Finding and Managing for Ambidexterity

By Annegine Gjerlev Stück & Silvia Valentina Aburlacitei

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Abstract

The lack of previous research into the balance of exploration and exploitation, has lead us to explore how to find and efficiently manage for the balance fit between exploration and exploitation, within dissimilar industrial contexts. This was done by firstly researching the indirect impact of the environment over *exploration* and *exploitation* on four retrospective case studies, through extraction of selecting criteria. The four retrospective cases helped us to better understand what companies must take into consideration, when finding the balance fit. An analysis of realization of the balance fit of the cases undertaken by two dissimilar industrial settings, showed patterns of differences among similarities of the context of exploration and/or exploitation, the product life-cycle, technological advancement and return on investments. Secondly, the generalization of patters was used for further understanding of the different ways of managing for the balance fit. Furthermore, the implications were discussed coupled with additional theory and previous research, resulting in a typology of four distinct ways of finding the balance fit and managing for it, within the context of fit of exploration and exploitation. Lastly, the thesis proposes four ways of how to find and efficiently manage for the balance fit, however, with the notion of further taking into consideration, among others, the industry related product life-cycle.

Keywords: Exploration, exploitation, ambidexterity, balance, industrial context, management.

Contents

Chapter 1

Introduction

The intense and increased competition companies experience today, forces them to compete under continuously changing circumstances. The ever changing conditions of the environment, are causing a chain reaction for companies to reorganize themselves as to survive and stay competitive on the market (e.g Tidd & Bessant 2009; Carruthers 2013; Reeves et al. 2015). The reorganization means for companies to restructure their internal processes and simultaneously balance their tangible and intangible resources, in order to inevitably accomplish their strategic goals of either selling more or spending less, meaning doing either more exploitation or more exploration. The chain reaction of changing environmental conditions affecting companies' ability to adjust, also affects the placement of exploration and exploitation in the balance fit, and so finding the balance fit is crucial for companies to survive changes. Taking into account the ever-changing conditions of the environment, as well as the rapid wave of development of existing technologies, now more then ever, the need for the balance fit is important.
The purpose of this thesis is to gain a deeper understanding of, how to find and efficiently manage for the balance fit between exploration and exploitation, within dissimilar industrial contexts. From the very beginning, we acknowledge the importance and difficulty of looking into this topic, and it goes without mentioning the many frustrations and disputes surrounding the, maybe ambitious topic to research. The interesting, though also problematic issue is to understand when a balance fit occurs, as we know that both exploration and exploitation should be present for companies to survive. Throughout the last years, the question of reaching a state of ambidexterity (i.e. simultaneous exploration and exploitation), has gained increasing terrain in the discussion around company survival, especially after the global financial crisis, and why the field should be further researched [Antonio Nieto-Rodriguez 2014]. According to our understanding, both exploration and exploitation are necessary for companies to adjust for the changing world that we are living in, and to survive.

Methodologically speaking, our inquisitive nature about how to find and efficiently manage for the balance fit, within dissimilar industrial contexts, directs us towards a paradigm of understanding existing literature and theory, four successful empirical cases of realization of the balance, together with the extracted connections between the empirical data and theory. The paradigm makes the boundaries of how to explore the topic of the balance fit, through the use of a constructivistic epistemology, allowing us to examine qualitative secondary data. Further-

more, the interpretivistic paradigm is allowing us to apply cross theoretical methods of analysis to cross-check the empirical sampling, as to draw general patterns of understanding of what could guide companies in finding the balance fit. After the cross theoretical analysis, a content analysis of the extracted patterns and criteria will be an incentive to analyze different ways of managing for finding the balance fit, together with additional existing theory. Lastly, a discussion to inductively debate the implications of the findings in regards to reaching a generalization statement, derived from the four chosen empirical cases.

1.1 Research Scope

While trying to decide which concepts to use in our research, we encountered multiple challenges, as well as delimitations from our analytic foundations that come from our studies. This impacted what we decided to include and what to eliminate from our process board.

Following this, the thesis was designed to give us a better and more in depth understanding of the way a company can find and manage for a balancing fit of the concepts of exploitation and exploration. With the addition of finding out that manufacturing companies have an increased focus on the exploitation capabilities, our interests expanded and drove us towards wondering if different companies in different industries experience the balance fit towards exploration or exploitation. But just finding the balance fit of exploration and exploitation is not enough in leading the company towards a successful outcome. Additionally, managing for the balance is also a key important capability of companies to survive the changing external environment. Finding and managing the balance between exploration and exploitation is a difficult research domain, which is why we had to spend a lot of time during processes of search in order to really understand the standing foundation of the theories and what are the problems. With the focus on how to find and manage for the ability of companies to balance how to explore and exploit, we have chosen to delimitate the thesis from the topic of change management, even though it can be related to finding and managing for a balance within the industrial context. Furthermore, the topic of organizational learning can be highly relevant to understand how companies learn in the process of finding and managing the balance, however due to the lack of research of the chosen topic, we believe that a more profound research insight into the the topic should be executed first.

1.2 Thesis structure

As for profound sufficient research insight into the chosen topic of the thesis, chapter 2 presents the theoretical starting point of this research, focusing on exploration/exploitation, ambidexterity and strategic management. This will be done by looking into and cross-checking the theoretical foundations of the three areas of literature, from which research gaps will be obtained. Through careful deliberation of the literature and theoretical points, we also started to wonder if the environment within industries could determine the boundaries and criteria for the companies' life cycle. Additionally, how differently paced industries could affect the balancing point of the exploration and exploitation concepts of the companies situated in specific industries.

Chapter 3 will be focusing on the methodological point of view, including the methodological choices that have been made in order to have a clearer insight into how the research should be made. This will provide a standing point from which the research design of the project will be developed. The research aspects of the theoretical foundations will be used in order to analyze the chosen empirical sampling, which will be presented in chapter 4. To investigate the research area, four companies pertaining to the high-tech and traditional industries represent

the empirical sampling, to illustrate the different balancing fits of exploration and exploitation.

The theory presented (chapter 2), will provide the platform for chapter 5, in which the first step of the analysis will revolve around the first sub-question, as the case studies of the project to be cross-analyzed based on four theory developed categories, to further understand what should be taken into consideration when finding the balance fit, within the industrial context. The next step of the analysis will be looking into the second sub-question as to understand different ways of efficiently managing the balance, by using additional theory of performance management and innovation portfolio management related literature. Further on, chapter 6 will be focused on the results of the analysis, as well as on the discussion emerged from them. The discussion will be focused on how to find and efficiently manage for the balance fit for companies in general, as to understand companies' ability to organize for different ways of balancing exploration and exploitation. Finally, chapter 7 summarizes and concludes the overall research performed.

Chapter 2

Literature review

The objective of the literature review is to establish and discuss the theoretical foundation of this thesis. The chapter will be representing the scope of the research, introducing the research problem, and cross-checking what is known and unknown in the literature. During our search for theoretical and empirical problematics in the economy- and business life, we have came across several articles and literature about problematics in balancing exploitation and exploration, hereby both finding and managing for the balance. Three bodies of literature, *exploration & exploitation*, *ambidexterity* and *strategic management* were chosen due to their relevancy to the research. Furthermore, the literature review will be focusing on identifying inconsistency and gaps associated with the three bodies of literature together, rather than separately.

2.1 Introduction

In today's intense and increased competition (e.g. Tidd & Bessant 2009; Carruthers 2013), companies all over the world are forced to compete under ever-changing conditions. The unstable and unpredictable business environments are changing with increasing speed, which have affected the life-cycle of most companies, to twice as fast as 30 years ago [Reeves et al. 2015 - 1]. Additionally, previous research have shown that companies die sooner that the people who run them. In fact, one in three public companies and one in six large companies are expected not to survive on the global plan, within the next five years [Reeves et al. 2015 - 2]. Despite the threat to companies' life-cycle, most of their focus is on performing in the short-term. However, focusing too much - or only on the short-term has been argued to result in failures, due to the fact that companies then will rely too much on past success and experiences, also called *the success trap*, instead of renewal of their strategies [Reeves et al. 2015 - 2].

The success trap manifests when companies focus too much on their exploitation capabilities in order to survive, and in the last few years it has been shown to be an existing problem among companies. One in three companies fall into the success trap by over-exploiting, over-optimizing and relying too much on previous success. According to the article *Tomorrow Never Dies: The Art of Staying on Top* by Reeves, Haanæs & Harnoss (2015), the degree of exploration has also been neglected by one in four large companies for the past ten years. The authors further argue that this huge decline represents a decreasing interest in exploring future endeavors of investors

[Reeves et al. 2015 - 2]. Relying too much on either exploration or exploitation seems to have critical consequences for companies to fail. According to O'Reilly III and Tushman (2004), the issue of balancing exploration and exploitation has existed since the introduction of the concepts, and "*it has become a battle ground for management [...]*". However, the authors further explain that the problematic of balancing the two concepts, still seems to be unsolved [O'Reilly & Tushman 2004].

2.2 Exploration and Exploitation

According to James March (1991), the concept of exploration is defined as a learning mechanism, with the purpose to learn by experimenting with new alternatives and possibilities. Furthermore, March is describing exploration as including things captured by terms such as; search, experimentation, flexibility, risk taking and innovation [March 1991, pp. 71], and later that exploration is associated with organic structures, path breaking, improvisation and emerging markets [He et al. 2004, pp. 481]. Strategies of exploration are often constructed by increasing the innovation proximity and activities of a company's current product trajectory and its existing customer segment. By the increased variety, explorative activities enable companies to identify opportunities, create new knowledge and develop the necessary capabilities for long-term survival [Sirén et al. 2012, pp. 20]. The fact that exploration is about challenging existing ideas of entrepreneurial and innovative concepts, March underlines that the outcome of exploration can be difficult to measure in the short-term and further explains, that the return from exploration can be uncertain and sometimes negative [March 1991, pp. 85]. Exploration can be effective but because of its long-term nature, it might lack a high degree of efficiency.
As when exploration is about learning or experimenting with new alternatives, exploitation is described as to secure a stable market position by committing sufficient, and majority of the company's resources, to ensure viability of the company against its competitors. Exploitation strategies most often reduces variety, opposite to exploration strategies, by increasing operational efficiency and developing the internal capabilities to adapt to the current environment (March 1991). As differentiation to exploration strategies, exploitation strategies entail activities such as; refinement, efficiency, productivity and selection [March 1991, pp. 71], also including extending existing skills, capabilities and resources. The returns from exploitative activities are often easier to measure than the explorative activities, and because of its emphasis on operational efficiency, the returns are often more positive and predictable [Auh et al. 2005, pp. 1653].

The distinction of exploration and exploitation has been highlighted by researchers to a wide range of organizational phenomena and management literature (e.g organizational structure, organizational learning and strategy research), throughout the last few years (Hitt et al. 2011; Ireland et al. 2003). However, there is still tension between exploration and exploitation, because the two concepts represent two contradictory strategies and imply different capabilities for companies to embrace simultaneously, to survive in the dynamic environment. The tension of balancing exploration and exploitation is argued to cause companies to be trapped within dynamics of accelerating either exploration or exploitation (e.g March 1991; Levinthal el al.

1993). On the one side, as a part of the self-reinforcing nature, organizational learning makes it more captivating for companies to maintain their current focus and to continue to develop their current capabilities, even if the environment has changed. Furthermore, is the self-reinforcing nature causing the core capabilities of companies to be turned into "*core rigidities*" (Leonard-Barton 1995). On the other side, experimenting activities are reducing the speed at which companies' current competences are refined and improved [March 1991, pp. 72].

2.2.1 Ways of balancing exploration and exploitation

While trying to find and maintain a balance between exploration and exploitation, much literature (e.g. Miller 1993; Vermeulen & Barkema 2001; Mahon & Murray 1981), is underlining the importance of the ever-changing external environment. Strategies of exploration call for experimentation in order to discover and develop new opportunities in anticipation of the need to adapt to environmental changes. However, exploitation strategies are centering about taking advantages of the existing resources and assets to address the current market demands [Levinthal & March 1993]. This is to say, that companies should not be dependant on only one type of strategy in order to fulfill their customers's needs. Companies have to look independently at both concepts, as well as the changing environment in order to maintain their competitive advantage, because depending on only one of the concepts could lead to a delayed reaction to the changing environment and endanger companies' competitive advantages [Miller 1993, pp. XX]. The concept of balancing exploration and exploitation (later ambidexterity), suggests that in order for companies to maintain their positions, both strategies regarding exploration and exploitation should be present, simultaneously. Without questioning the importance of companies to balance both exploration and exploitation, the question of what the balance fit is, still remains unclear. The literature shows that in order to reach the balance fit, it is not necessary to have an *equal* amount of exploration and exploitation, instead companies should look towards the conditions of their external environment to make a strategic choice when exploring or exploiting [Schulze 2009, pp. 64].

The simultaneous work of exploration and exploitation, is often described via the terminology of *ambidexterity*. Ambidexterity was first described and defined by Duncan (1976) and since, many researchers have described the ambidexterity construct as complex and multifaceted parallel with various definitions and ways of measuring the terminology [Junni et al. 2013 pp. 310]. Authors like Venkatraman, Lee and Iyer (2007) define ambidexterity as "*the organization's ability to manage contradictions and multiple tensions in dealing with the present and future, efficiency and effectiveness, alignment and adaptation, and optimization and innovation.*" [Popadiuk et al. 2018, pp. 643]. While other researchers defines ambidexterity as the ability to both explore and exploit simultaneously (Carter 2015) or as addressing the problematics and challenges that companies face in managing two competing goals, simultaneously (Birkinshaw et al. 2013). As the existence of the various definitions of the ambidexterity terminology, there are three streams of literature that underline different ways companies can become ambidextrous; *structural*, *contextual*, and *cyclical*.

The first literature stream appeared in 1996 by Tushman & O'Reilly in which they defined ambidexterity as "*the ability to simultaneously pursue both incremental and discontinuous innovation and change results from hosting multiple contradictory structures, processes, and cultures within the same firm.*" [Tushman et al. 1996, pp. 24]. Tushman & O'Reilly, argue that structural separation is a way for companies to create and develop ambidexterity, mainly because each unit, team and individual has different competencies, contexts, cultures ect., that allow them to carry out only for exploration or exploitation [Popadiuk et al. 2018, pp. 643]. The next type of ambidexterity is the contextual ambidexterity, which refers to context, organizational culture and what Gibson & Birkinshaw (2004) call "*manager supporting individuals through environmental development and management*". The last element consists of sets of stimuli and pressures that have a motivating impact on the companies' employees, in order to further develop their activities to achieve and adopt ambidexterity and ambidextrous behavior. In this type of ambidexterity, it is necessary to build and adjust systems and processes that encourage employees to adopt ambidexterity, in order to make decisions of distribution of their time between conflicting demands [Popadiuk et al. 2018, pp. 644]. Cyclical ambidexterity, also named *sequential ambidexterity*, implies that a company shifts among exploration and exploitation activities for a period, and reorganize their processes and structures, sequentially. This emphasizes that a company could choose to focus only on exploration activities for a period, until it decides to shift and only focus on exploitation activities and vice versa. Tushman, Virany & Rimanelli (1985), argued that a perfect balanced alternation between exploration and exploitation will empower companies to adapt to changes in the environment, and furthermore embody ambidextrous companies in the long-term [Popadiuk et al. 2018, pp. 644].

Previous studies have highlighted the importance of companies to focus on both the organizational environment and the external environment, when trying to achieve ambidexterity. Organizational factors such as; processes, structures, cultures and systems, have an impact on achieving an ambidextrous company. Furthermore, the external environment is important to focus on, because of the demand arising from forces created by the external environment, as the economy. Regarding the sectoral environment; competition, dynamism, customers and suppliers are also important factors to include, when being ambidextrous [Popadiuk 2012, pp. 80].

2.3 Strategic Management

In the previous section, we have argued that achieving ambidexterity involves a certain level of focus on both the organizational and external environment, because of the changing conditions. To keep up with the dynamics of the external environment, managers indeed must decide, plan and allocate resources and assets for encompassing both exploration and exploitation strategies, which is essential within the field of strategic management. The question of how companies achieve and sustain competitive advantages, is fundamental in the research field of strategic management [Teece et al. 1997, pp. 509], as well as the dilemma of creating and sustaining competitive advantages, while at the same time exploring and exploiting embraces also strategic thinking and management (e.g Gilbert 2005).

2.3.1 Strategy and strategic management

Defining *strategy* often depends on the context in which strategies are used. In this thesis, a strategy is referring to *[...] a framework for making decisions about how you will play the game of business.* [Latham 2017]. The daily decisions are including choices in the scale of (capital) investments, to prioritization of operational activities, to marketing, to individual routines and procedures. If there is no consistency among companies' strategic frameworks of decisions, they will be missing a clear direction which will lead to suffering of discord and confusion [Latham 2017].

According to Teece, Pisano & Shuen (1997), "*The field of strategic management is avowedly normative. It seeks to guide those aspects of general management that have material effects on the survival and success of the business enterprise.*" [Teece et al. 1997, pp. 528]. In general, strategic management is about identifying and describing the strategies that companies' managers should realize and execute, as to achieve an increasing performance and competitive advantage. Additionally, the definition of strategic management also refers to decision-making and activities undertaken by managers, which further determine the output of a company's performance [MSG 2019].

Strategic thinking links analyzing exploration and exploitation to the organizational and managerial cognition [Kaplan 2011, pp. 682], and companies' use of strategic frames to further determine companies' individual approach to their businesses. For companies applying strategic thinking and frames, provides them a worldview, which the company can use for interpreting the complex reality [Kor et al. 2013, pp. 235]. In managing changes of ambidexterity, managers are required, as decision makers, to be capable of linking and balancing different - and sometimes contradictory strategic approaches, simultaneously; the existing strategy of exploitation and the new one supporting exploration [Taylor et al. 2009, pp. 718]. However, the small amount of existing research within the topic of managing ambidexterity, has shown that it very difficult to execute in practice. Mostly, because the already existing strategic approach (i.e. exploitation) within the business is deeply embedded in the company [Bettis et al. 2003, pp. 378]. Additionally, companies often feel efficient and comfortable just by exploiting the already learned

and developed competencies, assets and routines, which leads to managers relying too much on responding patterns and previous decisions [Maijanen 2017, pp. 150].

