guide as well as kept in mind in order to proceed with the research itself.

### ***SWOT Analysis of Open Innovation within the GROUP***

**Table 3: SWOT Analysis of Open Innovation within the GROUP**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>▪ Several brands with different expertise and knowledge are part of one group</li> <li>▪ Different core competencies</li> <li>▪ Perfect base for the development of an open innovation system</li> <li>▪ Innovation Management is not limited → first mover</li> </ul>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>▪ Usage of the GROUP's network</li> <li>▪ First mover advantage</li> <li>▪ Synergies</li> </ul>
<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>▪ Routines</li> <li>▪ Dominant logic</li> <li>▪ Functional structure → lack of interdisciplinary teams (only for large projects)</li> <li>▪ Lack of decision making</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>▪ Lack of acceptance</li> <li>▪ Loss of IP without gaining value</li> <li>▪ Espionage</li> </ul>

*Source: Focus Group Interview*

The SWOT analysis has shown that the transfer of innovation within the closed system of the *GROUP* can be seen as a project with high potential. The *GROUP* was considered as a “*perfect base*” to open up the innovation processes with relatively low risk of the loss of intellectual property. However, it can also be seen on a resource based view, as highly fruitful because different knowledge, and expertise can be combined in order to develop innovation and innovative products. By successful usage of synergies, the *GROUP* could gain first mover advantages as a whole on many fields and markets and therefore, develop a sustainable competitive advantage.

The routines and dominant logic were identified as main weaknesses, barriers and threats to such an open innovation system. In general, the focus group saw the lack of commitment and the functional structure, as factors that prevent interdisciplinary and multi-functional teams. Nevertheless, the opportunities and the potential value seem to be stronger than any objections towards the set-up of an open innovation system within the closed boundaries of the *GROUP*.

### ***Discussion***

In conclusion, one could consider the focus group interview as a valuable addition to the empirical findings. The transcription and analysis of the results, helped to outline the limits



and threats but also expectations and opportunities of the research more clearly. Moreover, the findings in the focus group interview were used to develop the interview guide. Generally, the participants of the focus group would consider the approach to set-up an open innovation process or system of any kind as a project which is worth achieving.

## 4.2 Findings Qualitative Interviews

The following part will provide and discuss the empirical findings of 4 out of 5 qualitative interviews which have been carried out at brands of the *GROUP*. The findings are clustered in four different categories which provide a structure in order to analyze the findings. The categories are based on the empirical findings and the interview guide: definitions, innovation management at the brand, open innovation at the Brand, and implications for an open innovation approach and the transfer of innovation within the *GROUP*. Due to the formal limitations of this thesis, the empirical findings of *BRAND E* are not included in this thesis.

The source of the following empirical findings are first and secondary data collected through, qualitative interviews, information materials and documents provided by the interviewees. Due to confidentiality and practical reasons, the author will refrain to display and quote the sources of each statement. For further information about the source and quotes, the reader can get in contact with the author and request the transcripts and documents used.

### 4.2.1 BRAND A

Due to non-disclosure of information policies, *BRAND A* will not be described in this thesis. For further information about the company the reader can contact the author and request more details.

The interview was performed as a personal face-to-face interview with a representative of *BRAND A*'s innovation management department. Moreover, *BRAND A* hosted the thesis work employment of the author. Therefore, the author had full access to secondary data and was involved in the operational innovation management activities of *BRAND A*.

#### *a. Definitions*

*BRAND A* has an official definition for innovation. For *BRAND A* an “[.] *Innovation is a novelty with market success valued by the customer. Goal is to improve our products (incl. Services) noticeably. Therefore BRAND A is using new or combining existing technologies with the overall goal to create new benefits for the customer and BRAND A.*” (*BRAND A*)

Moreover, for *BRAND A*, an invention is defined as a unique or novel device, method, composition or process without a defined adoption by the customer. The interviewee points out that *BRAND A* is familiar with all types of innovation, but the innovation management mainly focuses on product, service and business model innovations.

Generally, open innovation is defined as the acquisition of sources and resources outside the company. *BRAND A* mainly uses the open innovation method to enrich the generation of innovation and to improve product lines and shorten the required time to bring products to market.

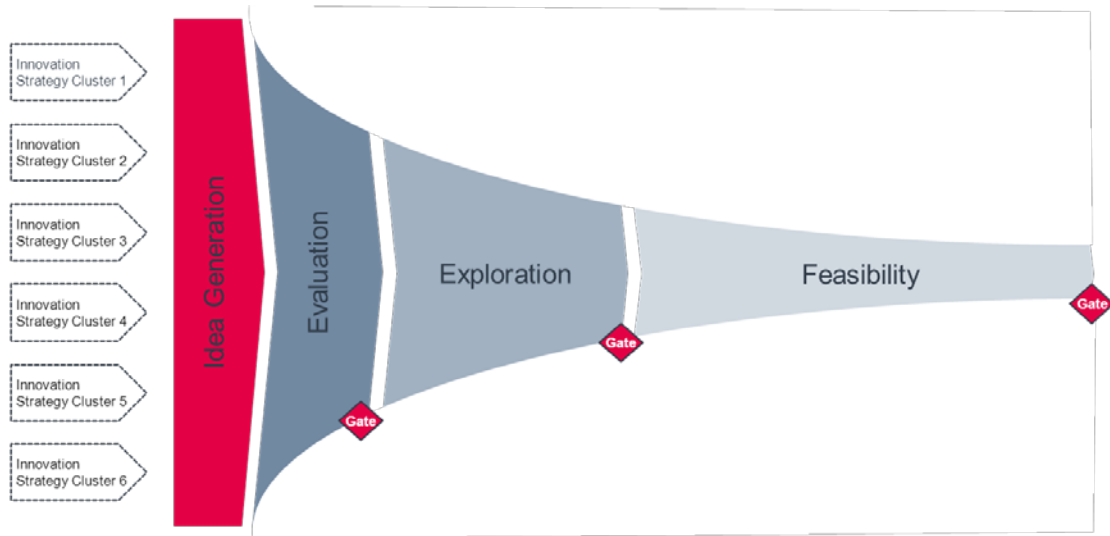
### ***b. Innovation Management at BRAND A***

The interviewee describes the goal of the integrated innovation management as to strengthen *BRAND A*'s position in the market and gain competitive advantages. Moreover, he explains that the innovation management consists of five core elements, which are the innovation strategy, the innovation process, the innovation portfolio, the project management and last but not least the innovation culture. As he describes these elements, he points out, that next to the core elements, the innovation management also supports other department and generates ideas. The innovation strategy defines different clusters in which *BRAND A* wants to actively support, search and generate ideas.

The understanding of innovation management can be best described as a holistic approach within *BRAND A* to facilitate innovation and to strength *BRAND A*'s product portfolio.

The figure below illustrates *BRAND A*'s innovation process. The process is divided into three main phases; evaluation, exploration and feasibility phase; and an additional idea generation phase. All innovations and innovative ideas can be steered into the process through different channels. The process then systematically evaluates the ideas until the first gate. If an innovation is evaluated to be valuable for the company, it shall pass the first gate. Same accounts for the exploration and feasibility phase. After passing all gates within the innovation process, an idea has been proven itself to be valuable, technologically explored and feasible to implement.

Figure 11: Innovation Funnel at BRAND A



Developed from interview with BRAND A

The interviewee further elaborates that information collected and created within the stages will be stored in an innovation fact file. This information will be transferred when the innovation becomes a pre-development project. At the same time, he explains that the transition from the status of being an innovation project to becoming a pre-development project is a challenge the innovation management is facing. After moving past the innovation process, there is no guarantee the idea will actually be used and developed, and become a concrete product or service.

Despite this limitation, the innovation management has its own budget and is an independent department within the engineering strategy division.

### *c. Open Innovation at BRAND A*

The interviewee explains his point of view on open innovation. For him, it stands for the integration of external ideas, expertise, knowledge and resources. By internalizing these, a firm can capture a unique set of skills and opportunities which will drive its innovativeness.