2.3.2 Dynamic capabilities

In relatively stable and predictable environments, companies do well by focusing on deploying operational capabilities (i.e. the capabilities that enable companies to make a living on everyday basis). However, stability and predictability are rare in today's intense and increased competition all over the world. The dynamic environment and increasing competition forces companies to develop dynamic capabilities, in order to keep up and succeed in the changing conditions [Helfart et al. 2011, pp. 1245-1246]. By developing dynamic capabilities, companies modify and renew their assets and competences, to address the changing conditions and customer demands, to achieve success in the long-term. The function of the dynamic capabilities however, depends on the strategic focus of the company and how companies want to renew their businesses (i.e acquisitions, business models, etc.) [Maijanen et al. 2017, pp. 151].

Researchers investigating dynamic capabilities often focus on different theoretical currents. Teece, Pisano & Shuen (1997) define dynamic capabilities as "*[...] the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.*" [Teece et al. 1997, pp. 516]. It further describes that the dynamic capabilities reflect the ability of a company to achieve new competitive advantages, given positions on the market and path-dependencies. Other researchers such as Eisenhardt & Martin (2000), consider integration processes, resource gaining, reconfiguration, and release as the elements that dynamic capabilities consist of, by further combination of the elements and creation of changes in the market. Zollo & Winter (2002) focused on dynamic capabilities within the field of organizational learning, in where they came up with a dynamic capability conceptualization, and their definition covers absorptive capacity [1], as one learning element. In 2003, Winter (2003) defined dynamic capabilities as a tool of supporting strategic organizational analysis, to be configured as a possible solution to specific problems or internally produced. The research field of dynamic capabilities is argued to be an active and promising one. As reviewed above, the study of dynamic capabilities is characterized by various interpretations and conceptualizations, and even diverges in the understanding of the constituting elements. Despite the different understandings and attributes of capabilities, researchers have agreed that dynamic capabilities are processes built into a company, which further acquiesces changes in the resource base of a company [Popadiuk et al. 2018, pp. 642].

However, when researching in the nature of dynamic capability, Teece (2007) is presenting dynamic capability micro-foundations terminology in the article *Explicating Dynamic Capabilities: The Nature and Micro-foundations of (Sustainable) Enterprise Performance.* In the article, Teece is operationalizing and verifying dynamic capabilities between organizational and man-

[1] Absorptive capacity is defined as a company's ability to identify, transform and use external knowledge and practice within the company [Cohen et al. 1990]

agerial processes, systems, procedures and structures that underpins each capability class. The three elements of capacities are;

- *Sensing* and scanning opportunities,
- *seizing* opportunities and
- *reconfiguring* intangible and tangible assets to maintain competitiveness
  [Teece 2007, pp. 1319].

2.3.2.1 Sensing opportunities

Companies must focus on constantly scanning, searching and exploring across markets and industries, in order to identify and sense opportunities. However, sensing opportunities is not only about investing in exploration activities (i.e. technological possibilities and customer needs), but also emphasizes an understanding of latent demand, response from competitors and suppliers together with external focus (i.e. industries and markets). Accordingly, the microfoundations of sensing are related to identification, interpretation and exploration activities, and are further considered in four groups (figure 10.1 in appendix 1), configured to identify customer needs, evolution of industries and structures within the market, and probing of supplier and competitor's activities.

- Processes to direct internal R&D and select new technologies - this can be done through a company's internal R&D activities, to map occurring activities within the business ecosystem.
- Processes to tap supplier and complementary innovation - this microfoundation is centered about exploration of both suppliers and complementary innovation, mainly because they affect and drive innovations in the products of the company.
- Processes to tap development in exogenous science and technology - is about achieving access to new inventions and innovations by identifying and later utilizing the necessary scientific and technological developments.
- Processes to identify target-market segments, changing customer needs, and customer innovation - the last group of microfoundations of dynamic capabilities is about focusing on external changes such as customers' needs, market segments and customer's innovations [Teece 2007, pp. 1323-1326].

In parallel with executing sensing activities, managers of companies already have practical knowledge about customers' needs, which assists them when sensing opportunities, and the managers are responsible for predicting market changes (i.e. developing hypotheses) and technological development, as well as to interpret the gained information to be used in future decision-making. The management must find suitable methods "*to peer through the fog of uncertainty and gain insight.*" [Teece 2007, pp. 1325-1326], which involves collecting information from both inside and outside of the company, make sense of it and figuring and reconsidering actions for implications [Teece 2007, pp. 1326].

2.3.2.2 Seizing opportunities

When a new opportunity is sensed, the seizing capabilities are focusing on addressing whatever sensed, through processes, services or products. The process of seizing the sensed new opportunities, often requires commercialization activities simultaneous with maintaining and developing complementary assets and necessary competences, before making lager investments in designs and specific technologies to achieve acceptance on the market. The microfoundations of seizing are based on development of products, services or processes designed to *seize* the newly identified opportunity. As mentioned above, the process includes making choices of marketing and investment, and also making conscious choices of creation and selection of business models [Teece 2007, pp. 1326-1328]. As for the sensing capacity, the seizing capabilities is also divided into four microfoundations (figure 10.2 in appendix 2):

- Delineation of the customer solution and the business model
- Selection of enterprise boundaries to manage complements and platforms control
- Selection of the decision-making protocols
- Building of loyalty and commitment to avoid information asymmetry
  [Teece 2007, pp. 1334]

Overall, the four microfoundations of seizing are about creating advantages of the newly seized opportunity. However, after seizing opportunities, managers will have to make some strategic decisions to execute. Additionally, seizing opportunities can happen on different scales. Instead of implying investments or changes, the seizing capabilities can also be in the view of tapping into resources or knowledge of a company, in order to embrace specific customer needs. It has been proposed (e.g. Nielsen 2006) that knowledge use is a key element within dynamic capabilities, including knowledge leverage. In the view of seizing capabilities, knowledge leverage refers to companies' ability to look for ways to exploit its base of both resources and knowledge, to further exploit existing knowledge in new opportunities as, services and products [Wang et al. 2007, pp.].

2.3.2.3 Reconfiguring assets

After both sensing and seizing - hereby identification of opportunities, selection of product and technology attributes, business model design and allocation of (financial) resources to investment opportunities, can lead to profitability and growth. However, to sustain a profitable growth, companies need to reconfigure assets and organizational structures, when markets change and technologies develop. The microfoundations capabilities of reconfiguring comes as the last phrase of capabilities within the framework of dynamic capabilities. The reconfiguring phrase encompasses companies' management, organizational orchestration of assets and continual renewal. Reconfiguring is, as sensing and seizing, also referring to four different microfoundations:

- Decentralization and near decomposability - this is necessary for companies in order to achieve responsiveness and flexibility. Units of companies must obtain a scale of autonomy, however they will still be connected to the company, by activities. The structure of

companies is important because it encompasses their ability to reorganize themselves to embrace exploitation improvements.

- Core specialization - The second microfoundation group is also focusing on the organizational structure, but more specifically about managing strategies and asset specialization, that will make it possible for companies to make continuous innovation while reaching for the necessary strategic adjustments.
- Knowledge management - Third, is the microfoundation of knowledge management, corporate governance and learning. This leads companies to an important asset of the reconfiguring capability, namely to combine assets (i.e. usually knowledge sharing and corporate governance structures) and further create processes of learning.
- Governance - Teece (2007) is describing the last group of governance as of great importance, because it includes achieving incentive alignment by creating structures (i.e. decentralized structure) that will facilitate "decomposability", which then will be supporting to achieve reconfiguration capabilities [Teece 2007, pp. 1337-1339]

As for the reconfiguration phrase (figure 10.3 in appendix 3), the ability of understanding and maintaining the context, build from the previous capabilities, is important. Additionally, the capabilities of paying attention to new knowledge, resources, etc. that can lead to changes within the context. The capabilities of managers are significant in the reconfiguration phrase, because they have to ensure motivation among teams, so they will pursue activities that have been agreed upon through the mechanism of governance [Popadiuk et al. 2018, pp. 452].

2.4 Extraction of research area and identified gaps

Based on the previous literature review, encompassing and cross-checking exploration & exploitation, ambidexterity and strategic management, this section will be an extraction of the research area of the thesis, simultaneously with identifying research gaps.

In order to overcome relying too much on the short-terms, James March (1991) presents two concepts, exploitation and exploration to be balanced and executed within companies, in order to survive over time. Additionally, March does emphasize that both exploration and exploitation compete for a scarce of resources, which leads to companies often making choices, explicit and implicit, between the two concepts. Furthermore, to understand the choices and improving the balance between exploration and exploitation is often complicated, because the results that come with the two concepts vary with their respect to their variability, timing, distribution and to their own expected values [March 1991, pp. 71]. Nonetheless, executing both concepts simultaneously is, according to March, the basic tension at the heart of a company's survival in the long-run. March is arguing that the reason why a balance must be established between the two concepts, is because a company that only focuses on exploitation will suffer due to its missing of return on its knowledge, and on the other hand, only exploration will result in obsolescence [Levithal et al. 1993]. The exploration and exploitation theoretical review section has identified a gap pertaining to the meaning of *balance*. This is reflected in the different understandings of researchers based on what points of focus companies should have. However, researchers do agree on the fact that a company should find a balance between the explorative and exploitative capabilities, but the actual *fit* of balance has eluded the understanding of the researchers.

In the search for literature related to balancing the two concept, it has become clear that researching and examining how companies balance to explore and exploit in order to survive, has got much attention through the last decade. The changing market conditions have become more diverse than ever before, which forces companies to tailor their approaches to strategy and execution, to adjust to these dynamic environments [Reeves et. al. 2015 - 2]. In the process of achieving a point of balance for companies, literature shows that researchers (e.g Teece 2007) have focused on dynamic capabilities as a necessary approach to also respond to the changing industrial dynamics. With the ability to sense, seize and reconfigure, a company's sustainable advantages derive from its own ability to reconfigure its existing internal assets and competencies. By leveraging and reconfiguring in such ways, the company will provide valuable propositions for customers, and at the same time, be difficult to imitate by competitors. The dynamic capabilities of a company are integrated in coordination processes, learning and possible future transformations, by allowing a company to sense opportunities and threats, and furthermore seize them, often through new products, processes or services, which can require adjusting current competencies or developing new ones [Teece 2007, pp. 1322-1326]. The dynamic capabilities therefore embrace the company's capacity to form the system it occupies, and develop processes and products, and places boundaries on the feasibility of specific strategies to support long-run performance.

The dynamic capabilities has later been argued to be the core in order to reach a balance between exploration and exploitation, also referred to as ambidexterity [O'Reilly III & Tushman 2011, pp. 6-7]. *Ambidexterity* is still relatively new, meaning that research within this concept is still at an early stage [O'Reilly III & Tushman 2011, pp. 7], and not much literature embraces an ultimate definition of *balance* to further reach the state of ambidexterity. The existing literature that does emphasize this, relies back on the dynamic capabilities as a way for managers to sense opportunities, to seize them and allocate resources continuously by developing the necessary capabilities, in order to be adaptive to the dynamic environment. Without questioning the importance for companies to both explore and exploit to survive in various industries, the question about what the balance fit of companies is and how to manage for it, still remains unclear.

2.5 Problem statement

The research area gives an understanding that the changing environment of companies have a great impact on how they explore and exploit. However, there seems to be gaps extracted from theory and literature, giving sufficient knowledge about how to align balance with organizational context, in terms of what the balance of the companies' capabilities are, what is the appropriate balance fit between the concepts, and how companies manage for the balance. According to March (1991), the theory of exploration and exploitation is telling us that for companies to survive, they must find a balance fit of the contradictory explorative and exploitative activities. However, existing theory has not revolved around how to find the balance fit, and where to put the balance under different circumstances. The balance fit is not necessarily the same for dissimilar industrial conditions and therefore, there is a need to design a better fit between the actual context of balance within an industrial related context. Furthermore, as for finding the balance fit, strategic management theory emphasizes the importance of managers' capabilities for managing, more specifically for dynamic capabilities as being a possible way of simultaneously exploring and exploiting, but the question of how to efficiently manage the balance fit is still unexplored by researchers and existing theory.

As for the industrial setting of the company, literature shows that it affects the way the balancing of the two concepts is reached. Furthermore, literature has shown that companies focusing only on exploration or exploitation have shortened their life-cycle, because they either keep doing more of the same, known as the success trap, or only doing what is new, which turns companies to become obsolete. Additionally, more companies seem to have been trapped within the success trap the last few years, and that tendency is worrisome to continue in the future. The impact of the environmental factors over the balancing fit of the companies of the two concepts, may also be seen in the industrial context in which companies are experiencing different levels of competition. Not all industries are experiencing the same dynamic changes within their markets, assuming that there must be controversies in how various industries are experiencing the same rate of change. This has led to us wondering, if balancing exploration and exploitation is

really the approach applied by companies in all industries? Or should some industries pay more attention to it?

2.6 Research question

How to find and efficiently manage for the balance fit between exploration and exploitation, within dissimilar industrial contexts?

2.6.1 Sub-questions

- What selecting criteria could be developed for companies, in order to guide in finding the balance fit?
- What are the different ways of managing for finding the balance fit, based on the developed selecting criteria?

2.6.2 Clarification and research objectives

Balancing exploration and exploitation matters, but the question on how companies find the balance fit, within their industrial contexts, still has not been answered. We know that some companies have achieved to find the balance fit of exploration and exploitation due to their continuous success within their industries, however the literature does not give a clear ratio of balance, leading towards different ways of managing for finding the balance fit. Through this thesis, we aim to understand the issue of how companies find the balance fit of the concepts, as well as different ways of how to efficiently manage the balance. This also leads to our desire to understand if different industrial settings affect the point of balancing towards one or the other concept, and how companies in dissimilar industries approach it. Additionally, we found it interesting to research how to execute and balance the relation of exploration and exploitation, to see if the ability of the companies for reaching the balance is environmentally dependent, as with the rate of change.

The process of finding, and managing will be split into two. Focusing on finding the balance fit will revolve around the first sub-question, and the managing, which will be looked into in the second sub-question. For finding the balance fit, we seek to interpret and understand where the fit of exploration and exploitation happens, within the empirical sampling, to extract some selecting criteria. As for managing, we perceive the action as an accumulation of different internal processes, that companies must decide on and implement, as leading to managing for finding the balance. The operationalization of the process of *finding* will be based on theories of exploration & exploitation, strategic management - dynamic capabilities and additional theory of strategic aggressiveness by Miles & Snow, further complemented by the empirical sample. The empirical sample will be represented by four companies chosen, operating in the traditional and high-tech industries. As a way for analyzing the empirical sample and gaining an understanding of how the external factors can affect the context of exploiting and exploring, we want to cross-analyze the cases to understand the similarities and differences, in how they successfully manage their

explorative and exploitative activities and capabilities. The fundamental theoretical background will be directed on, and around the notions of exploration & exploitation, ambidexterity and strategic management with a focus on dynamic capabilities. This step of the analysis will revolve around the four empirical cases, and further connected to four theoretically developed categories, to help us lead the way towards how to find the balance fit. The second analysis includes additional theory of performance management and innovation portfolio management, to be applied as a way of operationalizing how to manage for the balance fit, and further be helpful in understanding how to manage for different ways of balancing exploration and exploitation, by using the content-analysis method. Afterwards, the thesis will include a discussion in which the implications of the findings will be discussed, in order to further answer the overall research question of how to find and efficiently manage for a balance fit, within the industrial context.

2.7 Definitions

In this section of the project we will try to present and explain the basis of our understanding of the topics and concepts chosen. This is an important section in which our knowledge concerning the concepts is being explained, as to not cause confusion into the meanings of the concepts. This will further provide the reader with an insight into our understandings of the concepts and their definitions.

2.7.1 Exploration & Exploitation

The relation between exploration and exploitation has been a central concern of adaptive studies for years, and previous studies have shown that the conceptual distinction between exploration and exploitation has been used as an analytical construct in a wide range of management research [He et al. 2004, pp. 481], which emphasizes the importance of defining the two concepts.

We perceive exploration as a company's search for new alternatives to existing solution, experimentation, flexibility, discovery and innovation [March 1991]. But focusing too much on this side of the spectrum between exploration and exploitation can also result in the company's inability of capturing returns from innovation, investments or differentiation in strategies [O'Reilly & Tushman, 2008; 2013]. Exploitation, on the other hand, refers to the refinement and optimization of existing processes, resources, competencies, knowledge and technologies in order to improve the efficiency of the organization and construct a continuous improvement implementation. Contrary to the concept above, companies that focus too much on exploitation are conditioned by the environment in which they operate, which means that the more stable the environment is, the more acclimatized the company is to follow in the past movements and strategies (March 1991).

2.7.2 Balance

Finding a balance between how companies explore and exploit, is essential to this thesis. Much literature argues of the importance of finding the balance, however the concept is difficult to

define. The concept of balance can be complicated to define, especially because the meaning can vary between the use of context. Originally, the word *balance* comes from the Latin word of *Libra Bilanx* and means "*having two scale pans*", today known as balance [Dictionary 2019]. In the Oxford Dictionary the balance concept is defined in three different ways; i) a state of equilibrium or equipoise - an equal distribution of e.g. weight or amount, ii) a situation in which the importance of an element is countered by another, and iii) having a situation with proportionate elements [English Oxford Dictionary 2019]. This thesis focuses on the third definition, considering that the elements are depending on each other but do not have to achieve the same amount of gravity. We furthermore define the "*balance fit*", as also introduced in the literature review, argued by Schulze (2009), that the balance can not be seen isolated from the perspective of the elements, instead it should also be viewed from the dynamics in the environment (section 2.1), meaning that the balance fit (e.g ratio of exploration and exploitation) is about fitting the balance for different industrial circumstances. However, linked to this definition of balance, when talking about a balance fit, we are viewing the fit issue as to the right timing of investing in exploration and timing for investing in exploitation.

2.7.3 Industrial context

This thesis focuses on how to find the balance fit of exploration and exploitation within the industrial context, which is why the specific context must be defined. As for the industrial context, this thesis will be referring to manufacturers in a particular field, economy or commercial activity. To properly reach a balance fit between exploration and exploitation, as well as to maintain it, the industrial context of a company is important to the way the company is finalizing its strategies. We acknowledge the industrial context as establishing the boundaries of companies that produce and sell the same products or services, in which they sell, compete and introduce new products and services, that furthermore affect the degree of intensity of the industry.

Chapter 3

Methodology

The following chapter will include and represent our fundamental methodological standing point. This section will be divided into three parts, to better reflect and interpret the fundamental standing point. The first part of the chapter contains a general description of the methodological principles that form and push the basis of any academic research projects. Secondly, a description of the paradigmatic views of the contradictory paradigmatic scale of realism and nominalism will be included. The presentation of the concepts in general, will be helpful for us as researchers to understand, acknowledge and finalize our approach of the research field in regards with the methodological standing point of the project. Lastly, there will be a clarification of the methodological and scientific delimitation of the project, viewed as the research design of the project. The purpose of the research design is to describe the reflections and methodological standing point, as the scope of the project.

3.1 Philosophy of Business Research

Defining philosophy of research is often difficult, due to the fact that the term of *philosophy* itself is difficult to define. A try to define the controversial term of philosophy includes the relation between sciences - biological, social and behavioral. It is argued that philosophy is close related to these sciences, in which they cannot be seen isolated but instead should be seen as depending parts, and therefore a concern of both scientists and philosophers [Rosenberg 2005, pp. 1]. Throughout the last century, the relationship between data and theory has been well-debated by philosophers and researchers, however the subject is relatively young in the light of business. Authors like Arbnor & Bjerke argue that philosophy of business research is a way of thinking and acting, containing concepts trying to describe the necessary steps and relations in the process of creating and developing new knowledge [Arbnor & Bjerke 2009, pp. 3].

Most philosophical debates, in the light of business research, concern the matter of the *ultimate presumptions* of the researchers, investigators and consultants beforehand about what is being studied. The ultimate presumptions are individual and differ between views, therefore meaning that the different views based on the presumptions are presenting different ways to understand and explain. The assumptions are forming the way the researcher or investigator views the reality, and these views can be conceived as background "philosophical" hypotheses.

The views can guide the creator of knowledge, but the views cannot be logically or empirically tested, as each view has already assumed a constitution of reality. The acknowledgement of the ultimate assumptions as affecting the process of the research, is often taken lightly. It is often claimed that it is not related to philosophy, and that there is nothing controversial in the process of conducting data. Yet, Arbnor & Bjerke argue that these researchers neglect the fact that the interest area or problem often appears related to the creator's reflection, based on its view on reality [Arbnor & Bjerke 2009, p. 6-9]. The view of the creator of knowledge is, as presented above, formed by its ultimate assumptions of reality, which in other words is forming the *ontology* of the creator. Ontology is understood as as scientific field, that illuminates the ultimate assumptions about the nature of reality. The ontological question is "*what is reality?*" and contains by that, various ways to study and organize knowledge. Additional to this, is the concept of *epistemology*. Epistemology should be understood as an extension to the ontological question, by questioning how the reality should be acknowledged. It is about how to process and study the chosen research scope parallel with the achievement of the research. When the research scope is defined, through the ontology and epistemology of the creator, it is essential to apply *methodology*, as the way to create and gain new knowledge. Therefore, the methodology is referring to concrete research methods and techniques to create new knowledge [Darmer et al. 2010, p. 45-46]. It is argued that theorists have developed a "conceptual language", as to describe the relation between the ultimate assumptions of the creator of knowledge and the practical use of methodological techniques, also called a *paradigm* [Arbnor & Bjerke 2009, p. 12].

3.1.1 Paradigms

The first theorist who presented the concept of paradigm was Thomas S. Kuhn in his book *The Structure of Scientific Revolutions* in 1962. The definition of the paradigmatic concept is well-discussed in science. However, the term is often used in social sciences and Saunders et al. (2009) describes it as a way of examining social phenomena from which understandings can be gained and explanations attempted [Saunders et al 2009, pp. 118]. On the other hand, Guba and Lincoln (1994) say that a paradigm is the basic belief system or world view that guides the investigation [Guba & Lincoln 1994, pp. 105]. From these two definitions we gather that a paradigm, as we understand it, is the fundamental belief of the researcher in his/her attempt to answer his/her research question. As Guba and Lincoln (1994) further say, having the proper paradigm and the researchers understanding of the paradigm outweighs the questions of methods that a researcher is asking [Guba & Lincoln 1994, pp. 105]. That is to say, the way the researcher defines its paradigmatic standing point is more important than the methods the researchers deploys in his/her search for answers.

To reach this level of understanding of their own paradigm, the researcher has to know in which of the major branches of science they are. Whether they be in the natural science or social science, the researcher has to have a clear delimitation and basis for choosing one over the other. Natural science is understood under instances where independent and depended variables

are present in nature, while using scientific methods. On the other hand, social sciences are seen under instances that deal with individuals, groups, institutions or society's relationship with others [Gassman et al. 2011, pp. 2-3]. In any case, between the two branches of sciences, there are certain similarities which include similar methods of investigation, as well as some overlays between the epistemological and ontological views, and differences which include their origins, study subjects and limitations [Gassman et al. 2011, pp. 2].

The natural science has its origins in the Renaissance, when earlier thinkers questioned everything about their world view and turned to more systematic methods of investigation. It arose from the curiosity about the world, with main disciplines being chemistry, biology and physics. The aim of it is to discover the laws that rule the world, with focus on the natural world. Because of the constantly evolving fields of study and the degree of specialization existing nowadays, natural scientists started in astronomy, later- different engineering branches, and arriving at the latest discipline, robotics. Its methods of investigation are the most popular, consisting in systematic observation, measurement and experiment; while relying more on mathematically based methods because of the ability to count [Gassman et al. 2011, pp. 2-3]. Before the establishing of the paradigms of how knowledge is created, scientists adopted an inductive epistemology, in which if numerous experiments arrived at the same findings, that must be the truth. Later, a thinker by the name of Karl Popper introduced that a theory cannot be proved by induction, and only falsified by observation. An example of this would be a scientist proclaiming that all swans are white because he has seen only white swans, and his theory should be trying to falsify it by finding a black swan [Gassman et al. 2011, pp.3]. Another thinker by the name of Thomas Kuhn criticized the position of scientists in relation with the paradigm in which they are in; saying that they are accepted without any reflection from the scientists' point of view. This, he says, leads to the scientists not questioning the paradigm, but rather, their experimental techniques; and only think about a shift in paradigm if more scientists arrive at the same conclusion. This leads to an establishment of a new paradigm [Gassman et al. 2011, pp.3]. Additionally, the natural science have a few limitations, and the most common are financial and technological boundaries. Technological because there is no strict way of conducting precise measurements but this notion was pushed by the discovery of the microscope, telescope and other instruments. The financial boundaries are the hardest ones to overcome, because of the expensive equipment necessary to conduct the investigation and/or research [Gassman et al. 2011, pp. 3].

On the other hand, the social sciences has its origins during the 19th century with sociological publications, which paved the way for a positivistic approach to social science. But instead of looking towards nature and investigating the laws of nature, social science went into the direction of analyzing the social interaction and coexistence phenomena. Because of this, social science can be classified through the common perspective of studying an aspect of society, group of people or individual [Gassman et al. 2011, pp. 4]. Contrary to natural science, it is very difficult to carry an experiment in social science, because the methods used, e.g. obser-

vation, interviews, case studies, surveys; are very difficult or sometimes impossible to measure. Nonetheless, experiments into behavioral economics and social psychology have proven to have some success. The way the scientists view knowledge also differs from the natural sciences. Epistemologically speaking, scientists in the social science see two stances, one positivist in which scientists argues that they should use the same methods as in the natural science; and one interpretivist, in which scientists say that one should aim at grasping the subjective meaning of social actions [Gassman et al. 2011, pp. 4]. Considering the methods used in social sciences, the limitations of this branch of science are based on the need to interpret the findings, as well as the complex ethical issues. This means that the level of findings depend on the scientists' ability of interpreting said experiment. The ethical issues come from scientists wanting to have answers to all kinds of questions, that could have an impact on other peoples' lives and mental health [Gassman et al. 2011, pp. 4].

The positivistic and interpretivistic stances of the social science are related to the perspectives that pertain of the objective and subjective approaches; in this thesis, as seen in section 3.2.1, we will focus on the interpretivistic stance. Ontologically speaking, the positivistic approach in under *realism* in which *there is one truth*; which means that all the research made on one subject will reach the same result because in the world of realism, facts exist and can be found. On the opposite side is *nominalism* in which *there are multiple truths*; which means that the reality that the scientists see is constructed through social interactions, and facts are all human creations [Kuada 2012, pp. 73]. Epistemologically, the objective approach deals with positivism, in which the scientist is trying to be as objective as possible, without influencing the research. The scientist tries to understand and predict the social world through social relationships and regularities [Kuada 2012, pp. 73]. The subjective side deals with interpretivism, or social constructivism, in which scientists believe that the social world can only be understood by those that are involved in the activities that are under research [Kuada 2012, pp. 73]. Methodologically speaking, the objective approach encourages systematic protocols and techniques, while the subjective approach adopts a closer and more personal techniques, such as participant-observations, diaries and biographies [Kuada 2012, pp. 73].

3.2 Research design

We defined *research design*, as "*plans and procedures for research that spans the decisions from broad assumptions to detailed methods of data collection and analysis*" [Creswell 2009, pp. 3]. In order for a research design to make sense, it needs to start from the studying of a topic. This will be the foundation of the assumptions of the researcher, in which the research design will be the map consciously made by the researcher, in order to study the chosen topic. This has, as foundation, the paradigmatic views of the researchers, as well as the methods of data collection, analysis, and the interpretation of results [Creswell 2009].

3.2.1 Paradigmatic delimitation

Our paradigmatic views as researchers in this thesis, rely on Saunders et al. (2009), as well as Guba & Lincoln (1994), as it is our understanding that a paradigm is the fundamental belief as researchers, in order to answer the research question. Though, we are aware of the possible paradigms in which to be positioned, we position ourselves within the interpretive paradigm with the aim of understanding the phenomena of balance fit, through the meaning we, as researchers, assign to the phenomena. We seek to gain an understanding of the context of the phenomena of the balance fit, and whereby it influences and is being influenced by the dissimilar industrial contexts. The discussion around the paradigmatic delimitation surrounded the possible paradigms, in which to position ourselves when researching, and the interpretive paradigm seemed to be the one consistent to our objectives of the research and based on our choice of type of data. However, during the discussion, the social constructivistic paradigm was also seen as an option, but delimitated as our objectives were not aligned with the paradigm's view of knowledge creation to be constructed while interacting with participating actors.

Working within the interpretive paradigm, the ontology, epistemology and methodology of the thesis have to be aligned and further explained. Our ontology is based on *relativism*, which is the view in which the experience of the researcher, and the context in which the researcher is in, gives the reasoning for the understanding that emerges [Stanford Encyclopedia of Philosophy]. Relativism is closely related to nominalism, though it does not fully reach it. We chose relativism, because of our belief that there are many truths, and that facts depend on the viewpoint of the observer. Based on the ontology in which we are positioned, the epistemology will be *constructivism* revolving on focusing on the meanings extracted from the data, to understand what is happening, and is also allowing us to inductively develop ideas from data. It will not reach a strong constructivism epistemology, because the starting point of the research is a deepening of understanding, and not an aim of invention, with a purpose of convergence of the information gathered. With these two deliminators in mind, the methodology of the thesis will be based on gathering data, with the purpose of conducting case studies, in order to gain a better understanding and clearance of the answer to the research question.
Additionally, the methodology and the data used can result in generalizations, as the intent is not to generalize findings to specific individuals outside the context of the research done, but to generalize for propositions of contributing to theory only within the notion of the context

explored [Creswell 2009, pp. 192-192].

3.2.2 Choice of Research design

Figure 3.1 illustrates the research design, in which we can see the visualization of the thesis.

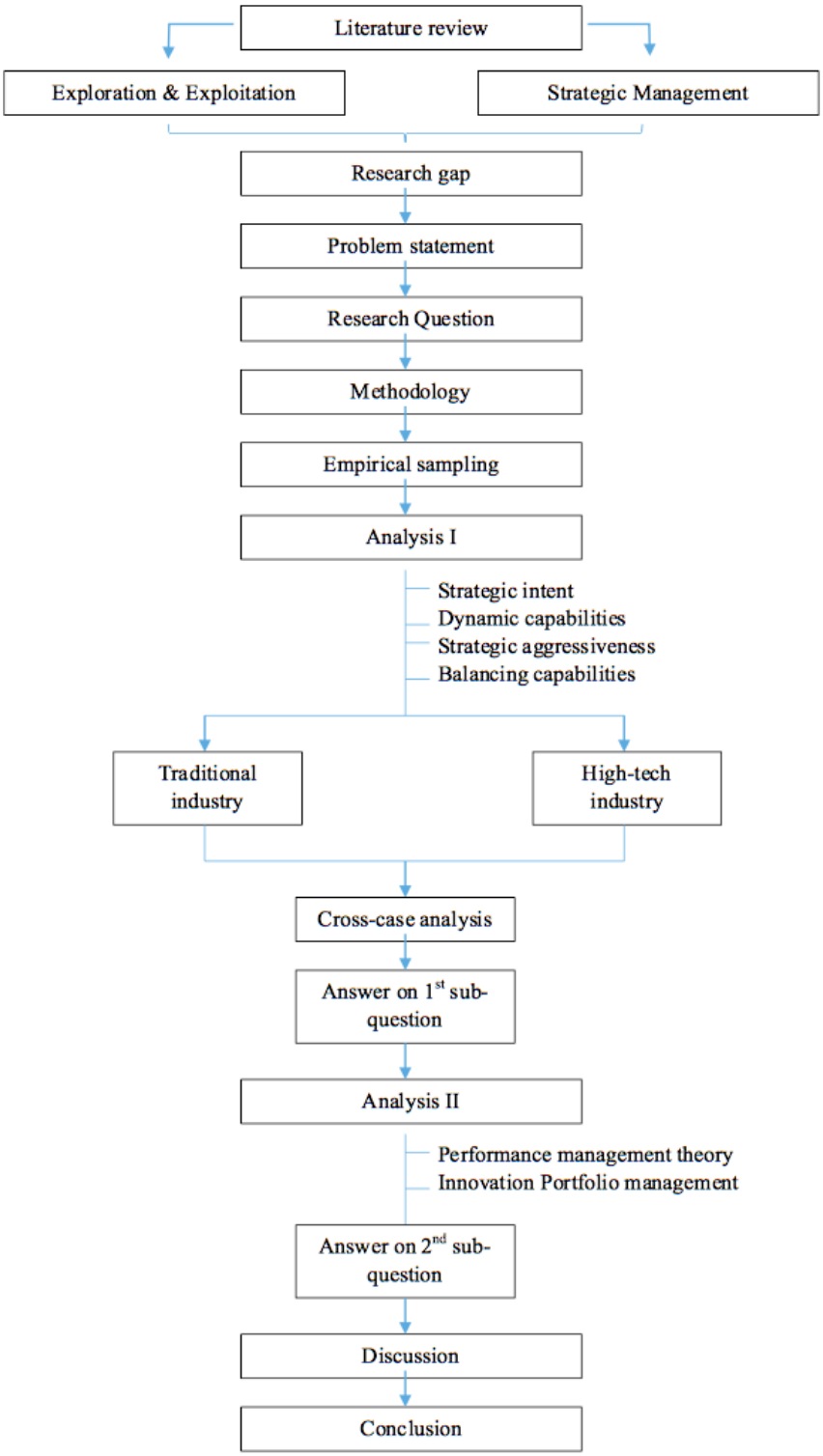

Figure 3.1: Own construction of research design

3.2.3 Case Study

The case study approach has become one of many research strategies within fields of e.g. sociology, social work, business and even economics, according to Yin (1983). Within all these different fields of research, the case study approach is often applied to understand and investigate complex social phenomena, and still retain the holistic real-life events. Furthermore, the case study contributes to the knowledge of individual, social or political phenomena by covering contextual conditions that could be pertinent to the phenomenon of study [Yin 2003, pp. 3]. The case study is a research strategy that comprises what Yin is calling "*all-encompassing method*", as the approach includes both designing specific approaches to collection of data and data analysis. The case study approach emphasizes the technically distinctive situation in which there will be various variables of interest than actual data points, and relying on different sources of evidence, with data as a necessity to converge in a triangulation fashion. Additionally, the case study inquiry benefits from development of theoretical propositions from the past, to guide the collection of data and analysis. Overall, the case study can not be seen independent as either a tactic of data collection or design feature, but should be understood as a comprehensive research strategy [Yin 2003, pp. 13].

Yin (2003) introduces three types of case studies, that can be used. However, he underlines that it depends on i) the type of research question, ii) the amount of control the researcher has over the investigated behavioral events and iii) the focus degree on contemporary events. The three types of case studies introduced are;

- Exploratory case studies
- Descriptive case studies
- Explanatory case studies

The *exploratory* case study is often conducted when the researcher wants to explore any phenomenon in the collected data, which serves as a point of the researcher's interest. The question asked for exploratory case studies is "*what*", which is meant to open up for further investigation of the observed phenomenon. In this type of case studies, prior research and data collection, in small scales, may be conducted before the research question is found [Zainal 2007, pp. 3].
Secondly, the *descriptive* case studies are set to describe natural phenomena that occur within the data, as they occur. However, this type of case study is argued to rely in a narrative form (e.g. McDonough & McDonough 1997), and is mostly theory-driven because researchers must begin with theories to support the description of the phenomenon and/or story [Zainal 2007, pp. 3]. Lastly, the *explanatory* case study is often relying on the questions of "*how*" and "*why*", and deals with operational links that should be traced over time [Yin 2003, pp. 6]. The explanatory case study closely examines the data at the surface and also on the deeper level, to reach an explanation of the investigated phenomena in the data. Furthermore, this type of case study is also allowing the researcher to form and test the theory, based on the conducted data [Zainal 2007, pp. 3].

The nature of the descriptive case studies is focusing on describing natural phenomena derived from the data as they occur. Furthermore, it requires theory to create a direction within the data collection. The research currently done in the topic of how to mange the balance between exploration and exploitation within an industrial context, is a relatively new topic and therefore lacks theory to direct the data collection. However, the chosen cases are descriptive. Additionally, the explanatory cases are trying to reach an explanation of the relations of variables related to the investigated phenomena, in the data. Within the topic of this thesis we do not want to find any operational links to be traced over time. Instead, this thesis is focusing on providing an in-depth research of how to find and manage a balance fit of exploration and exploitation, which is why a explorative case study seem as the most appropriate type of case study, but not to forget the descriptive nature of the chosen cases.