Moreover, the interviewee not only emphasizes on the simple outside-in process within open innovation, but also on the strategic partnerships which generated by open innovation. For him, open innovation is not only the integration of customers within the innovation process by lead-user workshops, but rather the integration of external knowledge and value. Moreover, the interviewee explains that open innovation can also be an opportunity to establish core competencies and specializations.

According to the interviewee, *BRAND A* has experience in open innovation by practicing supplier integration, university collaborations and general lead-user workshops and expert board to internalize customer opinions. Moreover, *BRAND A* also collaborated with representative of firms which operate in other industries, for instance, through creative workshops such as an innovation cell. A very good example for an open innovation project can be found in a concrete innovation which *BRAND A* developed in collaboration with other companies to create a state of the art product which is considered innovative and unique in its industry market.

The experience, especially with the collaborative product developed, has shown that open innovation is possible and creates innovative products faster than in a closed system. However, the product is not commercialized yet due to the not invented here syndrome. *BRAND A* has trouble to identify itself with the product and therefore, does not want to drive the project further even though it caught a lot of positive public attention.

This discussion captured, according to the interviewee, the main problem and risk of open innovation. Even though he does not agree with the typical risk of open innovation, he points out that the loss of identification with products and the brand is one of the biggest risks. Furthermore, he addresses the problems with IP rights and the selection of partners, which can arise in such a sensible domain. In his opinion, the best way to limit the risks is to collaborate with partners from a different industry.

In the discussion, the interviewee reflects on the opportunities and benefits of open innovation as it enables firms to buy in expertise and competencies which they would have to develop otherwise. Furthermore, he explains and quotes the framework though which creativity is created when different knowledge domains come together. Additionally, an open innovation project can be the kick off for a long term relationship with another brand with relatively low risk. He then concluded that open innovation is not only a huge opportunity but also necessary for any company in the near future.

#### *d. Transfer of Innovation*

While discussing a possible format which could ensure the efficiency and effectiveness of an open innovation system within the *GROUP*, the interviewee points out that the *GROUP* already provides a good macro layer to exchange knowledge and coordinate the innovation

management within the *GROUP*. Moreover, it is important for him that the upper management is committed to the project and that trust between the brands is established.

Furthermore, he explains that motivation and incentives to participate need to be developed. In his opinion, all phases within *BRAND A*'s product development process would benefit from synergies within the *GROUP*. Therefore, every phase should include the assessment and consolidation with other brands within the *GROUP*.

He could imagine that a corporate open innovation strategy would be able to guide and lead the brands and provide a clear structure. Therefore, a corporate coordinator should be placed to support open innovation within the *GROUP*.

Concluding, he evaluated the approach to establish an open innovation system within the *GROUP* as worth achieving because the size and opportunities of the *GROUP* would allow all brands to benefit from each other.

The interviewee however, explains that in order to achieve an effective and efficient system, some kind of reframing needs to take place, including cultural change and the set-up of different incentives. There would be a need for more motivation for sharing and receiving innovations and innovative ideas and methods.

In the opinion of the interviewee, the *GROUP* and its members are actually the ones to limit themselves the most in the establishment of such a system due to an outdated understanding of open innovation and lack of commitment.

#### 4.2.2 BRAND B

Due to non-disclosure of information policies, the description of *BRAND B* is not included in this thesis. For further information about the company, the reader can contact the author and request more details.

The interviews were performed as three different telephone interviews with representatives of *BRAND B*'s innovation management, technology management, and corporate research department. The focus of the empirical findings of *BRAND B* lies on the innovation management. *BRAND B* is the main brand within the *GROUP*. On both dimensions economics as well as size it is the biggest entity within the *GROUP*. The following empirical findings at *BRAND B* only consider the interview with the representative of the innovation

management department. The other interviews were still taken into consideration while drawing a conclusion.

### *a. Definitions*

Similarly to most companies, *BRAND B* has defined innovation, by adapting it to their specific needs but still keeping the definition close to the theory. The interviewee explains that a product innovation, within the new product development process, is defined as a “*novel solution*” which provides “*perceivable customer value*”, an improvement of old solutions or “*new functions*” to the customer. Generally, innovation shall aim to offer differentiation in the market, focus on the creation of competitive advantages and generate revenue.

The interviewee explains that all types of innovations are generally known, but the innovation management of *BRAND B* is mainly concerned with product innovation.

He differentiates open innovation between different departments and divisions within *BRAND B* and the open innovation towards the external environment of the firm. In general, he distinguishes and defines open innovation on the one hand, as the “*outside-in process*” which includes the integration of suppliers, customers, stakeholders, universities and other industries. And on the other hand, he describes open innovation as the “*inside-out process*” where technology developed within the firm could be used and applied outside the organization. Latter finds only minor application at *BRAND B*.

### *b. Innovation Management at BRAND B*

While discussing the self-conception of *BRAND B*'s innovation management, the interviewee describes that it structures, organizes and coordinates innovation activities within the technical development. In more detail, the department supports innovation projects in activities such as idea generation, creativity methods, budgeting. He emphasized on the application of concept teams which generate a degree of freedom and creativity for the development process.

Furthermore, the innovation management coordinates the integration of external partners and expertise in general within the innovation process. When doing so, it captures trends and gives impulses to the technical departments. The actual innovation development takes place at the specific technical departments, where the main creativity performance is concentrated as well.

He elaborates further that the innovation management uses an innovation roadmap as a strategic tool to support and steer the innovation processes and activities. Moreover, it defines and expresses requirements of users, e.g. use-cases, in order to fulfill their customer's needs with innovative solutions. Additionally, the interviewee explains that the use of communication strategies drives cultural change and improves the understanding for the specific needs of innovation management. He concludes that one of the main responsibilities of the innovation management department is also, to coordinate and connect innovations with concrete product development projects.

The interviewee points out that the evaluation and the actual idea generation as well as selection takes place at the specific technical departments. For this purpose, the departments apply their own stage gate processes. Moreover, he explains that *BRAND B* has an innovation stage gate process which is applied to transfer the theoretical projects into concrete product development projects. Therefore, all innovation and innovative ideas are collected in a database once a year, in order to plan the innovation activities and budgeting for the following year.

Additionally, the representative describes that *BRAND B* has an innovation strategy which is part of the overall corporate strategy. Moreover, he explains that this strategy also creates the vision for the innovation management to become an innovation volume manufacturer. The innovation strategy is broken into KPI which are used for the different innovation cluster *BRAND B* wants to excel in.

The interviewee describes the innovation management as a central and independent department which supports but also seeks the support of the technical development departments. He sees the relationship as a partnership rather than a “*one-way road*”.

Describing the innovation culture at *BRAND B*, he considers the company to be very technical and competency oriented. There is some degree of freedom within the concept team but usually he would consider the culture rather closed and risk averse. However, when projects have management attention, they can be more risky and less certain.

In conclusion, the interviewee refers to the supporting and coordinating role of *BRAND B*'s innovation management.

### ***c. Open Innovation at BRAND B***

In the opinion of the interviewee, there are two ways to apply open innovation. For him, the main application of open innovation is the implementation of outside-in processes to integrate suppliers. Therefore, *BRAND B* is annually hosting supplier days and competitions. Moreover, he describes that his firm is incorporating knowledge and expertise from universities through collaborations with them through for example student innovation competitions.

Next to these classical integrations of external partners, he talked about the experience *BRAND B* made while initiating an open innovation project to gain knowledge in an emerging market. In order to do so, *BRAND B* established an open innovation platform where customers could express their specific needs and expectations on a product in the future. He explained that this initiative was successful, even though most of the information collected was not used or implemented. The information was mainly used as impulses from this market.

Discussing the risk of open innovation, he addressed the not invented here issue. For him, this is the reason why most open innovation initiatives fail, since the encountered knowledge isn't used or accepted. The disclosure of secret information is rather a minor issue for *BRAND B* since most open innovation activities focus rather on the outside-in process. He explains that the application of crowdsourcing is still a challenge the organization has to face. Generally, when addressing the risk of open innovation he differentiates between different methods and explains that most initiatives have relatively low risk in his opinion.