3.2.4 Applied data gathering techniques

Due to our choosing as methods of investigation, case studies, we should also choose the appropriate techniques in order to gather said data. In his book, Creswell (2009) introduces three types of techniques;

- Qualitative studies
- Quantitative studies
- Mixed methods studies

The *qualitative studies* are a way of exploring and understanding an individuals' or groups' meaning of a social or human problem. This involves emerging questions and procedures, data usually gathered in the participant's setting, data analysis inductively build from particular to general settings, as well as the researchers' interpreting said data. The researchers that choose to use these kind of studies typically honor an inductive style, a focus on the individual meaning [Creswell 2009, pp. 4]. The *quantitative studies* refer to testing objective theories by examining the relationship between the chosen variables. These variables can be measured on instruments, so that numerical data can be analyzed statistically. Starting deductively from assumptions as to test theories, researchers using quantitative studies take into consideration biases and protection against them, all while looking at different explanations around the topic researched, as well as a general wish to make propositions and being able to replicate their findings [Creswell 2009, pp. 4]. The *mixed methods studies* is an approach to questions that combine or associate both quantitative and qualitative studies. But it is more than collecting and analyzing using the aforementioned studies, it also involves the use of the methods at the same time, so that the strength of the research is greater than the two individual studies separately [Creswell 2009, pp. 4].

Due to the nature of our research design, this thesis will use qualitative methods as a way to understand the social problem of balancing exploration and exploitation. The gathering of

data will be done using the method of secondary data, which is information which has not been gathered directly by the researchers, in this case, ourselves [Management Study Guide]. The data collection was carried through desk research from books, articles, as well as websites. As Yin (1994) suggests, secondary data presents advantages for the researchers through availability at any hour, information gathered by individuals with a scope, and it saves the researcher time from transcribing. Associated with this, come also limitations when the data necessary is protected from public or private parties, it requires to search for not easily accessible information, and the data may be incomplete or inaccurate, which opens a discussion about the credibility of the researchers' work. The data gathered for this thesis will be focused on the four companies chosen, with retrospective information, as in, analyzing past effects in order to understand present situations and control future endeavors. While conducting a secondary data analysis can be beneficial, mainly looking at cost effectiveness and depth of data, the method can also force researchers into changing or dissociating from the original research question of the research, or work with a data set that is not appropriate for the chosen topic.

3.2.5 Choice for data analysis

The case study method has received criticism in terms of its lack of "robustness" as research tool, which is why researchers should be crafting the design of case studies, is of great importance. According to Yin, researchers can chose to adopt either a *single-case design* or a *multiple-case design*, all depending on the research area and problem issue in the research question. The single-case design is most often applied when there are no other cases available for replication, e.g. when events are limited to a single occurrence. On the other hand, the multiple-case design can be applied when the researcher is investigating real-life events, that shows numerous sources of evidence based on replications in the data, rather than sampling logic [Zainal 2007, pp. 2].

As the choice for data analysis, we have chosen to do a multiple-case study based on four selected companies, representing two different industries (e.g. traditional and high-tech industry). The selection of these four companies was based on their different, however successfully way of finding and managing for the balance of exploration and exploitation within their different industrial contexts. All four companies have their main office in the U.S.A., through which we can see the geographical closeness, as well as cultural and economic associations. We acknowledge and recognize the bias that this provides for our thesis, and the careful way through which we will have to analyze the data gathered, and generalization of the propositions for future research. To analyze the cases we have chosen the method of cross-case analysis, by comparing the cases and analyze the similarities and differences that may be in the four cases' way of successfully managing the balance of how they explore and exploit, to further understand if the phenomenon of *balance* is being applied in the same way across industries.

3.2.5.1 Cross-case analysis

The cross-case analysis is a study method that analyzes the units within the chosen case studies, to facilitate comparison of similarities and differences in events, activities and processes. The

research method of cross-case analysis enables the researchers to describe and delineate the combination of characteristics that could have contributed and resulted in the outcomes of the case. Furthermore, it allows the researcher to make sense of the puzzling or unique findings to construct an explanation of how some cases are different or not and by that, understand the relationships that may exist among the case studies [Khan et al. 2008]
Eisenhardt (1989) describes that "*[...] within-case analysis is cross-case search for patterns. The tactics here are driven by the reality that people are notoriously poor processors of information.*" [Eisenhardt 1989, pp. 549]. Continuously, Eisenhardt argues that there is a lot of danger, that researchers reach false conclusions based on limited data, as result of the information-processing biases. To prevent reaching false conclusions is done by looking at the data in divergent ways. Eisenhardt introduces three tactics of looking at the data;

- Select categories or dimensions to look for within-group similarities coupled with inter-group differences.
- Select pairs of cases to list the similarities and differences between each pair.
- Divide the data by data source.

According to the tactics introduced by Eisenhardt, the first tactic seems as the most appropriate, due to the fact that we want to cross-analyze the four cases within and across industries, which seems to be consistent to categories to look, for within the cross-analysis of the data. The second tactic is mostly chosen when there is more data gathered to be analyzed. Similarly, is the third tactic more proper to use when the researcher wants to exploit unique insights derived from various sources of data collection, which is not the objective of this thesis.

3.2.5.2 Content analysis

The content analysis is a method with the purpose of drawing inferences from qualitative data, by structuring the data by a set of concepts. It is the job of the researcher to interrogate the gathered data for the presence, perceptions and meanings, and relationships of the theory or hypothesis developed concepts from the research question. This approach means that the content analysis can be used with the aim of either testing hypothesis, as well as for building new theory [Easterby-Smith et al. 2015, pp. 539]. The approach of the content analysis can differ according to the aim in which it is applied. Therefore there are, according to Easterby-Smith et al. (2015), three major differences that distinguishes the type of content analysis.

- How organization of ideas or concepts are determined
- The ideas or concepts themselves and how they frame the data
- The applied techniques for organizing and evaluating data

The content analysis is an interpretative method. and also referring to as a qualitative method, however the method has also underlying roots of the positivistic paradigm, that allows the researcher to introduce elements of quantification into the research process. Researchers tend to

use textual data, both primary and secondary for conducting their qualitative study [Easterby-Smith et al. 2015, pp. 539].

Conducting a content analysis has been argued to be straightforward as it contains two main steps. The first step is to determine a number of criteria for selection of the data, founded on the research question. Afterwards, the selected material is analyzed as to examine emerging factors or concepts that seems relevant for the study. These factors or concepts can be determined by both existing theory or by the question of the research, or alternatively be identified as the process of analyzing of the material is proceeding. When the factors or concepts are found and examined, variations within and between these needs to be identified [Easterby-Smith et al. 2015, pp. 540]. For us as researchers, the content analysis seems relevant and beneficial to apply for the sake of drawing inferences of factors together with interpreting different ways of managing for finding the balance fit. Though, it is with the notion to make interpretations of the extracted criteria from the cross-analysis, as data material, and to code it by the four perspectives of the balanced scorecard.

3.2.6 Evaluation of data

Depending on which literature we take into account, there are multiple ways of evaluating the gathered data. Creswell (2009) suggests *reliability*, *validity* and *generalization* as a way of finding out if the data gathered can be helpful and useful to the researcher. Validity means that the researcher employs certain procedures to check the data, while reliability looks at whether the researcher's approach is consistent throughout the whole project. Generalization refers to a form of inquiry that is not about generalizing the finding to individuals or groups outside of those under the qualitative study, but can be used as a platform for generalizing findings into broader theory [Creswell 2009, pp. 190-193].

With our thesis in mind, we will employ as reliability procedures, as suggested by Gibbs (2007);

- Coordinate the communication among coders by regular documented meetings and by sharing the analysis, and
- Cross-check codes developed by different researchers by comparing results that are independently derived.

These procedures will lead to our understanding, as researchers to the necessary steps to take in order to check for the reliability of the information found through secondary data. As for validity, Creswell (2009) urges to the need of validity strategies in order to check the accuracy of the findings. In our thesis, we will employ the following;

- *Triangulation* refers to examining different sources of the same data, in order to build a coherent justification for the information used as a way to add to the validity of the study.
- *Negative/discrepant information.* Presenting in the research both sides of the data, with information helpful to the research topic, as well as information that disregards the topic, is also crucial to have valid data.

- *External auditor.* Having an external independent investigator can be conducive to answering questions that we, as researchers have not thought about, thus leading to an increase in our data validity [Creswell 2009, pp. 191-192].

Kuada (2012) however, suggests *trustworthiness* and *authenticity* as a way to evaluate qualitative studies. Authenticity relates to the extend in which we have been fair to the perspectives of the researchers with the help of which we can conduct the qualitative study, as well as to the extend to which we want to improve and add the understanding of the chosen topic, and by providing opportunities for the future research of the topic [Kuada, 2012, pp. 101]. Trustworthiness has four dimensions from which can be assessed;

- *Credibility* refers to the extend in which we, as researchers have followed the qualitative studies investigation.
- *Transferability* refers to our ability of providing a detailed account of the context of our thesis, in order to enable future researchers to compare our findings with their own.
- *Dependability* refers to our ability of keeping a detailed record of all the changes in the research area, materials, or data. This will be the proof which will validate that we followed the research design made.
- *Confirmability* is an addition to the three above by adding that we, as researchers, have conducted the research with the pure scope to understand the reality of the topic chosen [Kuada, 2012, pp. 100-101].

In order for us, as researchers, to provide a comprehensive thesis and study the chosen topic to our full capabilities, the above procedures, strategies and dimensions have to be taken into account and fully applied.

Chapter 4

Presentation of Empirical sampling

The empirical sampling of the thesis consists of four chosen companies, operating within two different industries. The companies are; John Deere and Caterpillar Inc., both operating in the agricultural and construction equipment industry, while for the high-tech industries, the companies are Intel and IBM. The four companies, based on our preliminary research, have successfully found the balance fit of the two concepts, exploration and exploitation. Because of the differences in the industries, we initially explored the idea that a different amount of exploration and exploitation takes place in their activities.

4.1 Traditional Industry

Traditional industries or *traditional manufacturing*, will in this thesis be referred to as "*hard product industries such as automotive, steel and industrial machinery and the like*" [Schuetz 2013]. In other words, industries that deal with manufacturing of hard materials into products and tools for the use of people. The emerging environments forces business within all industries to rapidly respond to the changes. The increasing need for agility is most often associated with businesses operating within the high technology industries. The traditional industry has also been facing some unanticipated changes, which have forced manufacturing companies to pay attention to the dynamic environment, even those operating within good market positions and with "stable" and more predictable conditions [Iskanius et al. 2010, pp. 395-396]. Although, the state of the global economy affects the manufacturing industry with its ups and downs, leading to a fluctuating demand of the technological industries, the overall manufacturing industry is stable and resistant to most changes. Relatively, if a big crash happens in the global economy, the industry could have a hard time recuperating because of its characteristic to be massive [Bookpix 2019]. Because of the nature of this industry, exploitative strategies like standardization and quality control are commonly used, this leading to the industry being more focused towards the exploitative concept. However, traditional industry companies have to also take into account the explorative side to survive the changing market conditions on the long-term, by seeking new business options.

4.1.1 John Deere

Founded in 1837, John Deere is a leading manufacturer of equipment in the agricultural industry. For a better understanding of the industry, John Deere divided it into eight divisions: agricultural, construction, turf, forestry, financial services, power systems, parts services, and intelligent solutions. This fact makes the organizational structure of the company very orderly and centralized. It adds to the focus of the team in charge of the specific division, by making sure they concentrate on the needs of the market they serve. To best aid that, the company has an internal strategy that focuses on the internal growth of the company. To do that, John Deere implemented in all their factories, over the course of four years, as part of their internal strategy, as well as their exploitative strategy, the "Deere Production System" (DPS), which is tailored to the company's low volume and high quality production [John Deere Supply Chain Management 2013]. This means that the company's factories make most of the tools and parts needed for their products, which limits their need to rely on external factors. As part of their explorative strategies, the company focuses on competitive advantage and differentiation, as a way to enter new emerging markets, and also to continuously innovating within their existing markets from which they already gain revenue [John Deere Management Strategy]. With headquarters in Moline, Illinois, the company has offices in over 30 countries globally. The current market share in the agricultural equipment industry of John Deere is 18,69%, while on the construction and forestry industry, it has a market share of 4,11% [CSI Market - 2].

4.1.2 Caterpillar Inc.

Caterpillar Inc. is one of the world's most leading manufacturers of construction equipment. Besides the manufacturing of constructions, Caterpillar Inc. is also offering equipment for mines, gas engines and turbines, and locomotives driven by diesel-electronics. From its inception in 1925 with the merger of The Holt Manufacturing Company and C. L. Best Tractor Co., Caterpillar Inc. has been at the forefront of the industry with their products. With its headquarters in Deerfield, Illinois, Caterpillar Inc. currently employs over 104,000 full-time employees in over 500 global locations. The organizational structure of the company starts at the Board of Directors, which have control over seven separate divisions: customer and dealer support, corporate services, construction industries, resource industries, energy and transportation, law and public policy, and Caterpillar Inc. enterprise system [Caterpillar Organization Chart]. Although the regional offices have strategies that are more focused locally, the headquarters's strategy revolves around the international infrastructure in order to grab the maximum revenue from the emerging markets [Caterpillar Marketing Plan]. As part of their internal strategy, the company decided to apply the Six Sigma concept of quality control, in order to continuously improve their processes. The Six Sigma strategy was adapted in 2001 with the scope of reducing the number of errors in the Caterpillar Inc. processes of manufacturing. In order to implement the Six Sigma, the company had to make some adjustments in their operational activities through an approach that focused on gathering information, analyzing it and taking decisions based on facts to lead to effective and efficient processes [Caterpillar Website 2019]. Even though Caterpillar Inc. is operating in the traditional industry, where the market is more predictable and

the change rate is low, the manufacturing company still focuses on exploring new opportunities. The company uses open-innovation channels within the industry, ventures around the world to help new business, as well as partnerships with government and academic institutions to help drive the new generation of research [Caterpillar Website]. The company seems to have found a proper way to balance their exploration and exploitation strategies, which have resulted in a current market share in the machinery industry of 82,17%, and in the construction industries machines, a market share of 15,96% [CSI Market - 1].

4.2 High-tech Industry

The high-tech industries, on the other hand, are called *advanced manufacturing*. Included in this sector are industries like "*computer technologies, high-performance computing, high-precision technologies, information technologies, biotechnology, medical device manufacturing, advanced robotics and other intelligent production systems*" [Schuetz, 2013]. As previously mentioned, the need to be agile in the high-tech industry is considerably larger than in the traditional industries. Largely, this comes from the fast-paced and dynamic environment, which forms the global setting. The apparition of and need for new solutions drive the industry to constantly change directions based on demand, and the exploration capabilities of the companies in the industries. A slowing down in demand could upset the balance of the industry and lead to an overflow of solutions and suggestions [CompTIA Research Report 2019]. The high-tech industry, differently than the traditional industry, as mentioned, is very dynamic and strategies like standardization would lead a company to failure. Instead, strategies like differentiation would lead the companies to areas outside their core business, which will expand their explorative side. This in turn, will drive the company to provide solutions and suggestions to constantly evolving demands.

4.2.1 Intel

Intel was founded in the late 1960's with a focus on developing memory chips, and creating the world's first commercial microprocessor. The company is operating in the computing and communications industry, with Intel being one of the largest contributors to software companies in the world, with an open source model and countless implications in open source communities [Intel OpenSource]. In order to keep up with their products and services, the company relies on a product-type divisional organizational structure, with three main divisions: product-type divisions (main feature), functional groups, and geographical divisions [Rowland 2018]. This organizational structure helps the company's generic strategy, which focuses on differentiation, in order for the company to ensure leadership in the global market. But in order to reach being an industry leader, the company has to keep in mind certain strategic objectives, like investing in rapid innovation to produce cutting-edge products, in order to achieve a higher standard on the operating markets. As part of their exploitative strategies, Intel uses Lean Six Sigma as a way to measure, monitor and manage energy consumption to provide a process for solution identification [Intel Information Center 2010]. With its headquarters in Santa Clara, California, the company has a market share of 0,49% in the software services group and a market share of 40,17% in the PC client group [CSI Market - 3].

4.2.2 IBM

Founded in 1911 under the name CTR (Computing-Tabulating-Recording Company), the company was renamed IBM (International Business Machines) in 1924. The company produces and sells hardware, software and middleware, providing hosting and consultancy services in markets ranging from mainframe computers to nanotechnology. With its headquarters in Armonk, New York, it is the unchallenged record holder for U.S. generated patents for the last 26 consecutive years [Krishna 2019], with locations in over 177 countries and over 366,600 employees. The organizational structure focuses, as with Intel, on a product-type divisional organizational structure, which supports IBM's push for competitive products [Lombardo 2018]. This helps IBM's generic strategy of cost leadership through maintaining low costs in business processes, in order to establish a competitive pricing, possible through the company's use of economies of scale. Because of this, the company is capable of minimizing costs in providing cloud platform products, implement competitive pricing for these products, as well as gathering expertise in production processes and materials management, all leading to IBM being efficient in their uses of resources and eliminating waste [Lombardo 2017]. But in order for the company to maintain their strategy of cost leadership, expanding the scale of the business processes and investing in new market and product opportunities is a must. This is where explorative strategies come into play, with the company investing in expanding software mechanisms, in order to develop new solutions for customers, to invest in research and development to boost the competitiveness, as well as to support the company's overall strategies [IBM's Strategy]. The company has a market share of 3,96% in the software market, 19,44% in the global services market, 88,77% in the global business services market and a 23,62% in the global technology services market [CSI Market - 4].

Chapter 5

Analysis

The thesis contains a two-step analysis. The first analysis will be focusing on how to find the balance fit in regard with the environmental settings, based on what the selecting criteria are for understanding what should be a balance fit between exploration and exploitation. The fist analysis will therefore be a theory based analysis, with the purpose of developing and operationalizing categories for further examination of the cases, leading into the discovery of selecting criteria. Once the categories for finding the balance fit have been found and cross-analyzed, together with the extracted selecting criteria, the second analysis will be revolving on how to manage for finding the balance fit, based on selecting criteria. In this part of the analysis, the content analysis method will be applied, as a way of understanding different ways of managing for finding the balance fit. The empirical sampling (chapter 4) will be used to extract data to further contribute to generalization that can lead to covering some parts of the gap in the literature and theory.