The interviewee describes that the opportunities and benefits of open innovation depend on its execution and the methods used. For instance, he had very good experiences with the integration of suppliers and universities into the development process. However, the interpretation of results from lead-user workshops is very difficult and complex. Generally, he evaluates open innovation as a good source to get inspiration from the external environment and get orientation.

#### *d. Transfer of Innovation*

Discussing a possible format of an open innovation approach within the *GROUP*, the interviewee explains, that already established commodity groups within the *GROUP* should be used. Moreover, he prefers to avoid establishing a centralized process as this would force the brands to open their portfolios. He would rather focus on enabling the different brands to



work together and exchange the ideas voluntarily. In his perspective, simply opening the books and making the portfolios visible to each other would not help to become more innovative because there would be a lack of expertise and knowledge to understand the tacit information behind the projects.

Additionally, he mentioned that his preferred way of interacting would be innovation events such as *GROUP* innovation days. These events should have to purpose to come together and exchange ideas. This would also allow to translate the eco-systems and industry specific requirements.

In general, he would describe *BRAND B* to be willing to participate in an open innovation system within the closed system of the *GROUP*. However, incremental steps are needed to increase the understanding between the brands and to build trust. Furthermore, he indicates that the collaboration between *BRAND B* and *BRAND A* would be less risky than others but also more complex since both brands operate in different markets.

In conclusion, the interviewee of *BRAND B* evaluates the approach to open up the innovation processes and use synergies as worth achieving, despite the fact that in his opinion, the complete disclosure of information would be rather harmful for the *GROUP*. To establish such an approach, the already existing committees should be used. Finally, to make the approach efficient, there is a need to create understanding of the markets and core businesses of the different brands.

### 4.2.3 BRAND C

Due to non-disclosure of information policies the description of *BRAND C* is not included in this thesis. For further information about the company the reader can contact the author and request more details.

The interview was performed as a telephone interview with a representative of *BRAND C*'s pre-development, patents, and innovation department. The interviewee also provided the author with secondary data.

#### *a. Definitions*

As for most companies, *BRAND C* aligned also their definition and understanding of an innovation with both theory and their corporate values and culture. For *BRAND C* a product innovation is defined as: “A product innovation is a novel solution that provides recognizable

*added values for customers by enhanced or additional functions.*” During the interview, the interviewee pointed out that the definition as it is used has been approved by the upper management and used accordingly.

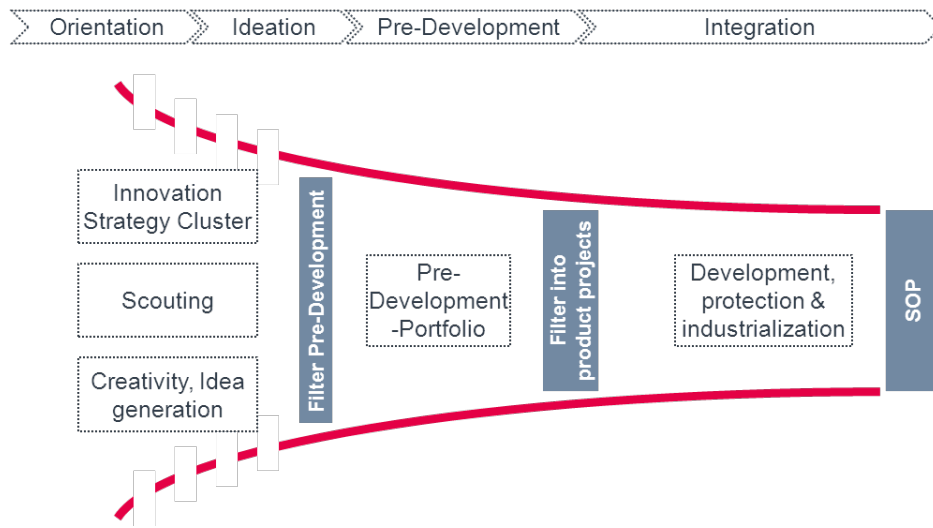
Open innovation is defined by the opening up of the innovation process which means including *new business models, integration of external partners from different industries, functions, segments and applying different technologies*. Furthermore, it includes the cooperation with external partners. More important is the mental and psychological opening and willingness to share information. It would even be possible to share knowledge with competitors, if “*a Win-Win situation origins*”.

Generally, the innovation management at *BRAND C* focuses on product, process and business model innovation. Especially latter is rising in importance for business cases of *BRAND C* as they increasingly see themselves as provider of services rather than of seller of products.

#### ***b. Innovation Management at BRAND C***

As the interviewee points out, the innovation management at *BRAND C* has the function of an incubator. Main activities include the creation of an innovation strategy, innovation scouting, trend scouting, and the coordination of research and development within the *GROUP*. Moreover, it incorporates the future research and foreseeing to identify mega trends as well as technology trends. Furthermore, the innovation management within *BRAND C* is working on providing orientation to identify core fields which in which it wants to excel. This orientation guides the organization in the decision which project should be further explored and developed. The figure below illustrates the core competencies within the innovation process at *BRAND C*:

Figure 12: Stage Gate Innovation Process / Innovation Funnel BRAND C



Developed from: Information Material, Qualitative Interview BRAND C

Within the innovation process, the ideation phase is the first activity to manage innovation within *BRAND C*. It supports the product development with methods and techniques to generate ideas and solutions. The gates within this stage-gate-process are interdisciplinary and within different hierarchy levels. After an innovation passes the orientation and ideation phase, an innovation will be given first into the pre-development and later the serial development process until it reaches an *SOP*. After being evaluated by the innovation process, an innovation project is given a start of production date within a specific product line. During the pre-development and industrialization, the innovation management is responsible to track and coordinate the project within these projects but the development itself is performed by specific *R&D* departments. Thus, the innovation management is not responsible for the technical development.

The innovation management provides and enhances value during the product development process by analyzing and evaluating the idea in regards to the market situation and analysis, customer value, possible partner, degree of innovation, and timeline. It also develops innovation and technology roadmaps which provide important information for the product portfolio.

Generally, the interviewee points out that the innovation management acts as a central and independent division with upper management dedication and own resources. Furthermore, he explains: “*There is no pre-development project, from which we have no knowledge of.*” The motivation of such a process was given by the need to establish a lean process to coordinate

innovation activities and to “*provide at least one USP to each new product*”. It also aims to provide transparency within the product development processes.

Innovations at *BRAND C* are clustered into certain degrees of innovation. These are ordered and designed according to customer attractiveness and help to evaluate an innovation project upon factors of success.

During the interview, the representative explains that *BRAND C* has developed its own innovation strategy which support the managerial decision-making process. Around these well-defined strategic and technological clusters *BRAND C* focuses on searching and identifying innovations for new products.

The limitations the interviewee points out, address the limited resources at the technical departments, which need to be extended. Another problem occurs around the distinction between pre-development processes and serial development processes. There is no clear difference between a project manager within the pre- and the serial development.

Activities concerning the innovation culture of *BRAND C* are also performed by the innovation management. Through active and clear communication strategies, as well as a simple structure and innovation process, a friendly environment and acceptance for innovation and innovation management should be accomplished. Furthermore, if other employees which so, they can participate in the innovation processes and activities.

The innovation management is generally accepted, valued within the company and involved in all pre-development activities.

### *c. Open Innovation at BRAND C*

As described in part a) the interviewee explains open innovation as the opening of innovation processes towards other industries and external partners in general. Additional he points out, that open innovation is still a future project for *BRAND C*. Especially, questions concerning the selection of partners as well as which committee should be involves are still not answered.

Moreover, he explains that next to the involvement of suppliers in workshops and supplier days, the organization already has made some experiences around the topic of open innovation. The interviewee reported a project the company was pursuing in collaboration with another company around a business model from a more service oriented industry. The

experience was generally positive but the business model venture was never implemented due to limited resources. Nevertheless, the project has proven that these kind of open innovation ventures could create a possible business case for *BRAND C* in the near future.