5.1 Analysis I: Finding the balance

Until now, the *balance fit* has been questioned, as there is no ultimate answer or point of ratio to where the balance fit is. The literature review (chapter 2) is revolving around literature that, per say, does have an affect on the balance, and that focusing too much on one concept is a crucial reason for companies to get trapped into the success trap and premature death. Based on the literature review, we also came to realize that finding the balance fit of exploration and exploitation is likely to start in the strategic intentions and goals of companies - e.g what it is a specific company wants to do. Managers should, therefore, be aware of and clearly communicate and set goals that are consistent to the strategic intentions. Recent studies on the importance of finding the balance fit of exploration and exploitation, have showed that companies focusing only on financial performance, will create a discrepancy in their abilities and capabilities of balancing exploration and exploitation. A more holistic view is often necessary, in order for companies to mediate and moderate their strategic intention, in regards with the balancing of the two concepts [Sirén et al. 2012, pp. 18].

The lack of understanding into how to find a balance fit has lead to companies neglecting the importance of simultaneously applying strategies of exploration and exploitation [Reeves et al. 2015 - 2]. This, coupled with the existing gaps in the literature about the need and ratio of balance fit, has continuously aggravated the existing problem. In order to further explore the balance concept, we are now focusing on exploring how to find the balance fit by developing some categories extracted from existing models, frameworks and theoretical propositions of ambidexterity, strategic management and additional theory of strategic aggressiveness to help us to lead the way towards finding a balance fit. Despite the increased intention towards balancing exploration and exploitation, the question is still: What are the things that companies need to take into consideration in order to find the balance fit? And due to these circumstances, we wish to explore the first sub-question of *what selecting criteria could be developed for companies in order to guide in finding the balance fit?*

5.1.1 Strategic aggressiveness

Considering the topic of this thesis is to find the balance fit, as well as how to manage for finding the balance of exploration and exploitation, companies have to think of an appropriate way to pursue their new strategies in terms of product-market domain and construct mechanism [Miles et al. 1978, pp 546]. Miles & Snow (1978) in their introductory theoretical framework proposed alternative typologies, through which companies can adapt their internal processes to fit with the dynamic external environment. But "*maintaining an effective alignment with the environment while managing internal interdependencies is enormously complex*" [Miles et al. 1978, pp. 547]. But this complexity that companies are facing, can be made more easy by searching for patterns in companies' behavior. This can make it easy for companies to describe and even predict the process of adapting to the dynamic environment. With this in mind, Miles et al. developed a framework, which can be used as a model that has taken into account the interrelationships between strategy, structure and process. This is done by using the elements of i) a general model of the process of adaptation, which dictates the major decisions taken by companies, and ii) an organizational typology that presents different patters of adaptive behavior within a gives industry [Miles et al. 1978, pp 547].

Although the dynamic external environment dictates the road that companies follow, Miles & Snow argue that the choices made by top management critically influence the determinants of organizational structure and process. These choices can be separated into three extensive problems of organizational adaptation: *entrepreneurial problem*, *engineering problem*, and *administrative problem*, called The Adaptive Cycle [Miles et al. 1978, pp. 548].

- *The Entrepreneurial Problem* This problem is connected to the managerial attitude and reaction towards the market the company is on. This includes, but is not limited to, the concrete definition of what the product or service is and to which target group or market the company wants to operate on, as well as the continuous need for further entrepreneurial activities once a solution has been found. The acceptance of the new *solution* is made apparent when resources and capabilities are designated to achieve the stated goals [Miles

et al. 1078, pp. 549].

- *The Engineering Problem* This problem involves the creation of an operationalization system of the solution of the entrepreneurial problem, which requires a selection of an appropriate technology for producing and distributing the products and services to the chosen market. The solution to this problem is not rigid from the beginning, it requires the solving of the next problem (the administrative problem), in order for the management to solidify their relationships with the external environment and internal processes [Miles et al. 1978, pp. 549].

- *The Administrative Problem* Commonly, this problem has as a solution the minimizing of uncertainty within the organizational system, or rationalizing and stabilizing the activities that successfully solved the two problems above. But it involves more than that, mainly, formulating and implementing processes that will enable the company to continue to evolve. The solution to the problem should lead the company in being able to smoothly control and monitor their activities, but also allowing the system to integrate new innovation without endangering the company activities [Miles et al. 1978, pp. 549-550].

If a company accepts the above problems as a way of choices that must be made in order to facilitate organizational adaptation, there remains the question of what strategies can a company employ in order to solve these problems. Miles & Snow identified three strategic types or organizations: *Defenders*, *Analyzers*, and *Prospectors*. Each strategic type has their own approach to solving the problems with particular configurations of technology, structure and processes consistent with the market strategy. A fourth type has also been identified, *Reactors*, which is made up by companies that have inconsistencies among their strategies, technology, structure, and process [Miles et al. 1978, pp. 550].

- *Defenders* The Adaptive Cycle of the Defenders rely on trying to capture a portion of the intended market, in order to create a stable set of products and customers, while producing and distributing the goods or services as efficiently as possible. The administrative problems it is facing is in regard with maintaining a strict control of the company to ensure efficiency among all internal processes [Miles et al. 1978, pp. 552].

- *Prospectors* The Prospector is the innovator of the typology, the company that wants to locate and exploit new product and market opportunities, by avoiding long-term commitments to a single technological process. They do this by facilitating and coordinating numerous and diverse operations [Miles et al. 1978, pp. 554].

- *Analyzers* The Analyzers, as per their entrepreneurial problem, are focused on locating and exploiting new product or market opportunities, while simultaneously maintaining a firm base of traditional products and customers. They want to do that by being flexible in changing environments, and stable in the core business, by differentiating the company's structure and processes to accommodate both stable and dynamic operations [Miles et al. 1978, pp. 556].

- *Reactors* This type of company has inconsistent and unstable adjustment pattern, by lacking a response mechanism to the changing dynamic environment. Their Adaptive Cycle consists of responding inappropriately to uncertainty and environmental change, performing poorly, but also being reluctant to act aggressively in the future. It is regarded as a *residual* strategy, arising when one of the other three strategies are misused [Miles et al. 1978, pp. 557].

A company's success is restricted by the decisions that the top-management is taking and the strategies they choose to follow. Offering solutions to the entrepreneurial, engineering and administrative problems a company is facing, is the way that companies' strategies have a clear line of sight while achieving the strategic goals. The inability of a company to use its resources and capabilities in order to further their strategic goals and achieve them, is ultimately made possible by internal poor decisions and inability to follow dynamic markets.

5.1.2 Developing categories for data gathering and cross-analyzing

To answer the first sub-question of this thesis, we acknowledge that there must be something that diversifies the balance fit of exploration and exploitation. Accordingly, we selected four companies, from two different industrial contexts, based on their successful, but still different ways of finding the balance fit between exploration and exploitation. The within and cross-analysis is therefore focused on the selection of categories, for further analyzing the similarities and dissimilarities between the four cases' way of finding the balance fit, as for answering which selecting criteria could be developed in order to find the balance fit.

Accordingly, as for increasing reliability and validity of the study, both the data gathering of the companies, and further the analysis will be based on the same four theory based categories:

- **Strategic intent**, based on section 2.2, 2.3 and about exploration and exploitation related literature and strategic management we were curious in analyzing how important the strategic intent of the companies was in connection with finding the balance fit. This is in connection with finding out the degree, which the companies are using their exploitative or explorative capabilities in finding their intent on the market. The theory is emphasizing the need of clear and strong holistic strategic objectives, in order for the companies' intentions on the market in which they aim to perform, to be acknowledged and conducive to a positive outcome. Has the strategic intentions of the companies changed over the years? How is the external environment forcing the companies to adapt and/or evolve?

- **Dynamic capabilities** extracted from section 2.3.2, will be used as an addition to the previous category, based on how the companies' exploration and exploitation capabilities are used. The need to develop capabilities is showed in the literature as an important attribute for companies to sense and seize opportunities, and reconfigure according to the changing environment, in order to achieve competitive advantages.

- **Strategic aggressiveness**, having as a basis section 5.1.1, in which the typology of Miles & Snow is shown, will be used in order to explore the aggressiveness of the companies on

the market in which they are operating and competing within the context of exploration and exploitation. This will provide another perspective to how the companies are choosing their organizational objectives to reach the intended goals, which will be exemplified in this thesis by the use of the four strategies. Coupled with the idea of how closed or open the companies are to the external environment, this category will present a better overall perspective over the companies' strategic aggressiveness.

- **Balancing capabilities**, for this category we are analyzing the balancing capabilities, based on section 2.2.1 of ambidexterity literature. We are interested in analyzing how the chosen cases are executing both exploration and exploitation. Are the companies doing it simultaneously or have they found a more appropriate way of emphasizing the controversial activities and capabilities of the concepts?

The above developed and operationalized categories will also be helpful in increasing the validity and reliability of the chosen topic, due to the fact that the four cases will be analyzed based on the same categories, extracted from the theoretical propositions. With the use of the cross-case analysis, we intend to describe and delineate what should companies in their respective industries take into consideration, when looking to find the balance fit between exploration and exploitation.

5.1.3 Within-case analysis of the four cases

The use of the cross-case analysis in this thesis will be to make sense of the theoretical foundations, coupled with the empirical intentions, in order to reach an explanation in what companies should take into account when looking to find a balance fit between exploration and exploitation. The above is useful when looking to also understand the relationship between exploration, exploitation and the chosen emerging strategies, which will be done by looking at similarities, differences and inconsistencies in the extracted data based on the categories above. The within-case analysis will first evolve around similarities and dissimilarities within the two undertaken industries. Thereby followed by cross-analyzing across industries to address the research gaps of how to find a balance fit within dissimilar settings.

In order to do the cross-analysis of the empirical data, a current application and operationalization of the chosen categories are needed to understand how the selected empirical sampling succeeded in finding their balance fit between exploiting and exploring to develop selecting criteria for further examination. This will be done with the help of describing the current situation of the companies to further analyze the general implications of finding a balance fit.

5.1.3.1 Strategic intent

John Deere: John Deere's strategic intent has been changing over the last decade, as for adapting to the changing environment, due to increased competition within the traditional industry, and to better understand the customers' needs and demands. Quite recently, the company decided to refresh its strategy once again. As for today, the strategic intent for John Deere is to achieve growth, based on a vision, mission and aspiration that emphasize long-term purposes, including gaining bigger market share and increasing their financial performance by creating innovations and double their experience value for customers, shareholders and employees [Machine Finder Blog 2017].

Caterpillar Inc.: Caterpillar Inc. used to focus on establishing productivity and efficiency as a result for revenue growth, which in 2014 meant for the company to reorganize divisions and the entire organizational structure. However, this strategic intent changed and today, Caterpillar Inc. is focusing on a low-risk growth strategy emphasizing investment returns and profit margins to supplement their equipment sales with services revenue. Furthermore, the company underlines the importance of their "*profitable growth*" strategy as its long-term success, and to maintain their competitive market position by following their vision of being the global leader in customer value. Together with their mission of providing best value to customers, while also growing a profitable business and encourage and reward their staff [Caterpillar Inc. Website - 1]. As a way for achieving growth, the company uses both strategies of market penetration and market development, in an attempt of capturing more market share.

- **Cross-analysis**
  The strategic intent within the traditional industry contains some similarities. Both of the companies are focusing on achieving growth, while having exploitation as their strategy

for their core business. However, even though their strategic intents are sharing the same purpose, the companies have devoted different attributes in achieving growth seen within the goals and objectives of each of their strategy. John Deere seems to be focusing more on achieving growth through long-term purposes, including taking more and higher risks for making incremental product innovations (outward), while Caterpillar Inc. has chosen to direct their strategic focus to both internal process adjustments and incremental innovations for growth (inward), as the company is relying on activities that can be realized quicker than John Deere's.

Intel: A few years ago the strategy of Intel was to transform the company from a PC company, to a company that powered billions of connected devices, as with the cloud [Krzanich, 2016]. The company's strategic intent has not changed much the last few years, even though the industry in where it is operating, have been underlying increased competition and rapid changes. Today, Intel's strategy is directing attention to growth, by innovating to develop new products done by utilizing *Moore's law* to offer connected devices to every person in the world [Intel Website - 1]. Even though Intel's strategic intent has not changed much - and is mainly focused on growth, the market orientation of the company has been changing in order to increase their competitive advantages.

IBM: IBM has undergone large changes and transformations in the past 25 years. The company transformed to a solution provider (of broad range) from a struggling seller of hardware [Harreld et al. 2006, pp. 2]. Today, IBM is underlying an intense generic competitive strategy, that seeks to exploit the explored opportunities in various markets, and aims for flexibility and growth. IBM's vision is to be the most successful and important information technology company in the world, by introducing technology to help existing and new customers to aim for the company to be the basic resource of what is invested within the high-tech industry [Rometty 2018].

- **Cross-analysis**
  Both of the companies seem to focus on growth after underlying major transformations within both of their core businesses. Nonetheless, the similar strategic intents, do not reach out for the same major focus on where to reach growth, which separates their strategic intents. A deeper look into the underlying arguments for each of their strategic intent, shows that Intel is focusing relatively more on its existing products to be improved than making radical innovations. IBM, however, is taking a broader approach together with a higher degree of risk-taking, to innovating for reaching more radicality in product innovations. From the two companies, Intel seems to reuse old strategies and business models to reach for the "newest" strategic intent, rather than IBM's continuous reorganizing and more flexible approach. A thing that differentiate the companies is their use of Intellectual Properties (IP). IBM is focusing far more on explorative activities because the company is not strong on IPs, and therefore trying to create, develop and present innovations in a high speed in both existing and emerging markets. In parallel, Intel is very strong on IPs, by making use of their core competences in order to generate as much revenue as possible in its existing markets. So, Intel seems to be in a stage of generating revenue because of

what the company explored initially; R&D, know-how, capabilities etc., and the company is using it as a buffer right now as their "cash-cow".

5.1.3.2 Dynamic capabilities

John Deere: As John Deere's strategic intent has been changing to better adapt to the changing industry, competition and customer needs, the company has been developing dynamic capabilities to sense new opportunities and seize them to allocate resources and develop the needed capabilities. As for the sensing capabilities, John Deere has been focusing on expanding their business into new businesses by acquiring companies (three companies within the last 3 years), out of its own core competences. Simultaneously with the shift in the company's strategic intent, John Deere has brought technological innovations within agriculture, as their try to reach growth by incrementally innovating. Besides acquiring companies, John Deere also developed a platform (web-based), that makes it possible for the company to connect their machines to enable preventative maintenance, which will make it possible to collect information and use it for future adjustments of the products. As for another sensing capability, John Deere has recently been launching a program in which they are also encouraging start-up companies to collaborate on their innovations [Precision Farming Website 2018].

As for seizing and reconfiguring capabilities, John Deere decided to stick to the five principles of Lean thinking (Womack & Jones) within their supply chain, logistics and production, to continuously improve the internal processes of the company. The focus on improvements by applying Lean was on standardizing and eliminating waste in the internal processes, and further develop a mindset of continuous improvements, through the entire company [Fernández 2016]. Furthermore, the company developed a platform called MyJohnDeere, to partner up and collaborate with companies to develop the already existing capabilities.

Caterpillar Inc.: Caterpillar Inc. has focused on partnering with industry, government and academic institutions all around the world, to increase their Research and Development (R&D) together with leveraging the best expertise, for the benefit of its customers. Additionally, an open innovation platform has been created in order for customers to share their ideas with the company, as for maximizing their value of technologies [Caterpillar Inc. Website - 2]. The open platform was a try for the company to open up for external knowledge from customer and supplier sources to drive innovations, instead of allocating (financial) resources and relying only on internal knowledge to explore opportunities. As a third way for Caterpillar Inc. to absorb external knowledge, happens through investments and by acquiring intellectual property from engineering companies, in order to produce customized solutions within specific locations, to increase customer value within these markets [Caterpillar Inc. website - 3]

Caterpillar Inc. is using an Operating & Execution Model for sharpening their internal focus on increasing operational efficiency, and develop capabilities to adapt to the current environment. As a part of the Operating & Execution model, as with John Deere, the Lean manufactur-

ing approach is included in their operational excellence to build upon and strengthen the core capabilities of the company. Furthermore, the company has reorganized the orchestration of resources and assets based on Six Sigma, together with their own system named Caterpillar Production System (CPS), to eliminate waste and drive efficiency, for being able to deliver higher operational performance in the future [Caterpillar Inc. website - 4].

- **Cross-analysis**
  The dynamic capabilities address the sensing, seizing and reconfiguring capabilities, in order for companies to better adapt to the changing environment and achieve competitive advantage. Clearly, the two companies within the traditional industry (agriculture-related and construction-related), share a few similarities in how to sense, seize and reconfigure. The sensing capabilities for exploring new opportunities of the two companies, are clearly distinguished between the sources from where they leverage knowledge and acquire capabilities. The pattern of explorative capabilities (sensing) between the two companies have illustrated different scales of "environmental interaction". Both companies are using open innovation as exploration capabilities, but the way they approach open innovation is different. Caterpillar Inc. is mainly focusing on open innovation as a way for acquiring and developing new capabilities. The company is using outbound innovation by commercializing their technologies and inventions through licensing and selling out resources, that have been developed in other companies or joint ventures, for pecuniary purposes. On the other hand, John Deere is focused on a more "traditional" path for exploring, through acquisitions of companies that seem to have the capabilities that John Deere is looking for, for later utilization of the necessary technological developments. This is also known as inbound innovation by acquiring external research, skills and capabilities as a complement to its own, rather than a substitution for its own internal R&D. That is to say, that both companies rely on competences of their external technology suppliers, and using suppliers and capacity centers as their external sources of information for pecuniary purposes, with a lower degree of external acquisitions of research.

  Based on the seizing and reconfiguring capabilities, both companies apply the lean manufacturing approach, as for the same purpose of identifying value creating activities, and eliminating value consuming activities. As for an extend to the lean approach, Caterpillar Inc. has further implemented the Six Sigma approach to guide projects and implement processes for achieving more internal efficiency and productivity. The exploitative capabilities of both companies using lean related approaches, affect the explorative capabilities, due to the fact that the companies do not have a high propensity to take high risks to innovate, which lowers the speed of identifying new opportunities.

Intel: In the aftermath of Intel's core business change from a memory device manufacturer to a microprocessor manufacturer, the sensing capabilities of the company had seen little change. Though the company is, at the moment, focusing on steady and stable growth, Intel has been relying much on the same capabilities as when the shift within their business occurred [Winter 2007, pp. 15]. Intel's sensing capabilities include continuous and intense use of their R&D cen-

ters, collaborations with universities of research on new technology and frameworks to explore the newest advanced possibilities and create communities among Intel and researchers, as well as referring to their in-house R&D to map out possible opportunities. Included in this are also the joint ventures that the company has with multiple companies, outside of it's core business.

In addition to the sensing capabilities of identifying new opportunities, the Intel strategic process also include processes of seizing them by reconfiguring and reallocating resources and assets. This is done by the company's use of the Six Sigma Principles, as well as their own flexible quality management system architecture. This quality control system is based on the company's mission, values, and quality policy, which, through the company's systems and processes, establishes a rapport of responsiveness with their customers by optimizing the correct usage of Intel's products [Intel Website - 2]. With the quality control system in mind, the company is also exploiting their resources through partnerships with multiple institutions and organizations, including the National Science Foundation [Intel Website - 3].

IBM: The fact, that IBM have been underlying major internal transformations and changes within the last few years, means that the company has developed strong explorative (sensing) capabilities. IBM has sensed opportunities by frequently investing in, and acquiring companies out of their core business under conditions of high uncertainty and competition. The fact that IBM is taking risks by investing in companies with knowledge and capabilities out of software and hardware, means that the company is expanding their business to other markets, which seem to be a success as for high adaptability to changes within the technology industry. As another element within IBM's exploration strategy, is their collaborations with academic institutions; the company has designed an Awards Program, with the purpose of connecting both university research and researchers, with the staff in IBM for strengthening the explorative capabilities.

The high developed explorative capabilities of IBM have resulted in a large number of innovations and intellectual property portfolio. Additionally, the company is allocating many financial resources to the existence of research within 12 labs across six continents with more than 3,000 researchers. This contributes to the exploitative capabilities as much of these labs are making research within the core capabilities of IBM. Other seizing capabilities occur in the movements within the processes of the company. IBM decided to apply and train the staff in Lean Six Sigma, as for contributing to process improvements to further be more productive based on simplification and standardization, which has resulted in high economies of scale [Strategy Advisory Group 2011]. Additionally, for establishing competitive advantage, the company's use of cost leadership reveals the intent of the company to focus on their productivity efficiency, but it also unveils the products' imitability by other competitors.

- **Cross-analysis**
  The similarities between the companies are related to the way the companies approach exploration in lieu of their intense use of internal R&D centers, investing and collaborating with multiple companies and academic institutions. This way of exploring includes a high

degree of sensing capabilities from the companies' side, in order to seek the appropriate explorative abilities companies are wanting to improve or achieve. As for differences, Intel is looking for already established and researched topics and choosing to invest in the capabilities they want to develop and build as products, which we consider to be outbound innovation selling, as they acquire the capabilities needed and licensing the outcome. IBM on the other hand, has a broader approach in investing and collaborating in topics of potential successful campaigns in capturing and developing capabilities, which is conducive to an inbound innovation sourcing, a non-pecuniary type of openness, as the company uses external sources for their innovation purposes.

Regarding the companies' exploitative capabilities of seizing and reconfiguring, both companies are making use of partnerships within their core business with multiple companies, ventures within their strategic intent with similar companies, as well as acquisitions within their core in order to expand the use of their capabilities and improve their understanding of the company's environment and to secure internal learning. Another similar perspective is the quality control and continuous improvement. Both companies use the principles of Six Sigma as a way to improve the efficiency of the production activities, resulting in both companies achieving high economies of scale. As for dissimilarities, Intel is mostly focusing on in-house R&D and developing their existing capabilities, which leads to think that Intel is using both open and closed strategies. IBM, through the amount of collaborative activities, are focusing not only on developing their own R&D capabilities, but also on creating a space for future digital reinventions, by using more than one open strategy. IBM seems to be both open-in and open-out.

5.1.3.3 Strategic aggressiveness

John Deere:As seen from the previous category, John Deere has been, for the last decade, enhancing their entire organizational context in order to adapt better to the external environment. According to Miles & Snow's typology, John Deere was previously regarded as a defender because of the purpose of their management systems [Segars et al. 1994]. Nowadays, the company falls under the analyzer strategy because of the fitting characteristics, which allow the company to majorly explore outside of their core business, while maintaining a lean thinking inside their core activities. This dual focus of the company requires a simultaneous management of planning, control, and rewards systems, which developed into the company having a dual technological core [Miles & Snow 1978, pp. 557].

Caterpillar Inc.: Caterpillar Inc. is facing high competition within their operating markets, mainly in China and Japan [Sharry 2018]. However, the presence of the company in the big technological centers of the world inspired Caterpillar Inc. to focus on market penetration as a way to capture market share. According to the typology, we also view Caterpillar Inc. as an analyzer, which represents the use of both exploration and exploitation capabilities to ensure the fulfillment of the company's intent. The company successfully accomplishes this through their

use of Six Sigma and Caterpillar Production System as exploitation activities, in combination with their platforms, investments, and open innovation, which represent the company's exploration activities. Additionally, the company focuses on conducting feedback and ideas from customers to make incremental innovations for the core business, but in the mean time also exploring possibilities to expand to new emerging markets [Weitzman 2010].

- **Cross-analysis**
  Executing strategic aggressiveness can be seen through the ratio of both explorative and exploitative capabilities. Though both companies are analyzers doing exploration on a smaller scale in a traditional exploitative market, the way they behave within the market on the basic of their capabilities separates them based on their strategic intent (section 6.1.2.1). Caterpillar Inc. focuses on profitable growth to maintain their market position, and John Deere strives for gaining a bigger market share on the current market, by innovations.

Intel: The company is aggressive on a high scale, in fighting moderate aggressive competitors, as the company has a greater amount of capabilities (economies of scale), compared to its competitors. However, Intel is mainly focusing on inventing and developing new products and opportunities, while at the same time maintaining the offered product to their existing customer segment. Intel's strategic aggressiveness can be regarded through the prism of an analyzer, as the company does extensive R&D with the help of multiple universities and research centers all over the world, for being more flexible in changing environments, coupled with the Six Sigma principles, in-house R&D, and company acquisition to create a stable position in their core business.

IBM: Earlier, IBM was regarded as a prospector because of the company's propensity towards product or service innovation [Segars et al. 1994]. In 2013, the company is, yet again, classified as a prospector by an online competitive analysis [Profi 2013]. The industry in where IBM operates is rapidly changing and involves moderately differentiated competitors. Additionally, the products within the high-tech industry are easily imitated, which has enabled IBM to increase the level of their strategic aggressiveness. Today, we also believe IBM to be in the same category of prospector, because of the enormous amount of out-of-core innovation that the company is doing: investments, platforms, collaborations and small amounts of acquisitions, which illustrates the flexibility and propensity for the rapid change of the company.

- **Cross-analysis**
  Clearly, Intel and IBM are both encompassing the desire of the high-tech industry in going for more and more growth on their afferent markets. This is also influenced by the dynamic environment the industry operates around, as well as by the increased interest and need for developing new and better technologies. Intel's strategic intent, together with its explorative and exploitative capabilities, emphasize the use of routine innovation, as the company currently relies more on its existing business model, together with the unchanging perception of the market due to their IPs over their initial radical innovation.

The rate and "radicality" of their innovations have been relying much on their existing customer base, and the value proposition seems to have experienced mostly smaller incremental adjustments, to create and sustain a stable position. Differently than Intel, IBM is aggressive in a way regarding its exploration capabilities. Due to the fact that the products IBM is pushing on the market have a high degree of imitability, the company has to rely on their explorative capabilities to continuously be a step ahead of its competitors and maintain their market share. IBM furthermore seems to be more open in their approach of exploration and their as-of-late innovations have been marked by more radicality than Intel's.

5.1.3.4 Balancing capabilities

John Deere: For the company's use of their capabilities, John Deere uses off-shoring [1] of their research departments in Asia and India, which creates a context for structural ambidexterity [John Deere Website]. The fact that the company is not having their R&D departments geographically close to their headquarters, impedes the possibilities to make a shift in the focus of their capabilities from exploration to exploitation and vice versa. Their balancing capabilities therefore depend on the company's ability to simultaneously execute and develop both capabilities for exploring new possibilities and exploiting them.

Caterpillar Inc.: Caterpillar Inc. also looked at off-shoring as a solution in balancing exploration and exploitation. The company's off-shoring of their research departments in China and the United Kingdom is conducive to a structural ambidexterity type. This means that the innovation and development in the research centers are helping the over 500 global locations in improving their market share [Wright 2012].

- **Cross-analysis**
  Balancing capabilities relies on a company's ability to either focus on executing explorative and/or exploitative activities simultaneously, or make conscious decisions about focusing on either explorative or exploitative activities for a period and then make a shift. For both of the companies within the traditional industry, we see similarities in their balancing capabilities as they both have decided to do both exploration and exploitation at the same time - referred to as structural ambidexterity. As for their way of securing to do both at the same time, both companies have off-shored most of their R&D activities in different geographical locations close to knowledge hubs, to benefit from clusters of technology knowledge. However, for the exploitation activities, we do see that both of the companies representing the traditional industry are allocating large amounts of resources for exploitation in their manufacturing located all around the world.

Intel: As a way to balance the company's capabilities, Intel has, ever since 1976, been structuring their organization as to fit best with the external environment in order to capture the most value at a given point. Nowadays, they do that by using structural ambidexterity as a step

[1] Off-shore company: Firm registered or incorporated outside the country where it has its main offices and operations, or where its principal investors reside [Business Dictionary]

up from sequential ambidexterity, as for the company to better prepare itself for the rapidly changing markets it is on. As for the explorative capabilities, the company has kept the R&D department lose to the headquarters. As for the explorative capabilities, the company has kept the R&D department close to the headquarters. For the exploitative activities, Intel has chosen to off-shore their manufacturing activities to all over the world [Intel website - 4].

IBM IBM's balancing capabilities come from the use of structural ambidexterity, by having separate units which continuously focus on either exploration or exploitation. The company chose to do this because the separation of business units was more conducive to change, than it would have been to continue doing exploration inside the company's core business [Grant 2015]. However, IBM is still having their R&D activities geographically close, even though the company is expanding to new and emerging markets. As for their exploitation capabilities, the company chose to expand their geographical area by locating the manufacturing departments in Essex Junction, Vermont, New York and Bangalore [Barinka et al. 2014].

- **Cross-analysis**
  Within the industry in which Intel and IBM are operating, through the companies' example, we see the use of structural ambidexterity as a way to comprehend the management of exploration and exploitation. Both companies focus on separating the business units to deal simultaneously but separately, with quality control and rapid innovation within the companies, and they also seem to have off-shored most of their manufacturing activities. One difference we can argue for between the companies, is the percentage of attention given to specific units, where IBM is focusing more on the innovation side, which is exploration, while Intel is struggling to keep pace, and at the moment generating the most revenue of their latest innovation.

5.1.4 Partial conclusion

The cross-case analysis of the four chosen companies within the two industries, seems to suggest that there are similarities and differences based on the four categories, as the way the companies are regarding exploration and exploitation and the balance fit between them. Additionally, looking at the companies, individually, are contributing differently to the phenomena of balance fit, which we further seek to analyze as a try to contribute to the development of generalizing selecting criteria, that companies should take into consideration when finding the balance fit, seen from an industrial context. The use of the categories developed from theoretical foundations has been helpful into focusing the research on converging points, as to examine and analyze the use of exploration and exploitation, and the emerging strategies. This analysis has been the first step in exploring the industrial context, which will be further looked in depth in the next step of the analysis.

5.1.5 Cross-case analysis of the two industries

With the premise of the internal industry cross-analysis in mind, the next step is cross-analyzing the industries themselves through the view point of the chosen categories, in order to explore if there are any similarities and/or dissimilarities in how the industries are finding, and managing for finding a good balance fit. This could lead to some selecting criteria that companies should take into consideration, in guiding for finding the balance fit.

5.1.5.1 Strategic intent

The strategic intent for the traditional market is environmentally related as for the companies' devotion of incrementally innovating their core, and is focusing on more of an incremental growth, whereas the high-tech industry focuses on inducing a broader view in looking for more radical developments. Even though the two industries are similar in looking towards growth strategies, with small inconsistencies within their core business, the industries separate themselves based on the approaches of how to achieve growth. The high-tech industry is trying to achieve growth through both incremental and radical innovations, while the traditional industry is focusing mostly on incremental innovation. This indicates a pattern of similarities as there are similarities in their intents of achieving growth, however their focus on exploration and/or exploitation separates the industries. Additionally, the separation of whether to achieve growth mainly based on exploration or exploitation, indicates that the balance fit must take its starting point in where the intentions of the goals point towards.

5.1.5.2 Dynamic capabilities

When cross-analyzing the two industries, we further see that the dynamic capabilities of the industries seem to have in common that they both have the capabilities to explore and exploit. Additionally, some of the same methods are applied in realizing the capabilities, which indicates a relatively similar construct of variation. However, the exploration capabilities seems to force the two industries to manage for finding their balance fit between exploration and exploitation, differently. This is caused by the two very distinct environments in which the industries are operating that further separates them on how to find the balance fit. The dissimilar industrial environments are both influencing how the industries manage for exploration capabilities, as the external focus, but also on how frequently to sense new opportunities depending on the shifts, dynamics and especially technological advancement. As for the criteria of dynamic capabilities, the industries' sensing capabilities are divided not by industry, but by objectives. The two industries are handling their dynamic capabilities through allocating and reaching for their strategic intents, however as their strategic intents divides the industries' focus on exploration and exploitation also seems to affect the balance fit. Additionally, the similarities within the sensing capabilities between the industries cannot be viewed as "direct" similarities, due to the dissimilar settings with different intent, which seems to have an effect on how the industries manage the processes for their return on investment and risks when taking into account the industrial context.

Accordingly, the technological advancement also creates an open space for the two dissimilar industries to develop more explorative capabilities, also given the small variations between experimentation - financial wise. This means that there are similarities in how the two industries are finding their balance fit between exploration and exploitation, and that the traditional industry is not that low-tech as first assumed. Yet, the explorative capabilities could evolve from the effect of the continuously and fast speeding technological advancement, the exploitative focus within the industries could also be evolving into exploration capabilities, due to the fact that the exploitation focus cannot sustain a strategic position within the balancing ratio. The environment where the industries are operating and competing in, is forcing the industries to have a certain and different degree of change. In cross-analyzing the traditional industry with the high-tech industry, we see that there are similarities in terms of finding a good fit, based on the opportunities given by the technological advancement, to develop exploitation activities evolving into exploration capabilities. However, the industries are separated in the way the affected exploitation capabilities are contributing to the explorative capabilities. As stated above, the exploitation capabilities are influencing the range of action of the developed explorative capabilities, with influence over how companies are managing for finding the balance fit, within dissimilar industries. Although this shift is present in both industries, we see a variation in the high-tech industry's contribution of the exploitative activities, in a far larger amount than for the other industry, due to the fact that this industry is an instigator of change.

The amount of exploration activities of the two industries also contributes differently to the changing environment in where they operate. The high-tech industry is the instigator of change, which means that the industry is constantly contributing to the overall technological advancement by their exploration capabilities, in a faster speed than for the traditional industry. The traditional industry is relying on more time in order to efficiently manage the processes of the balance fit to reach a better balancing ratio, due to the fact that their product life-cycle is far longer than for the other industry. The product life-cycle seems to affect to a large extent how to find and manage for finding the balance fit of exploration and exploitation. As mentioned above, the product-life cycle affects especially how to manage for exploration activities, as the life-span of the products determines the given time to dependently explore and exploit while squeezing as much revenue in the life-span of the introduced product and/or service. With this in mind, the product life-cycle is influencing the focus on either exploration or exploitation activities that the industries are executing. While cross-analyzing the two industries, we see that they are separated, as with the speed of introducing new products and services, based on their abilities to frequently realize exploration and exploitation to stay competitive in their dissimilar settings. Even though the industries' exploration and exploitation activities seem to be affected by the dynamics in their environments, we do see a similarity in their way of exploiting their existing resources, to secure market shares by using quality control related tools. Although the quality control related tools are similar, their purposes are divergent according to the focus of the industries on either exploration or exploitation. Additionally, the focus of the balancing ratio of exploration and exploitation between the two industries, also indicates a pattern of the degree

of agility and flexibility according to the way of conducting business of the two industries. The fact that the external advancements are changing the industries' way of balancing exploration and exploitation, the data further indicates a construct variation in the way the two industries are renewing their business models to better organize and manage for a balancing fit, as their reorganization of their business models to adapt to environmental changes, diverges. From this point, the traditional industry is not reorganizing their internal business model so often, as their environmental context allows the industry to rely on more time to change. On the other hand, the high-tech industry seems to be, more consistently and proactively, looking and exploring new and renewed business models, in order to stretch their reach towards new emerging markets, which further makes the companies acquire new capabilities every time needed to sustain the company's expanding product lines.

Even the fact that we see some similarities in the applied approaches across the industries, the rate, speed and frequency of change is highly different, which seems to have an impact on how to find the balance fit within dissimilar settings. As along with explorative activities, there are also differences in the exploitative activities of the industries, that diversifies the way of finding their balance fit. The traditional industry's focus of their exploration and exploitation capabilities on product development, differs from the focus of the high-tech industry towards using their capabilities for process development. As coupled with the product life-cycle, there is an indication that when the traditional industry has introduced a product, exploration, to squeeze revenue from, there is a lot of time to focus on the other side of the balancing ratio, on exploitation. In contrast to how the traditional industry is managing for their exploration and exploitation activities, the high-tech industry is utilizing their exploitative activities to contribute more to process development as for continuously improving internal explorative capabilities.

5.1.5.3 Strategic aggressiveness

There are similarities also related to the category of strategic aggressiveness of the industries, in the way of finding the balance fit when looking across the industries. However, the reasoning for organizing and managing is different and separates the industries. In the traditional industry there is more IP protection, and how they manage it is important for sustaining competitiveness. Across the two industries we see that a part of the high-tech industry has a long focus on exploitation activities, but not within the same "degree" as the traditional industry, because of their IP protection, which means that the high-tech industry is consistently squeezing revenue. With that in mind, we acknowledge that both industries are focusing on exploitation, but the reasoning for adopting such a strategy is different, also according to the different strategic intents. For one industry it is for generating as much revenue as possible from introduced IPs, and the other one is given the context of the industry, which is traditional, so changes within that industry are not evolving so frequently and therefor exploitation is still "milking that cash-cow". Which means that there are similarities in how the industries are managing for finding the balance fit, but the reasoning for it is different, which according to the industries' environmental state makes sense.