As possible risks of open innovation, the interviewee points out the loss and disclosure of knowledge and information. However, as more important drawbacks he identifies the internal limitation and hurdle. The company itself is not used to share information and being open. Moreover, even within the closed system he sees problems with the disclosure of information due to the loss of exclusivity of the brand. Problems with *IP* rights are minor in his perspective, since the department is also responsible for patent activities at *BRAND C*.

Despite the risk and limitations, the interviewee explains that the opportunities of open innovation still overrule the drawbacks. For instance, he focuses on open innovation projects which would create a win-win situation and therefore be beneficial for the organization. Moreover, open innovation would not only create value but is also necessary to meet the needs of tomorrow. In his point of view, no one can be specialized in everything while having limited resources. Furthermore, freed resources and capacities could be generated by “*focused sharing*”. Finally, he points out that the sharing of know-how is an elementary cornerstone of *BRAND C*’s future within the *GROUP*.

#### *d. Transfer of Innovation*

While answering questions around a successful layout and format of an open innovation system within the *GROUP*, the interviewee identifies the topic as very political. In order to counter fear and objections against the approach there is a need for cultural change. Communication and other activities need to ensure that the willingness to share knowledge within the *GROUP* is given.

Furthermore, the already established committee and task forces need to be used and integrated in such a process. As it is for now, the innovation management would just be overwhelmed by the complexity and bureaucracy within the *GROUP* to share and receive information.

In order to be valuable for *BRAND C*, an open innovation process needs to be lean and simple. Innovation should not be shared too early unless the once relevant for platforms or modules. But generally, the exchange of information should be performed after the own innovation process has evaluated and selected the innovations. The general format should be

discussed openly. The interviewee could imagine a variety of options ranging from the usage of already established committees of exchange to the establishment of new specific ones. Moreover, he points out that cross brand workshops could help to transfer innovative approaches, methods or innovation itself. He suggests that these workshops could take place once or twice a year.

Generally, the interviewee points out the willingness of *BRAND C* to participate in the underlying approach to establish an open innovation process within the closed system of the *GROUP*. For *BRAND C*, the innovations which would fit within their innovation strategy clusters would be most interesting for transfer. Naturally, *BRAND C* is mainly interested in transferring of innovations which concern its core business. In general, there is a high chance that innovations which could influence new business models and current business cases would be interesting for *BRAND C*.

The interviewee expressed his expectations on an open innovation system within the *GROUP* as such, that it should favor an innovative as well as an open culture and procedure in regards to innovations and ideas within the *GROUP*. Moreover, the process should aim to create synergies and prevent double efforts. He also expressed his wish that it would enable job rotation from one innovation manager to another within the *GROUP*.

Concluding, he evaluated the approach to be worth achieving due to its high potential with only moderate risk. Furthermore, he still sees expects many challenges and obstacles before such an approach would actually be able to be implemented. First, the approach would require commitment from upper management in order to create trust and commitment in the operational level. Today, the biggest limitations he identifies are the political impact, lack of transparency, and uncertainty.

#### 4.2.4 **BRAND D**

Due to non-disclosure of information policies the description of *BRAND D* is not included in this thesis. For further information about the company the reader can contact the author and request more details.

The interview was performed at the development center of *BRAND D* with a representative of *BRAND D*'s innovation management department. The interviewee also provided the author with secondary data in order to complete the empirical findings.

### *a. Definitions*

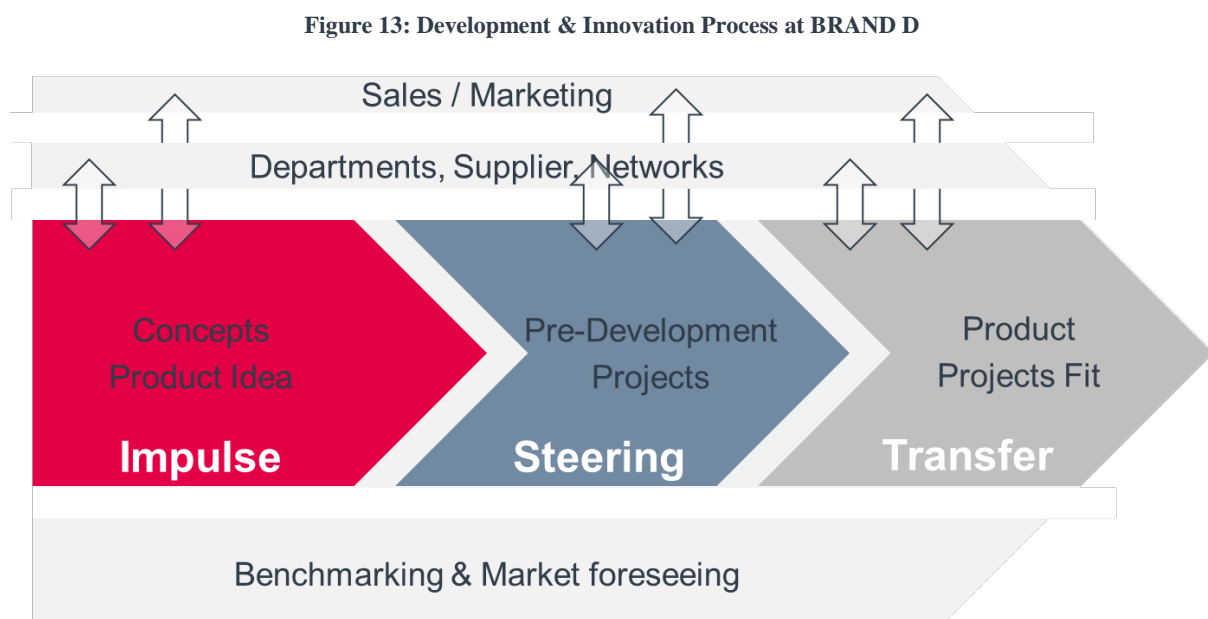
As a definition the interviewee referred to the commonly used definition in the literature. An innovation for *BRAND D* is a *novelty, valued by the customer with market success*. The innovation management at *BRAND D* is mainly concerned with product innovation. It does not focus on process or business model innovation. Latter is mainly performed by the sales department.

The interviewee defines open innovation as the integration of partners which usually are not involved in the innovation process. Yet, he points out, that there is no general understanding or definition within the organization. The main process for the innovation management within open innovation is the outside-in process.

### *b. Innovation Management at BRAND D*

The innovation management at *BRAND D* is neither holistic nor a central approach. The department has a coordination role and supports different department in the development of innovations. The actual development of innovation and innovative solutions however takes place in the specific technical departments, which decide which projects should continue and hold high independency. Usually, ideas are not steered by the innovation management but are quickly transferred to the specific department.

With its coordination role the innovation process at *BRAND D* is divided into three phases, namely the impulse, steering and transfer phase. The process is illustrated in the figure below:



Firstly, the impulse phase has the purpose to identify general trends, development trends, and new technologies. Here the innovation management supports the technical departments as well as coordinates the generation of ideas and concepts.

Secondly, comes the steering phase which initiates the actual pre-development project. The phase concerns selected innovations which will be repeatedly evaluated until the innovation reaches a desired level of maturity. Therefore, general feasibility will be demonstrated and the innovation will be qualified for serial development.

The third and last phase is the transfer phase. In this phase, the innovation will be linked to a concrete product development based on its general evaluation and the underlying business case. Since the innovation will have a specific use within a product and a *SOP*, the transfer phase basically initiates the transformation of a pre-development project to a serial development project.

In terms of innovation culture, the interviewee indicated that there is a high enthusiasm for innovation and an interest in the development of innovative products within *BRAND D*. However, there is a lack of specific channels and opportunities to steer in ideas. Historically, *BRAND D*'s corporate culture is considered lean and influenced by a high quality culture, which decreases the risk-taking ability.

### *c. Open Innovation at BRAND D*

Concerning the application of open innovation, the interviewee points out, that *BRAND D*'s focus lies on the integration of impulses from outside into the organization. The inside-out process is known within *BRAND D* but has less relevance to the innovation management. Only the patent department aims to license out technologies in order to create value. Real spin-offs are more projects of strategically relevance.