As for the industries, we acknowledge that there are different ways of finding a balance fit depending on the range of aggressiveness of the industries' intents, as it states where companies want to position themselves within the context of aggressiveness. Additionally with the previous analyzed categories, the environment also seems to a large extent to affect the degree of aggressiveness within the operated markets. As mentioned earlier, the traditional industry is not that "low-tech" anymore because of the opportunities given by the technological advancement, meaning that the focus of the industry is on their explorative and exploitative capabilities with more attention towards exploitation. While for the high-tech industry, their focus on exploration and exploitation, with an increased attention towards exploration to search for new opportunities to exploit. Yet again, the reasoning of the companies in the industries differ from each other and affects how the industries are managing for finding the balance fit. Hereby said, that the different exploration and exploitation capabilities are influencing the activities the industries undertake as part of their product portfolio. For the traditional industry, the explorative activities are mainly done by adapting to environmental changes and to changes made by external competition, as well as to the industry's product life-cycle, which could impact how the industry manages their aggressiveness. The high-tech industry seems far more proactive in preparing for approaching aggressiveness, due to the fact that the industry also focuses on radical innovations, which sometimes evolve into changes of the industry or markets.

5.1.5.4 Balancing capabilities

Clearly, the reasoning behind the focus on either exploration and exploitation activities, separates the two industries also related to their balancing capabilities. The results from the within-analysis have showed that both industries are using structural ambidexterity. Even though we see some similar ways in the balancing capabilities, the most interesting similar trend between the two industries is the same applied method of off-shoring activities. However, we further see that the reasoning behind off-shoring is different. The traditional industry relies on using off-shoring primarily for their exploration activities, as R&D centers, to locations with more beneficial knowledge hubs and knowledge sharing. For the high-tech industry, the choice of off-shoring is on their exploitation activities, as manufacturing. The similar trend in the off-shoring activities indicates that the industries share some of the same methods for delegating the capabilities, which the industries would not benefit in keeping so close to their headquarters. Additionally, for the off-shoring it makes sense to delegate the activities in which the industries do not benefit from having close, due to the environment in which they operate. Although the industries are using the same approach, the way they are using structural ambidexterity is different based on their reasoning. For the traditional industry, the life-span of their life-cycles is slower than for the high-tech industry, and the fact that the traditional industry is not the initial changer of technology especially, makes it understandable why the traditional industry keeps their exploitation activities closer than their exploration activities. For the high-tech industry the reasoning of off-shoring is different. As the industry is taking part in changing and improving the technological environment, it is of great importance for the industry to keep their

exploration activities close together, in order to benefit more rapidly from knowledge sharing, with an effect of being more capable of introducing both incremental and radical innovations more frequently and in a much higher speed. Furthermore, this can also be seen as having an impact not only on the industries' short-term returns, but also on the long-term returns on investments. The traditional industry has slower and more distant return on investments, while the high-tech industry is having a fast-paced and quick return based on the dynamism of the industry. The return on investments is seen as an effect of the companies' actions when deciding in which activities to invest in, explorative or exploitative. Therefore, we consider it important for the industries to develop capabilities to know how to allocate their intangible and tangible resources, in order to get a bigger return on not only monetary investments, but also knowledge.

As summarization of the similarities and dissimilarities both within and across the two industries, we have developed a table showing the results of the two cross-analyses. The purpose of the table is to show if the identified gaps extracted from theory and literature, can also be found in the cross-analysis between companies undertaken from two different industries. As seen from the table below, the amount of dissimilarities far exceeds those of similarities and most of the dissimilarities are environmentally dependent, and further seem to affect the balance fit of how the companies explore and exploit.

Topic	**Traditional industry**		**High-tech industry**		**Cross industry analysis**	
	Similarities	*Dissimilarities*	*Similarities*	*Dissimilarities*	*Similarities*	*Dissimilarities*
Strategic intent	Growth – by incremental innovations in their cores business	Caterpillar Inc. is looking inward to innovate, while John Deere is looking outward Risk-taking	Growth – by both incremental and radical innovations	Intel is relying on their strong IPs, while IBM is having weak IPs and relying more on their explorative capabilities	Intentions of growth	Context of exploration and/or exploitation
Dynamic capabilities	Open innovation approach – both for pecuniary purposes Use of R&D Lean manufacturing	Caterpillar Inc. is using outbound innovation – selling, while John Deere is using inbound innovation acquiring	Both companies are innovators of incremental and radical innovations Open innovation approach Use of R&D Six Sigma	Intel is focusing on both closed and open innovation, while IBM is open-in and open-out Intel is outbound innovation – selling (pecuniary) and IBM is inbound innovation sourcing (non-pecuniary)	Open innovation Exploitation strategy	Technological advancement
Strategic aggressiveness	Both analyzers Both proactive	Different focus based on their strategic intent. Caterpillar Inc. is looking at profitable growth by inward innovations, while John Deere is trying to gain a bigger market share by outward innovation	Both proactive	Different strategic aggressiveness. Intel is analyzer and IBM is prospector	Proactiveness	Product life cycle
Balancing capabilities	Resources allocated primarily for productivity facilities Small numbers for in-house R&D centers Offshoring their R&D centers Structural ambidexterity	Offshore to different knowledge hubs	In-house R&D Structural ambidexterity Offshoring the manufacturing activities of their value chain	Differences in the resource allocation for R&D centers	Offshoring activities Structural ambidexterity	Return on investments Risk-taking

Figure 5.1: Similarities and dissimilarities within and across industries

5.2 Conclusion on Analysis I

To answer the first research sub-question of this thesis, of developing selecting criteria as for company guidance in finding the balance fit, a cross-analysis based on four different theory based categories was performed together with the chosen empirical sampling. The categories of strategic intent, dynamic capabilities, strategic aggressiveness and balancing capabilities were analyzed within the chosen industrial contexts, as well as across it.

Companies today, in some industries more than others, invest more resources and capital to their explorative capabilities to stay competitive, frequently develop more innovations and consider taking more risks when deciding whether or not to rely more on either exploration or exploitation capabilities. However, despite the understanding that finding a balance fit between exploration and exploitation activities is crucial to survive on the long-term, many companies are still struggling on what to take into consideration when finding the balance fit. This first step of the analysis therefore explored what criteria companies should take into account in the practice of creating a balance fit of exploration and exploitation, This was done based on an analysis of four companies that successfully found their balance fit, with figure 5.1 showing the results of similarities and dissimilarities of the categories within and across the two industries. The results exemplify and accentuate the research gap discovered by extracting selecting criteria to guide in how to find a balance fit in dissimilar conditions.

As for the categories for guiding companies in finding the best balance fit, the four categories of *strategic intent*, *dynamic capabilities*, *strategic aggressiveness* and *balancing capabilities* have been developed based on the theory perceived as an important element to look at, in order to understand the balance concept and finding the balance fit. Additionally, after cross-analyzing the four categories together with the empirical sampling, we further acknowledge that there seems to be a connection between finding the balance fit and the environment, which contributes to the found research gap. Firstly, we see that the intentions seems to divide the industries' focus on either exploration and exploitation, as it seems to continuously affect how the industries are both finding but also managing their capabilities to reach their goals. Furthermore, the goals of intentions to reach of the industries also indicated that there seems to be a relation between the contexts of exploration and/or exploitation in the operating industrial environment, as it determines the rate and speed of change. Additionally, the balance fit of the companies in the high-tech industry seems to be more complex, because the development of knowledge happens at a higher degree than the knowledge within the traditional industry, where the knowledge is not as fast "outdated". That being said, it is still not an one-to-one relationship of a balance fit, also because the life-cycle of products within the traditional industry is by far longer than the high-tech related products. Meaning that exploration and exploitation time wise, has a much larger variation on the traditional industry related to the high-tech industry, which is why the product life-cycle must also be seen as a selecting criteria for companies to take into consideration when finding the balance fit. Furthermore, our findings also suggest that the technological advancement has to be thought of when finding the balance fit. The technological advancement

makes it difficult to state that the traditional industry is "low-tech". The traditional industry seems to be more high-tech and not "that traditional" anymore, which indicates that there may be more similarities in balancing exploration and exploitation. We see that there are not large variations between experimentation, because the technological advancement creates changes and space for, especially, exploration capabilities. Another important finding is that the exploitation activities could evolve into exploration capabilities within the traditional industry, where the exploitation activities are contributing differently to the exploration capabilities in the high-tech industry, due to the fact that this industry is an instigator of change. This contributes to the idea that exploitation is not that predominant in the balance fit of the high-tech industry due to over-saturation of products, in which the degree of exploration capabilities differentiate between companies that succeed and companies that fail. Additionally, the balancing capabilities of both industries showed the importance of allocating resources and assets for the development of capabilities necessary to reach the intent and ensure financial returns of the investments done.

Based on the cross-analysis, we do see in terms of similarities and different industrial contexts that the *context of exploration and/or exploitation*, *product life-cycle*, *technological advancement* and *return on investments* have implications on how companies are finding a fit between exploration and exploitation within the four categories. Furthermore, it has lead us to understand that different industrial contexts could lead to different ways of managing, which creates a grouping of the companies, based on their industrial contexts; traditional industry and high-tech industry. Our cross-analysis has also lead us to believe that there are indeed ways or managing for the four selecting criteria, but there are additional issues to take into consideration, which were not looked at as part of the initial analysis, associated mostly with performance management related literature and innovation portfolio management. This is related to the different ways of managing for finding the balance fit based on their dissimilar environmental conditions, in order to continuously explore, exploit, or explore and exploit.

5.3 Analysis II: Effectively managing the balance fit

Based on the cross-case analysis, a grouping of the two industries was formed, as we acknowledge that what separates the four companies in how they found the balance fit, was related to each of their industrial contexts. The discovered gap of how to manage effectively for the found balance fit between exploration and exploitation, will be explored to reach an understanding of how the industries manage according to their environments, but also according to the industries' own exploration and exploitation capabilities. Even if companies do find a balance fit, it is not mentioned in the literature how to manage for it, taking the industrial context into account. And the fact that the literature is not emphasizing if there is one clear ratio to put the balance into, resulting in different ways of balancing and achieving a balance fit, means that there are different ways of managing for reaching that balance and there does not seem to be an obsolete solution for this problem.

The second analysis will evolve into ways of managing a balance fit, and should further evolve into a possible grouping of understanding that there are different ways of managing for a balance fit, within dissimilar industrial settings. In order to analyze how to efficiently manage the balance fit, we are introducing additional theory from performance management related literature and innovation portfolio management, that we acknowledge and perceive could guide in answering the second sub-question of the thesis; *what are the different ways of managing for finding the balance fit, based on the developed selecting criteria?*.

5.3.1 Performance Management

The fact that it is still unclear how managers manage for finding the balance of the company to explore and exploit, previous research has shown that reaching ambidexterity (i.e. simultaneous exploration and exploitation) is more likely to succeed if there is a compelling strategic intent that embraces the importance of both exploration and exploitation [O'Reilly III et al. 2011, pp. 18]. Furthermore, leaders need to change and develop their approach of analyzing and planning, because this classic approach to strategy is not favourable in the dynamic and unpredictable environment.

Deciding whether the company's abilities and capabilities are conducive and indicative to attaining an equilibrium between the concepts of exploration and exploitation, is very hard if the company's need of performance management is not taken into account. Performance management could lead to one thinking of performance measuring tools, but in reality, the concept refers to the wide array of activities, policies, procedures and interventions designed to help employees improve and increase performance [DeNisi & Murphy 2017, pp. 421]. In other words, it is seen as a "*systematic process for improving organizational performance by developing the performance of individuals and teams*" [Armstrong 2006, pp. 495]. In his book, Armstrong (2006) argues that performance management is a continuous and flexible process in which agreement, feedback, positive reinforcement, measurement, and dialogue are the primary elements. In order to function properly, the concept of performance management has to have as a starting point certain

objectives with which the managers can make a parallel, to measure and see if the company has reached the set objectives. From this, we understand that it focuses on standards, targets and performance indicators or measures [Armstrong 2006, pp. 496-497].

The process of performance management involves not only the managers and the employees that are being assessed, but is also influenced by their agreement of consensus and cooperation in order to achieve the set objectives. The process is continuous and evolutionary, meaning that it is focusing on future performance planning and improvement, and not on retrospective performance management. This gives the idea that performance management evolves over time, due to the constant communication between managers and individuals about development and performance needs [Armstrong 2006, pp. 497]. The author also states that even though performance management is a part of the reward system, its development over time is much more important. This is in agreement with Egan (1995), which states that in order for the performance management system to not be under a question of control, it has to be a collaborative development system, with its performance management process encouraging development through interactions, coaching, feedback, counseling and so forth. And it also has to lead to the managers having an open mind when individuals ask what they need to do better, with the concept leading to strategic development [Egan 1995].

Contrary to performance management, but constantly confused with, performance appraisal is significantly different, having a retrospective look into the performance of the employees and rating them according to the working performance, usually done annually by the HR department. This is divergent from performance management, which requires a hands-on attitude by the line managers, in order to secure a future-looking continuous development of the performance given by the employees. Performance appraisal is also different from performance management by its purpose for the organization, the first being used mostly as a control issue of the employees, while the latter being a consensual and cooperative relationship [Armstrong 2006, pp. 500]. In fact, various researchers (Agarwal 2011, DeNisi & Murphy 2017), consider performance appraisal as a starting part of performance management, which then focuses on improving individual performance with the company's long-term objectives in parallel, thus leading to an increased performance for the company [DeNisi & Murphy 2017, pp, 421].

With the incorporation of performance appraisal and the subsequent additions like feedback, goal setting, training and reward systems [DeNisi & Murphy, 2017, pp. 421], the performance management developed into a performance management system [Anthony et al. 2005, pp. 261]. The system starts at the organizational level, with the company's mission statement being communicated to the employees in order to align the objectives of the individuals with the company's. This is followed by the planning of the performance by the managers and employees congruently, which are result oriented, tightly defined and include measured which can be assessed. Next is delivering and monitoring performance, which has the manager as a starting point. Managers have to guide employees through discussion and constructive criticism, in order for the employees

to improve their performance delivery. The final step in a formal performance assessment, which is concurrent with performance appraisal, delivers a retrospective insight into the performance of the employee and manager in the prospect of the objectives set. This step, of course, will be the starting point for the next period of the performance management system [Anthony et al. 2005, pp. 263-267].

This is not necessarily the only approach to an integrated model for performance management. Mabey et al. (1999) introduced the performance management cycle, with five steps into how a company can integrate performance management into their daily activities. The first element is the setting of objectives by the company. This is concurring with the performance management system by Anthony et al. in order to align the managers' and employees' own objectives with those of the company. The second element is to measure the performance of the company, which is indicative of the performance appraisal method, to look retrospectively in order to learn for the future. The third element is the feedback of the performance results, which leads to the fourth element, that of a reward system based on the outcomes. If this element is aligned with the expected results of the managers and employees, it will lead to the fifth and final element, the setting of new or amendments of objectives, to better coordinate and regulate between the expected outcomes of the managers and employees, with those of the company [Agarwal 2011].

5.3.1.1 The Balanced Scorecard

This thesis approaches performance management through the prism of the Balanced Scorecard, introduced by Kaplan & Norton in the early 1990's. The Balanced Scorecard Institute refers to the Balanced Scorecard (BSC) as a "*strategic planning and management system*" with the help of which companies communicate what they want to accomplish, align the work activities with the company's strategy, prioritize services, products or projects, and measure and monitor the progress of the company towards the strategic goals [Balanced Scorecard Basics]. The management system connects the fundamentals of the mission, vision and core goals of the company, with the strategic objectives, the measures to track the organizational performance (key performance indicators, or KPI's), to the desired performance targets and with the strategic initiatives that the company uses to reach its customer database [Balanced Scorecard Basics]. Additionally, as the name suggests, the BSC balances three aspects, which the company has to take into account when trying to implement this specific management system [Martinsons 2002].

- *Short and long term objectives* In order to have a maintained balance between the short term and long term objectives, the managers of a company have to communicate the strategic objectives to all levels of the organization, in order for a smooth implementation of the strategy to occur. The objectives are derived from the goals of the company, at the same time with the manager's understanding that the result of the strategy implementation depends on the efforts of the employees from all hierarchical levels [Kaplan 2009, pp. 5-6].

- *Financial and non-financial measures* The second aspect that the BSC is balancing is the notions of financial and non-financial measures. Being a performance measurement related

tool, the BSC is encompassing not only the financial measurements, but the less measured business processes, customer interaction and so on. In order for the BSC to reach its full intended purpose, it has to take into consideration and be able to measure financial and non-financial aspects for the the use of the company's future strategic intentions. The use of the measurement of these aspects are important, in order to track and continuously improve the company's strategy as well as inside company relationship between employees and managers [Awadallah et al. 2015, pp. 92].

- *Internal and external performance perspectives* As a performance measurement related tool, the BSC should not only look inside the company in order to transform the objectives into real-life strategies, but should also look towards becoming a management system in which the managers can improve external areas of business such as market development and customer relationship [Kaplan & Norton 1995, pp. 4].

From the point on view of balancing, the BSC is helpful in separating the three aspects above into opposites, in order to have a more introspective and retrospective view over the capabilities of the company, as well as the way they improved or not.

The fundamentals of the BSC developed by Kaplan & Norton suggests that the performance measurement related tool should be used to view the company from four different perspectives [Balanced Scorecard Perspectives], which are illustrated in figure 3.1.