The interviewee explained that *BRAND D* already has several experiences with open innovation. Besides supplier integration activities, *BRAND D* is involved in university collaborations and in cooperation projects with firms from other industries. These projects and initiatives have proven that open innovation can be a valuable source of innovative ideas. The interviewee indicated that nevertheless the implementation of many projects failed due to



its focus on internal ideas. He referred to the “*not invented here*” principle as a limitation of internalization of external ideas.

Moreover, the interviewee talked about an internal approach towards open innovation. At the time of the interview, *BRAND D* was implementing an online innovation platform, where employees within *BRAND D*'s technical development department were able to participate in a closed innovation community. Core functions of the platform are idea input channel, idea generation in the community, opportunities for discussion, evaluation and selection of ideas and innovation by swarm intelligence, and opportunities for networking.

The project has proven the potential of capturing internal creativity by an online community platform. It allowed participants to influence, discuss and develop innovation concepts. Moreover, the community has shown that the main success factors for open innovation are freedom for creative work and the valuing and honoring of creative performance. The whole project was part of a Ph.D. dissertation which is soon to be published.

Generally, the interviewee identified the loss of image for *BRAND D* as a premium manufacturer as the main risk of open innovation. For the implementation, he again mentioned the not invented here problem. These factors prevent commitment towards an open corporate culture and the application of open innovation within *BRAND D*.

As advantages and opportunities he identified an “*out of the box*” perspective which could be reached by open innovation and its outside-in process. Furthermore, he indicates that it would enable *BRAND D* to develop innovations, which would be closer to actual customer needs.

#### ***d. Transfer of Innovation***

When discussing a successful and efficient format of the transfer of innovation, the interviewee pointed out, that the main factors of success are the easiness to use as well as the transparency of such a process or approach. He identified two important inputs within *BRAND D*'s innovation process: first the impulse phase and second, the project transfer from a pre-development to a serial development project. Moreover, he said that in order to be successful, the open innovation system needs to have a new system of incentives. Employee or even whole brands have to be intrinsically motivated to participate in the transfer of innovation. One form he could think of was the application of an innovation platform or online community within the entire *GROUP* similar to the project performed at *BRAND D*.

He described that *BRAND D* has the self-understanding of a service provider due to its history. But he sees challenges to actually open up towards others and giving up independence due to *BRAND D*'s corporate culture. Here again, he focuses on the need of a system of incentives as well as the need for cultural change within the *GROUP*.

He expects an open innovation system within the *GROUP* to be lean and transparent. It is important that the engineers can easily access information, without the need of massive administrative activities and large research. There should be a focus on quality rather than quantity. Moreover, users should be able to filter ideas in order to find innovation and ideas relevant to their strategic clusters and brands easily.

In conclusion, the interviewee evaluates the suggestion of an open innovation system within the closed system of the *GROUP* as generally worth achieving, but he thinks some basic requirements need to be fulfilled before the implementation is possible. For instance, the concepts need to be simple, democratic, politically clear and transparent. Moreover, it is important that it does not take too much effort and resources to actually use the system.

Furthermore, he explains that in order to be efficient, the ideas themselves need to be matured, meaning that a too early transfer would lead to less efficiency. A platform enabling participants to discuss ideas could increase the quality and maturity of the ideas.

In order to implement such a system from a point of view of *BRAND D*, there needs to be a clear dedication of upper management for such a venture. Moreover, there would be the need for a more independent and central innovation management at *BRAND D*.

#### 4.2.5 BRAND E

Due to formal limitation and policies, e.g. the maximal number of pages, the empirical findings of *BRAND E* are not included in this thesis. The findings were still taken into consideration for the conclusion.

## 5 Analysis

The following section will cover the analysis of the empirical findings as well as their comparison to the results from the theoretical research. First of all, the cases will be compared to one another and cross analyzed against the theory to point out similarities of the empirical findings and the theory. In the second section, the same procedure as before will be

performed but differences between the empirical findings and the theory will be outlined. In the next section, a cross case analysis will be performed to analyze and compare the different implications for the different cases. The analysis shall provide answers to the research questions.

### **5.1 Similarities: Individual Case Analysis vs. Theory**

When analyzing the individual cases presented in the empirical and theoretical findings, the similarities in the general understanding and implementation of the frameworks within innovation management seem to be most significant. In their cores, all underlying cases have shown that the brands have a similar way to define innovation and open innovation. Moreover, all brands appear to have a deep understanding about the different type and degrees of innovation. In general, the execution of innovation management is very close to the theory.

Moreover, the comparison of theoretical and empirical findings has shown that all brands formulated an innovation strategy. The purpose is, as indicated in the theory, to support the managerial decision making along with their corporate strategy. Here, most brands identified innovation strategy clusters in which they plan to excel in order to gain a competitive advantage.

Another significant similarity was found in the application of innovation processes. All interviewed firms applied some kind of stage-gate innovation process similar to the theory of Cooper. Naturally, the firms adapted these processes to their needs which generated the establishment of other processes.

The theory emphasized a lot on the opportunity of open innovation as a source of innovation. The companies have also identified open innovation as a valuable source but also as a tool to generate innovation and innovative ideas. Especially, the cross industry application and supplier integration was proven strategically important. Yet, another similarity can be seen in the use of business models as link between technical inventions and economic outcome. Here, inside-out processes within open innovation are applied can be further developed in the future.

This research has shown that in both, theory and practice, the transfer of knowledge is considered as a complex task to perform. A way which has proven itself as reliable to transfer

tacit knowledge between internal and external personnel is the cross-industry-innovation development. Moreover, this limits the risk of open innovation since the participants do not compete on the same market. At the same time, it also supports creativity as different knowledge domains come together.

## 5.2 Differences: Individual Case Analysis vs. Theory

The theory has shown that innovation activities require a lot of attention and dedication. The empirical findings have shown that all interviewed organizations agree that the innovation management is vital for the future competitiveness of any organization. Therefore, it is interesting that there are significant differences to the theory found in most of the analyzed brands.

Even though, the applied innovation management tools and frameworks were close to the theory, the companies have been adapting them to their needs. Other than suggested in the theory, most innovation management departments only act as incubators which support the other departments with their innovation activities. They apply creativity methods and give impulses, but the main responsibility and the decision making is done somewhere else.

When applying the open innovation paradigm, most analyzed firms only used the outside-in process. The reason is connected to the lower risk of disclosure. Moreover, the interviews have shown that the firms focus on their core business. Due to “*not-invented-here*” and “*not-sold-here*” issues, the brands decline most of the time to use information and concepts generated by open innovation. For instance, if an innovation does not fit the current business model, it will most likely no longer be considered in the development process.

In the literature, open innovation is often described as a specific method or framework. However, the analysis of the cases has shown that most of the companies consider open innovation rather as a philosophy than a method.

## 5.3 Cross Case Analysis

The comparison of all empirical findings shows a significant similarity within the understanding and approach towards innovation management. All brands showed a similar understanding of how innovation should be managed. Furthermore, all brands had some kind of formal innovation process. However, the extent of how structured, internalized, and implemented these processes actually are diverged from brand to brand.

Moreover, there was a difference in terms of how innovative and open the corporate culture is considered. Nonetheless, all cases have generally shown that innovation management is connected to the management of risk.

In conclusion, the cases have shown that open innovation within the *GROUP* is considered as valuable for all participating firms. To what extent and how they would implement the transfer of innovation varies from case to case, some being more close than others. Overall, it can be said that all brands consider it as necessary for the competitiveness in the future.

## 6 Conclusion

The goal of the master thesis was to provide an understanding and analysis of how innovations could be transferred within a closed system. Therefore, the theory of open innovation was chosen and analyzed, despite the incoherency within a closed system. The following chapter concludes the findings of the theoretical research, the findings of the empirical research; which is used to answer the research questions and derive implications and practical recommendations.

### 6.1 Answering Research Questions: Transfer of Innovation

The purpose of this thesis was to analyze and provide an overview of how *BRAND A* could transfer innovation within the *GROUP* of which it is part. In order to do so, the following research questions needed to be answered:

***“How can innovations be transferred between BRAND A and the GROUP?”***

- *How is open innovation applied today?*
- *How are innovations managed at the different brands within the GROUP?*
- *What are key success factors of innovation transfer?*

*Application of open innovation:*

Today, the brands within the *GROUP* transfer innovation in different ways. First of all, they apply open innovation with suppliers and universities. Second of all, there are already established synergy committees within the *GROUP* which are concerned with technical, and procurement synergies.

Generally, all interviewed brands have applied some open innovation approaches. However, most of the insight and knowledge captured from open innovation were not incorporated or implemented. This means that ideas and concepts have been generated by open innovation which were not used and incorporated after the projects were ended. As for now, there are still very little initiatives of open innovation within the *GROUP*. Nevertheless, the brands have already made positive experiences with open innovation concepts within a closed system and showed the willingness to further explore opportunities within open innovation.

*The management of innovation at the different brands:*

The thesis has shown that there is no centralized process or guideline from the *GROUP*, on how the brands actually manage innovation within their product development. However, the brands are consistent: they either follow a stage-gate-process, applied to their needs, or some sort of incubation or impulse consultant model in order to enhance the innovativeness of their brands.

Evidently, all brands have shown a similar understand of innovation and open innovation as they defined these terminologies. Generally, the brands followed a very close approach to the theory on how they defined innovation and open innovation. Furthermore, all brands defined an innovation strategy for themselves in order to guide managerial decisions on how resources are to be used to meet a firm's objectives for innovation and innovation management. Moreover, the research revealed that there is motivation to further develop the processes and methods, in order to support innovations. The theory as well as the results show, that there are many opportunities to increase innovation management efforts and that the responsible personnel is generally willing and open for new approaches.

*Key factors of success which enable a transfer of innovations:*

One of the most important success factors is the commitment from upper management. If an open innovation management system is to be implemented, upper management has to be committed to such a venture and dedicate resources for the execution.

Furthermore, the application of business model innovation is considered important for the success of an open innovation process. Business model innovation enables the commercialization of innovations which do not fit current business models or core markets.

Likewise, the research has presented the importance of clear structures and responsibilities. Besides showing commitment, every partner or brand needs to know their roles, rights and responsibilities when participating in an open innovation system, like the one suggested. Moreover, it is important to ensure each brand's ability to differentiate itself with USPs within the GROUP.

Finally, one of the most important success factors for enabling open innovation and the transfer of innovation is a simple and lean approach. Meaning that however a system or process is designed, it needs to be easy and non-time consuming. Otherwise, the process will not be incorporated in the daily operations.

***“How can innovations be transferred between BRAND A and the GROUP?”***

The analysis of theoretical and empirical research has shown that *BRAND A* has three main possible ways to transfer or diffuse innovation and knowledge within the *GROUP*. The figure below summarizes the methods to transfer innovation which could be concluded from this research:

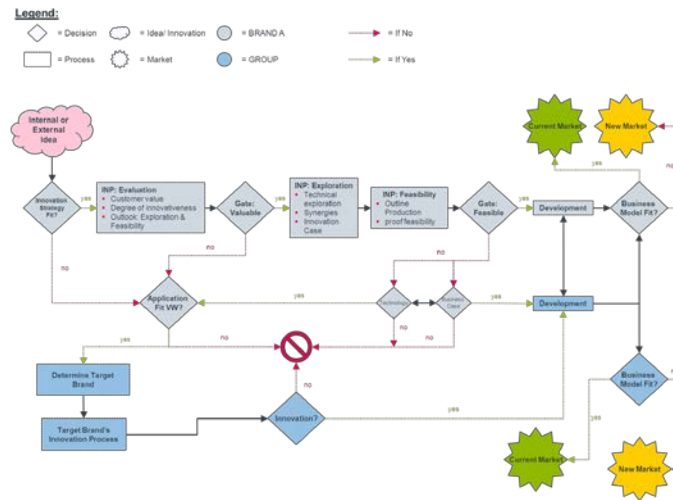
**Figure 14: Methods for the Transfer of Innovation**



The first and most simple way would be to collect the innovation project portfolios in an ***innovation data-base*** which every brand could access. The data-base would hold information concerning the particular innovations a brand is working on or what core competencies the brand wants to establish. Moreover, there should be a contact person from each brand who provides the content and further information if requested. In order to be efficient and effective, this data-base would need a basic filter system and a search engine to search for keywords and a strategic fit. The execution could be as simple as an excel list that could be shared online. Alternatively, the innovations could also be filtered and selected beforehand so that only the innovations appropriate for other brands are uploaded in the data-base.

The following process has been developed as a solution to transfer innovation within the group: *(The illustration can also be found in full size in the appendix 7.2)*

**Figure 15: Process proposal as filter for the data-base**



The process has the purpose to decide whether an innovation is applicable at other brands and should therefore be transferred or not. The process is designed from the point of view of *BRAND A*. *BRAND A* is responsible for the grey gates and processes and the *GROUP* for the blue ones.

First, an innovation has to be evaluated in order to assess if there is an innovation strategy appropriate for *BRAND A*. If yes, the innovation would be evaluated, explored and the general feasibility would be assessed. If the innovation does not pass a gate within the innovation process of *BRAND A*, it would be assessed if there is an application fit for other brands within the *GROUP*. If it does not pass the innovation process due to the lack of technical expertise, resources or the business case, again it will be evaluated if other brands within the *GROUP* would be able to either support the development, extent the business case or just integrate the innovation in their own innovation portfolio.

The second method to transfer innovation is to create *multi-brand workshops*. Similarly to the cross-industry-innovation theory, these workshops could be used to transfer knowledge and adapt solutions from others. Moreover, it would enable the transfer of tacit knowledge. Such workshops would be both effective and efficient while limiting the risk of disclosing too much information. The core element of such workshops is the combination of different knowledge domains in order to generate creativity. Multi-brand workshops would combine expertise as well as tacit knowledge of all participating partners.



Last but not least, the *GROUP* could establish a virtual online *innovation community*. This could allow, similarly to the innovation platform of *BRAND D*, to be an idea input channel and to discuss, generate and develop innovative ideas further. Moreover, employees could connect with experts from other brands and exchange information if needed as well as discuss, evaluate and select innovations. Generally, with all of these methods, the special needs of innovation are addressed.

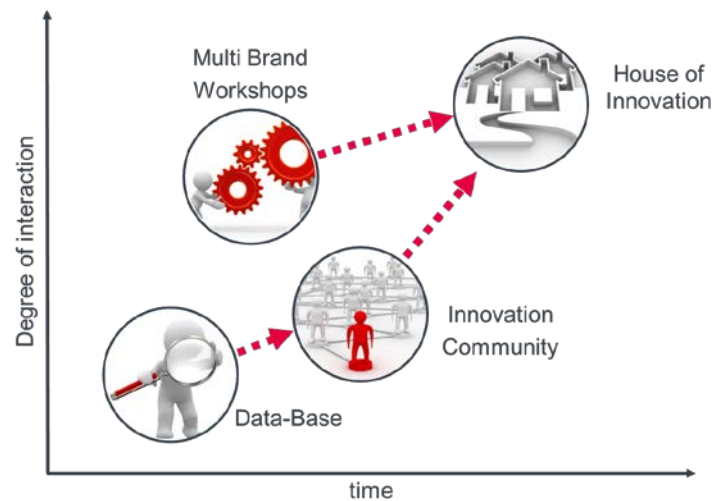
## 6.2 Discussion and Recommendation

The thesis aimed to analyze whether and how open innovation could be applied as a method to transfer innovation within a closed system. As this deviates from the common general understanding of open innovation as described in the literature review, the approach is considered unconventional. However, the research has shown that in order to “*unchain innovation*”, open innovation within a closed system could be a philosophy that allows firms to be creative and internalize as well as externalize knowledge, without fearing typical risk and drawbacks of open innovation.

The above discussed results leave us to conclude that the *GROUP* could establish three ways to transfer innovation, the expertise in innovation management and knowledge connected to innovations. First, the set-up of an *innovation data-base*, second the creation of *multi-brand-workshops*, and third the establishment of an online *innovation community*.

The author recommends implementing these processes incrementally. Therefore, the following figure illustrates the recommendations which result from the research of this master thesis as an *implementation roadmap*. The y-axis expresses the degree of interaction and the x-axis the time.

Figure 16: Recommendation roadmap



The roadmap illustrates that all recommended methods which would enable the transfer of innovation are interrelated to each other. As indicated in the roadmap, the innovation data-base could be implemented first, since it is considered less complex and requires only limited resources. Following in time, the *GROUP* should establish and set-up *the online innovation community*. In the meantime, one should allow brands to interact with each other and create *multi brand workshops*. In conclusion, in case that the three proposed methods or steps are taken and accepted, a future step could also be to establish a so called *GROUP house of innovation*. This should provide space, resources, and dedication to employees of all brands to come together for the development and implementation of innovation concepts.

### 6.3 Limitations and Future Research

Due to the public nature of this thesis and the confidentiality of the collected data, the use of the data was limited. Moreover, many of the interview partners only accepted to disclose information for the purpose of this research under the premise that it would not lead back to the company. As a matter of fact, this limited the chosen scope of research. The author was not able to develop factors of success for each company participating in the open innovation system as intended first. These success factors should have been derived from their innovation and research strategy clusters. However, the innovation strategies could not be used for the research in this thesis.

Moreover, the chosen sampling method might have led to a bias of the results. Since the companies participating had varying understandings and conceptions of innovation management, adapted to their specific needs, the answers given to the interview questions

might have led to wrong implications. Additionally, the chosen qualitative research method might also have been limiting the outcome of the thesis. Qualitative research is not representative as it is rather descriptive in nature. For future research in the field, one could recommend to combine qualitative and quantitative methods within a mixed research strategy. Furthermore, other organizations within different industries could be analyzed in order to obtain more generalizable outcomes.

A further limiting factor was the research gap between an open innovation approach within a closed system and the systematical transfer of innovation except from diffusion theory. No concrete theoretical research addressed these issues before and therefore, different theories had to be combined to generate a new theory.

The goal of the research was to provide an overview on how innovations are managed in the different participating companies and how these could set up a transfer system. Due to the limitation in time and resources, this thesis could only outline one possible process and discuss implications for further steps. For future research in the same or a similar area, it might be interesting to investigate concrete methods and mechanisms to identify and transfer innovations. Moreover, one could develop levers to influence the transfer of innovation within closed systems. Last but not least, future research could also focus on the incentives for transfer of innovation.

## 7 APPENDIX

### 7.1 Interview Guide: Qualitative Interviews

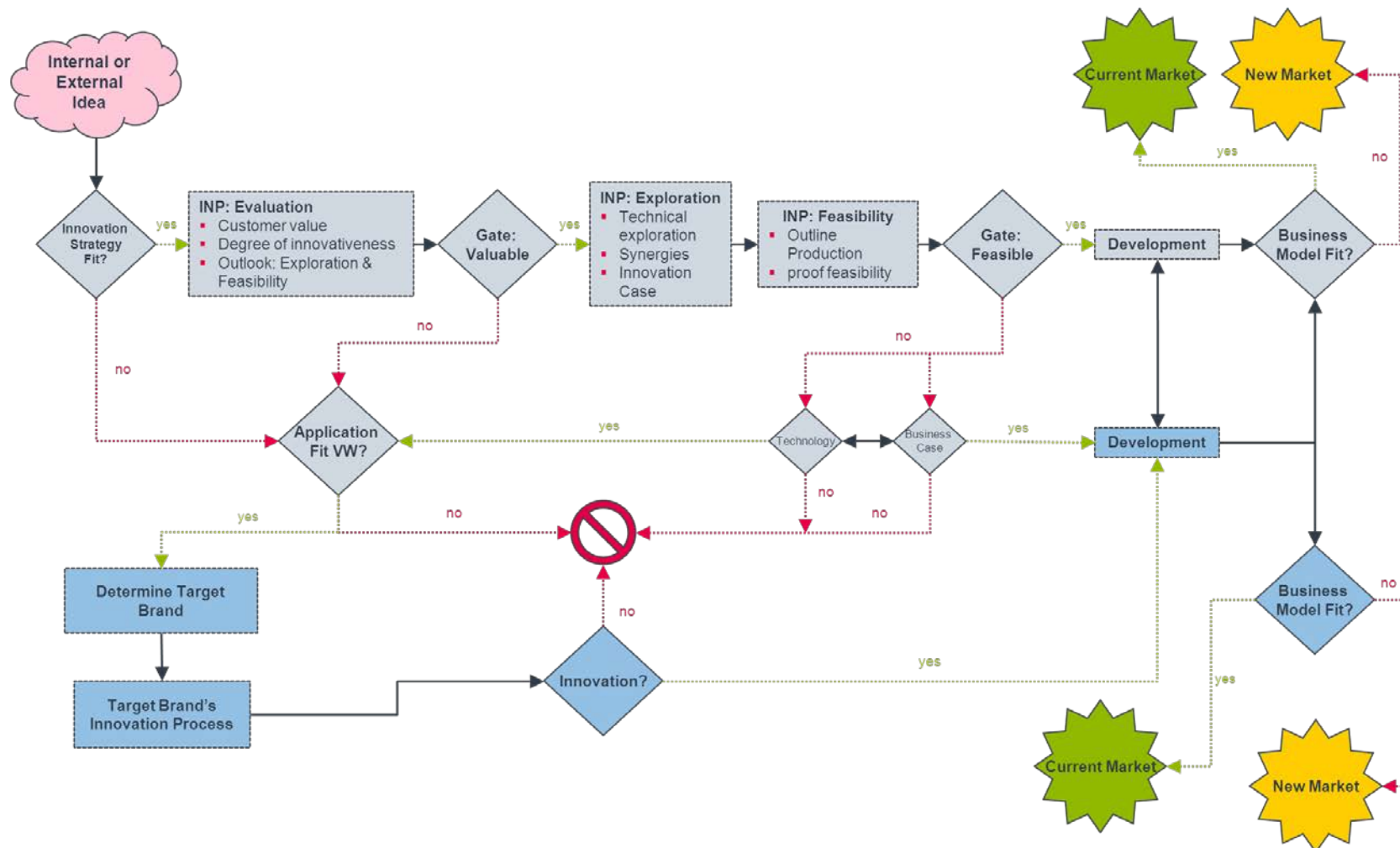
Topic	Lead-Question
<b>Introduction</b>	
<ul style="list-style-type: none"> <li><input type="checkbox"/> Introduction of each other</li> <li><input type="checkbox"/> Introduction of the thesis</li> <li><input type="checkbox"/> Clarification about purpose of the interview and confidentiality issues</li> </ul>	
<b>Definitions</b>	
<ul style="list-style-type: none"> <li><input type="checkbox"/> Innovation</li> <li><input type="checkbox"/> Open Innovation</li> <li><input type="checkbox"/> Types of innovations</li> </ul>	<ul style="list-style-type: none"> <li>▪ How would you define Innovation?</li> <li>▪ How would you define Open Innovation?</li> <li>▪ Is there an official definition for innovation?</li> <li>▪ What types of innovation exist in the corporation?</li> </ul>
<b>Understanding and Application of Innovation Management at each BRAND</b>	
<input type="checkbox"/> Self-conception of innovation management	<ul style="list-style-type: none"> <li>▪ What is innovation management for you? (incentives, communication, awareness)</li> <li>▪ Do you have a structured process to evaluate innovations?</li> <li>▪ Does a central or de-central innovation management exist in your corporation?               <ul style="list-style-type: none"> <li>○ How are innovation and innovative ideas managed in your corporation?</li> </ul> </li> </ul>
<input type="checkbox"/> Motivation for Innovation Management	<ul style="list-style-type: none"> <li>▪ What is the purpose and motivation of innovation management at your corporation?</li> </ul>
<input type="checkbox"/> Evaluation and Factors of success for innovation	<ul style="list-style-type: none"> <li>▪ How do you evaluate valuable innovations?</li> <li>▪ By which criteria do choose valuable innovations?</li> <li>▪ Do you have general factor of success for innovations?</li> </ul>
<input type="checkbox"/> Innovation Strategy	<ul style="list-style-type: none"> <li>▪ Do you have a general innovation strategy at your brand?               <ul style="list-style-type: none"> <li>○ What is the focus of the innovation strategy?</li> </ul> </li> </ul>
<input type="checkbox"/> Innovation culture	<ul style="list-style-type: none"> <li>▪ What defines an innovative and open culture for you?               <ul style="list-style-type: none"> <li>○ Would you consider your brand and your department risk adverse or risk seeking?</li> <li>○ Would you consider your corporate culture as open?</li> </ul> </li> </ul>
<input type="checkbox"/> Standing of innovation management	<ul style="list-style-type: none"> <li>▪ How is your Innovation Management organized, structured?</li> <li>▪ Do you have an independent department?</li> <li>▪ Are there promoters for innovation within the senior management?</li> </ul>
<input type="checkbox"/> Duration of Innovation Process	<ul style="list-style-type: none"> <li>▪ How long does an innovation take from an idea to SOP?</li> </ul>
<input type="checkbox"/> Coordination within the organization	<ul style="list-style-type: none"> <li>▪ How do you coordinate the innovation projects with other departments?</li> <li>▪ How do you make sure that innovations go through your process?</li> </ul>

<b>Open Innovation</b>	
<input type="checkbox"/> Self-conception of open innovation	<ul style="list-style-type: none"> <li>▪ What is open innovation for you?</li> <li>▪ How do you handle IP rights?</li> </ul>
<input type="checkbox"/> Experience with open innovation	<ul style="list-style-type: none"> <li>▪ Have you ever applied open innovation concepts? (lead-user, Crowdsourcing) <ul style="list-style-type: none"> <li>○ Which were/ <i>which would be possible</i> partners for open innovation?</li> <li>○ How did you select these partners? (criteria)</li> <li>○ Which methods and tools did you use? Did you use any systematic approach?</li> <li>○ How did you share knowledge?</li> </ul> </li> <li>▪ What is the influence of your OI approaches on your core competencies?</li> </ul>
<input type="checkbox"/> Risk of open innovation	<ul style="list-style-type: none"> <li>▪ Name risks you see in an open innovation concept?</li> </ul>
<input type="checkbox"/> Opportunities	<ul style="list-style-type: none"> <li>▪ Do you see opportunities within open innovation for your brand?</li> </ul>
<input type="checkbox"/> Experience with Co-Creation and cooperation in IM and Pre-Development	<ul style="list-style-type: none"> <li>▪ Have you applied cooperation for innovation management or pre-development?</li> <li>▪ If you have used open innovation or transferred innovations before, what would be example for innovations you transferred before?</li> </ul>
<input type="checkbox"/> Benefits of Open Innovation	<ul style="list-style-type: none"> <li>▪ Do you think that an Open Innovation System would be beneficial for your brand?</li> </ul>
<b>Implementation of Open Innovation and Transfer of Innovations</b>	
<input type="checkbox"/> Format for successful OI	<ul style="list-style-type: none"> <li>▪ What defines an effective and efficient open innovation system?</li> <li>▪ What would be an appropriate form to transfer innovations?</li> <li>▪ Where within your innovation process would you place a consolidation with other brands innovation managements?</li> <li>▪ How do you think could we diffuse knowledge?</li> </ul>
<input type="checkbox"/> Frequency	<ul style="list-style-type: none"> <li>▪ What should the sequence of transfer?</li> </ul>
<input type="checkbox"/> Willingness	<ul style="list-style-type: none"> <li>▪ How would you describe the willingness of your corporation to transfer and share innovations?</li> <li>▪ How and what kind of information would you be willing to share?</li> </ul>
<input type="checkbox"/> Selection & Identification of Innovations	<ul style="list-style-type: none"> <li>▪ By which criteria would you choose the innovations for a transfer?</li> </ul>
<input type="checkbox"/> Expectations on OI	<ul style="list-style-type: none"> <li>▪ What would be your expectations towards an efficient and effective open innovation process within the GROUP?</li> </ul>
<input type="checkbox"/> Final evaluation of an open innovation approach	<ul style="list-style-type: none"> <li>▪ Do you think the goal of an open innovation system within the closed system of VW is worth achieving?</li> <li>▪ What circumstanced must be fulfilled in order to achieve an effective and efficient system?</li> <li>▪ What limits you, and your organization to achieve this goal?</li> </ul>
<b>End</b>	
<ul style="list-style-type: none"> <li><input type="checkbox"/> Showing of gratitude for the participation</li> <li><input type="checkbox"/> Explanation of the following process</li> <li><input type="checkbox"/> Invitation to the final presentation</li> </ul>	

## 7.2 Process Proposal for the Transfer of Innovation

Figure 17: Process Proposal for the Transfer of Innovation

### Legend:



### 7.3 Appendix: Transcript – Focus Group Interview

*January 31, 2014*

*BRAND A*

Moderator:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Participants from BRAND A:

*Head of Innovation Management, 3 Innovation Manager, and a Student Trainee*

**Due to confidentiality the transcript of the focus Group  
interview will not be published in this thesis.**

*The focus group interview took place in a conference room at BRAND A. The questions were asked in English, the interview and discussion were executed in German. Everything was recorder and a content transcription of the interview was carried out.*

## 7.4 Appendix: Transcript – Interview *BRAND A*

*May 2014*

Interviewer:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Interviewee:

*Head of Innovation Management, 3 Innovation Manager, and a Student Trainee*

**Due to confidentiality the transcript of the qualitative interview at *BRAND A* will not be published in this thesis.**

*The interview was carried out with an Innovation Manager from BRAND A. The interview and discussion were conducted in German. Everything was recorder and a content transcription of the interview was performed after the interview.*



## 7.5 Appendix: Transcript – Interview *BRAND B*

*March – May, 2014*

Interviewer:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Interviewee:

- Representative of Technology Management
- Representative of Technological Foreseeing, Future research and trend Transfer
- Representative of Innovation Management

**Due to confidentiality the transcript of the qualitative interview at *BRAND B* will not be published in this thesis.**

*The interview was performed as 3 separate telephone interviews with different representatives from BRAND B. The interview and discussion were executed in German. Everything was recorder and a content transcription of the interview was performed after the interview.*

## 7.6 Appendix: Transcript – Interview *BRAND C*

*March, 2014*

Interviewer:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Interviewee:

- Representative of Pre-Development, Patents, Innovation at *BRAND C*

*Due to confidentiality the transcript of the qualitative interview at **BRAND C** will not be published in this thesis.*

*The interview was carried out as a telephone interview with a representative from **BRAND C**. The interview and discussion were conducted in German. Everything was recorder and a content transcription of the interview was performed after the interview.*

## 7.7 Appendix: Transcript – Interview *BRAND D*

*April 2014*

Interviewer:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Interviewee:

- Head of Innovation Management
- Doctorate Candidate Innovation Management

**Due to confidentiality the transcript of the qualitative interview at *BRAND D* will not be published in this thesis.**

*The interview was carried out with representatives of the innovation management from of Brand D. The interview and discussion were conducted in German. Everything was recorder and a content transcription of the interview was performed after the interview.*

## 7.8 Appendix: Transcript – Interview *BRAND E*

*March 2014*

Interviewer:

**Tillman Rödle**

*(Thesis Work Student at BRAND A)*

Interviewee:

- Representative of Innovation Development
- Representative of Innovation Concepts

**Due to confidentiality the transcript of the qualitative interview at *BRAND E* will not be published in this thesis.**

*The interview was carried out with representatives of the innovation management from of Brand E. The interview and discussion were conducted in German. Everything was recorder and a content transcription of the interview was performed after the interview.*

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