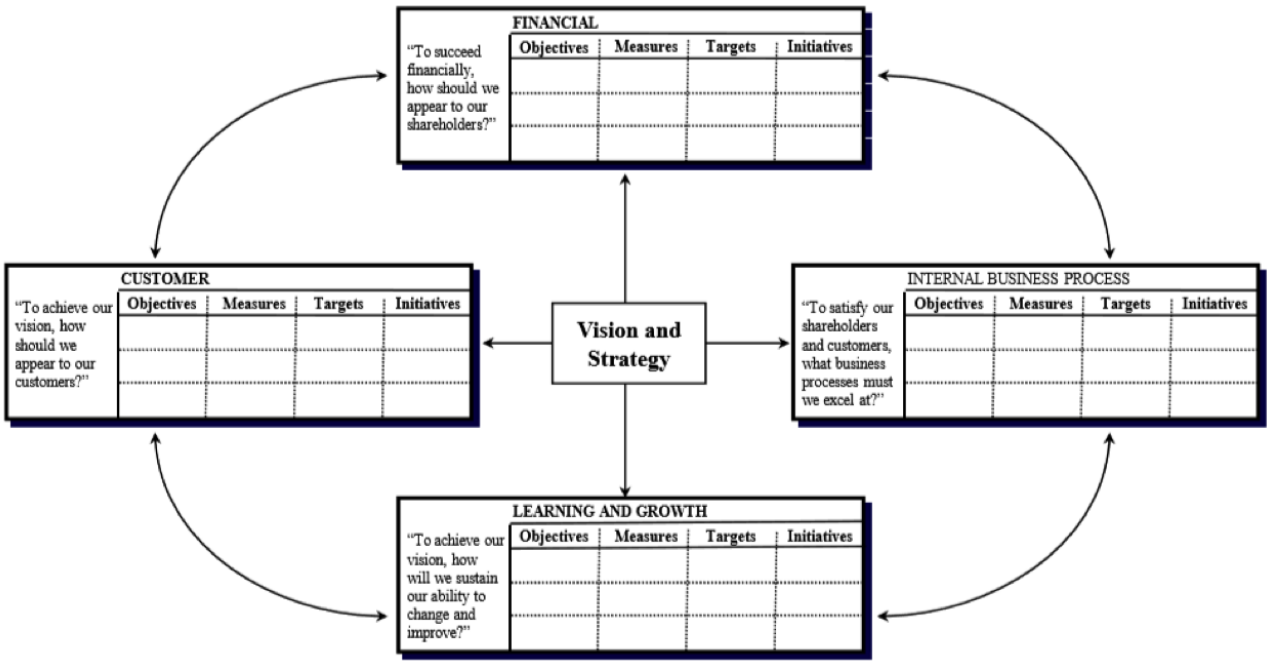

Figure 5.2: The original structure for the balanced scorecard [Kaplan 2009]

- Financial perspective - this perspective looks into the company's use of financial resources and the performance that comes from it. In principle, every objective that the company has that is related to the company's financial health is most commonly included in this

perspective. Examples of financial objectives include cost savings, profit margins, revenue sources, etc [Marr - 1 2019]. These objectives also differ from company to company, depending on the life-cycle stage in which they are in. Companies in the early life-cycle could be characterized by their investments in order to develop new products or services and expand their production facilities, infrastructure, while developing and maintaining their relationships with their customers. For example, companies that are in the rapid growth phase are focusing on market expansion, in order to utilize all the new information and knowledge that enters the company. Companies that are already in the later life-cycles, the self sustaining ones, would be looking towards return on investments and continuous, incremental improvements. Contrary to the above, more mature companies will focus more on sustainability, in order to maintain their market share and competitive position [Kaplan & Norton 1996, p. 56-57].

- Customer perspective - in this perspective is included the organizational performance from the point of view of the customers and other stakeholders with the help of which the company survives. In other words, in order to achieve the financial objectives, what does the company need to deliver in order to attract their customers and market. Examples of objective that can be included in this perspective are customer service and satisfaction, market share, brand awareness [Marr 2019].

- Internal processes perspective - this perspective views organizational performance through matters of quality and efficiency related to product, service, or other key business processes. In other words. what does the company have to do in order to deliver to the customers, and to achieve their financial objectives, with the focus of the company's internal operational goals and objectives to drive performance [Marr 2019]. In contrast with more traditional performance measurement tools, this perspective is focused on new processes in order to incorporate innovation processes into the internal business perspective, in order to create long term value [Kaplan & Norton 1996, p. 62-63].

- Learning and Growth perspective - also found under the name of *Organizational Capacity*, this perspective looks at performance through human capital, infrastructure, culture, and other key capacities of the company. This fourth perspective considers the intangible drivers for performance, but due to the complex and broad spectrum, this perspective can be looked at from the point of view of human capital (with objectives directed towards skills, talent and knowledge), information capital (following objectives about information systems, network and technology infrastructure, databases), and organizational capital (with objectives surrounding the topics of culture, leadership, teamwork and knowledge management) [Marr 2019]. Additionally, this perspective is important also for strategic management, due to the fact that is it useful to identify and improve the performance of the intellectual capital of the company, in order to develop innovative products, processes and designs, which will help increase the market value of a company [Awadallah et al. 2015, p. 92]. This perspective is also used to identify the infrastructure the company must build in order to have a period of long growth in the company, in the intense global competition

which requires continuous improvement in the company's capabilities to deliver value to their customers [Kaplan & Norton 1996, p. 64].

The importance that a company imparts on these perspectives is reflected in the long term performance of the company. Mismanagement between these perspectives is associated with problems in communication, control and coordination, which the BSC solves with the help of their five principles: translating strategy into operations, aligning organization to strategy both through individual and cross-departmental initiatives, integrating strategy into employees' everyday tasks, making strategy a continuous process, and mobilizing change through top leadership [Awadallah et al. 2015, p. 95]. As a management system, the BSC cannot be taken into account one perspective at a time, due to the fact that all the perspectives have a cause-and-effect basis, which is reflected in the inability of the company to have a successful performance in the Financial perspective, without acquiring knowledge for the Learning and Growth perspective, developing and innovating their key processes, and attracting and retaining their customers. For this reason, it is vital that a company understands the connection between the perspectives, which should not be seen in isolation, but rather as an integrated set of objectives that are connected, support each other, and can be mapped out [Marr 2019].

5.3.1.2 Strategy map

As a approach to ensure embracing both exploration and exploitation simultaneously, the strategic approach of strategy maps presented by Norton & Kaplan (2004) can be presented as a way of how to organize for reaching a proper balance.

A strategy map is a diagram that shows the company's strategy on a single page. With the help of a well-designed strategy map, every employee can know the overall strategy and objectives, as well as how their jobs can affect the company's strategic objectives [QuickScore 2019]. The strategy map is also a provider of a framework in which it can be illustrated how strategy links intangible assets to value-creating processes [Kaplan & Norton 2004, pp. 30]. This is done by creating a visual representation of the key objectives, to outline the strategic aims and priorities of the company for each of the four perspectives of the Balanced Scorecard, and if achieved, will result in a successful implementation of the strategy [Marr - 2 2019].

The *financial perspective* is describing the tangible outcomes of the executed strategy in financial terms, which show if a company's strategy is successful or failing. The *customer perspective* on the other hand, defines the value proposition for the targeted customer segments, as to provide the right context for the intangible assets to create value to be sold. A consistent understanding of the customer's value proposition with the help of the company's actions and capabilities is the core of strategy execution. Both of the mentioned perspectives represent the desired outcomes from the company's strategy execution. The *internal process perspective* identifies the critical processes that are expected to impact the strategy the most. The *learning and growth* perspective identifies the most important intangible assets in regards with the strategy. In order to make best use of this perspectives, companies must gather together capabilities from the human

capital, the information capital, and the organization capital in order to best align them with the internal processes. Aligning the objectives in these four perspectives is the key to value creation which leads to a focused and consistent strategy [Kaplan & Norton 2004, pp. 30-32].

The strategy map is the performance management tool which helps the company deliver it's mission, vision, values and strategies to its employees in order to facilitate, engage and further develop targets and initiatives to every member of the organization, to have a successful strategic outcome. It does this by translating the needed specificity for statements of high-level direction, to more meaningful and actionable behavior for every employee [Kaplan & Norton 2004, pp. 32-36].

Because of the cause-and-effect relationship between the perspectives, translating the strategic goals to all the members of the company in the learning and growth perspective will impact the other perspectives, which can lead to long term shareholder value. The strategy map can help the company's productivity and growth strategies with setting the proper objectives in order to lead to an increase in the capabilities of the company. This happens through creating a set of themes based on the value-creating processes mentioned above, from which the company can have a clear idea about the alignments necessary to create either a growth or a productivity strategy [Kaplan & Norton 2004, pp. 50-51]. Both strategy channels start from the capabilities of the company to organize and manage their human, information and organization capital. It is our understanding that the productivity channel is conducive to the exploitation capabilities of a company because of its dependency on operations management, coupled with flexible manufacturing, solution selling, and just-in-time principles, with an outwards look in product/service attributes and a focused performance result. In contrast and in parallel with the productivity strategy, the growth strategy of the company, developed with the basis of the learning and growth perspective, is conducive to the exploratory capabilities of the company, with attributes from internal product development, technology partnership, and community building, which is leading to innovation and social and regulatory norms, with an outwards look into customer relationships and brand image. Aside from the common resources from which the company must draw to implement these strategies, the productivity and growth strategies have in common the internal perspective of customer management with the attribute of relationship management. Whether it is the cause-and-effect principle of the strategy map, or the cascading effect of the information channels, the strategy map is a performance related tool which can help the company achieve, in parallel, both productivity and growth strategies [Kaplan & Norton 2004, pp. 50]. Figure 3.1 summarizes the way companies can build their strategies with the help of the template of a strategy map.

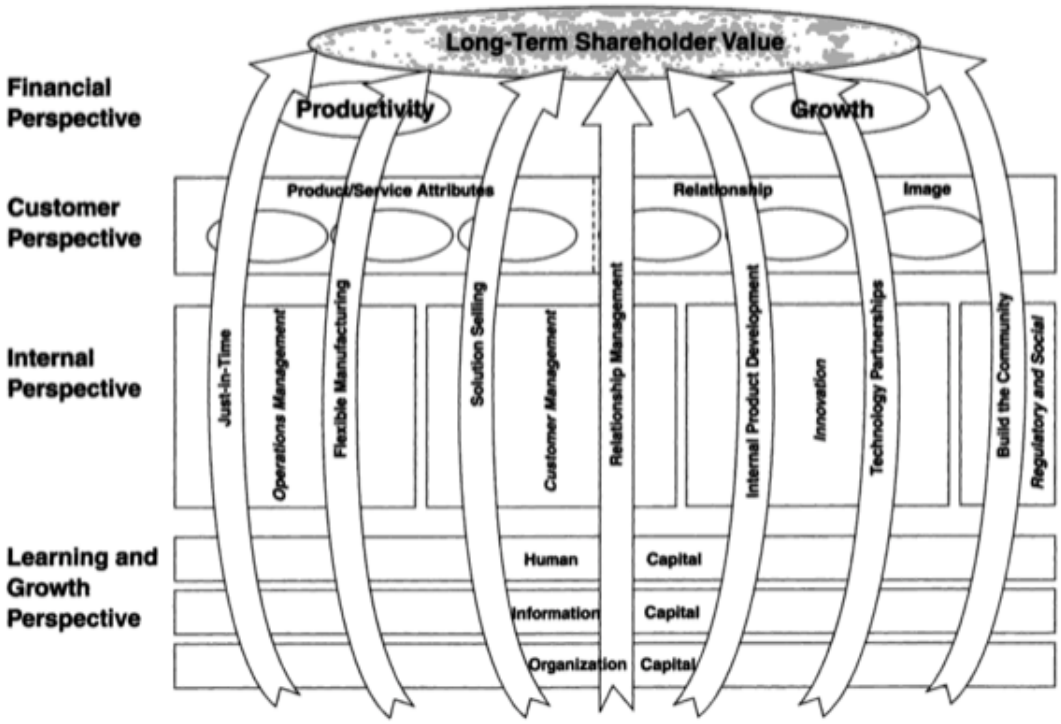

Figure 5.3: *Strategy Is Made Up a Set of Themes Based on Value-Creating Processes* [Kaplan & Norton 2004, pp. 50]

While the Balanced Scorecard is a strategic performance management method, the strategy map is a tool of visualizing a company's activities to reveal the cause-and-effect relationships among components of a company's strategy, to furthermore integrate the four perspectives of a Balanced Scorecard. It adds a second layer of detail to visualize the time-based dynamics of a strategy in parallel with adding a level of deeper scales of information that improves the focus and clarity [Kaplan & Norton 2004, pp. 10-11]. Hereby said, a strategy map provides a consistent way of describing the strategy, while in the mean time, objectives and measures can be established and managed. The tool allows companies to illustrate and describe the links between its assets and value creation to ensure that the strategy can be implemented in a way that emphasizes competitive advantages by a sustained flow of value creation [Kaplan & Norton 2004, pp. 10]. Overall, the strategy map template visualizes and describes how a company plans to realize and convert its various assets into desired outcomes [Kaplan & Norton 2000, pp. 67], with the help of objective setting and company capabilities.

5.3.2 Innovation Portfolio Management

As an additional help to possibly answering our second sub-question, we have decided to add another theoretical body towards recognizing and helping to efficiently manage for the balance fit within the different industrial settings. Nagji and Tuff (2012) introduce the term innovation portfolio and, in their paper, develop a matrix through the help of which companies can get an idea on how they are balancing their innovation portfolio and more importantly, if the way they are organizing and managing that balance, is sustainable.

The Innovation Ambition Matrix is an improvement on Ansoff's Matrix, which helps companies allocate resources for growth initiatives. Nagji and Tuff's matrix, however, places focus on the values of a company's offerings and the novelty of their customer markets, in order to show how companies that invest at three different levels of ambition can manage the balance that comes with.

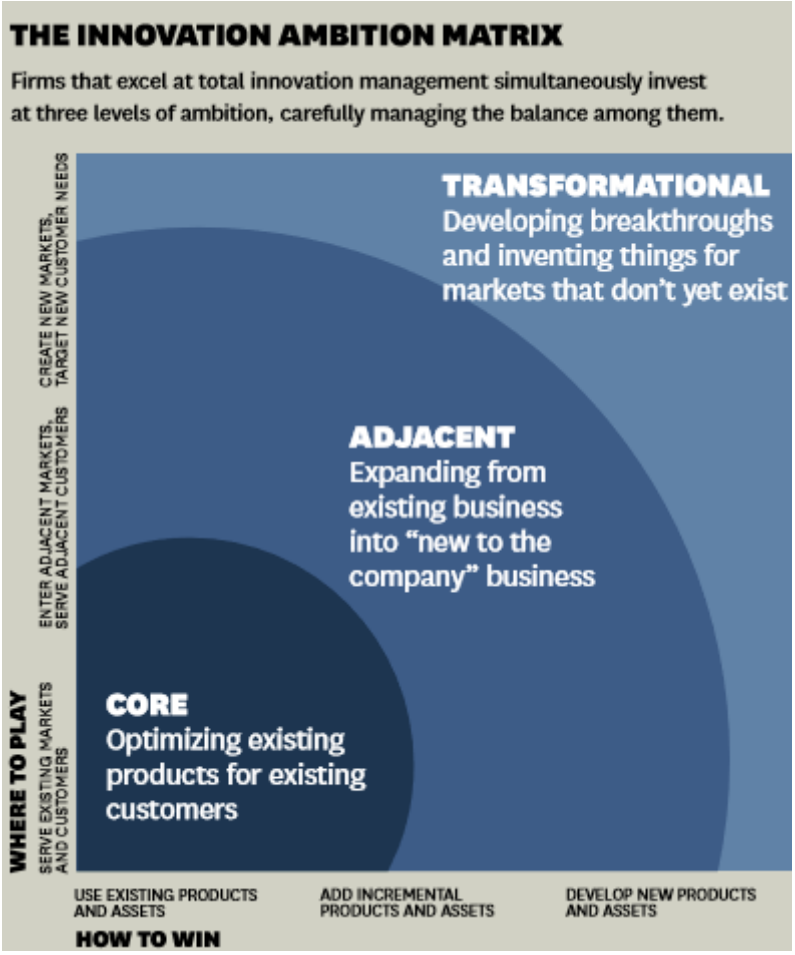

Figure 5.4: *The Innovation Ambition Matrix* [Nagji and Tuff 2012, pp. 7]

The lower left of the matrix refers to incremental changes in the core, to existing products for existing markets. On the opposite side are the transformational initiatives, which are consistent with radical innovation, in which new products service new markets through built capabilities. In the middle are the so-called adjacent innovations, which share characteristics of the core and

transformational innovations. This implies the company doing something that they know well, a company's inside core product for example, and introducing it to a new customer base [Nagji and Tuff 2012, pp. 6-7].

The authors, however, specify that The Matrix developed is not a prescription on how to manage the company's innovation. It is nonetheless, a framework for managers to view all the strategic initiatives the company has, as well as a way for the managers to talk about and overview the overall goal on the company's innovation ambitions [Nagji and Tuff 2012, pp. 7]. In the article, it is also specified that, for a company to succeed in having the balance in their innovation portfolio, the company must have all three kinds on innovations that form the innovation portfolio. But in order to manage these levels, there are five key areas of management that a company must take into account.

- **Talent**: The skills needed for the different levels are distinct; the core and adjacent levels are looking for analytic skills, in order to interpret and translate data from markets and customers into actionable enhancements. The transformational level however, is looking at discovering and analyzing social needs from a business perspective [Nagji and Tuff 2012, pp. 9].

- **Integration**: The necessity of integrating the proper skills to the activities of the business in very important, as for them to be organized and managed in the right way and the right conditions to help the company succeed. The core and adjacent innovations benefit from the closeness to the core business, however, the transformational innovations thrives better when it is outside the core business financially, organizationally and sometimes, physically [Nagji and Tuff 2012, pp. 10].

- **Funding**: Most core and adjacent innovations are regulated buy the company's budget and Profit and Loss Statements, but the tranformational level required a completely different structure, one that is separate from the company's normal budgets.

- **Pipeline Management**: In order to manage an innovation process properly according to plan, a certain amount of tracking mechanisms should be included. In the core and adjacent innovations, it involves finding a small number of winning ideas from a multitude, while for the transformational level it is lethal, because the options presented cannot be properly examined without exploring them further [Nagji and Tuff 2012, pp. 10-11].

- **Metrics**: In the core and adjacent initiatives, the use of traditional financial metrics is more than appropriate. For the transformational initiatives however, the authors recommend a mix of non-economic and internal mechanisms, in order to expand the company's ablity to learn and thus, be more prepared for undertaking that innovation [Nagji and Tuff 2012, pp. 11].

In order for a company to be managed accordingly, it has to have a shared sense of what role innovation is playing in the company's future, what the company's environmental level of innovations is, and identify the ways the company can reach the level of balancing of the three

levels, through matching the core initiatives to the highest value customers, encouraging more adjacent initiatives and creating conditions for breakthroughs in the transformational space. All of this should happen with an all-rounded understanding of what the innovation goals and processes are [Nagji and Tuff 2012, pp. 11].

5.3.3 Content analysis

The cross-case analysis within and across the two chosen industries has come to suggest that there must be different ways of managing, based on environmental impact, such as technological advances and competition, and the companies' reasoning and intent on their own market. Additionally, the main separations across the industries seemed to emerge from the different product life-cycles (long product life-cycle afferent to the traditional industry, and short life-cycle for the high-tech industry), that largely affects how companies are managing both exploration and exploitation. To further examine how to manage the different ways of the balance fit, we will extrapolate from the chosen industries, in order to look at the productivity and growth paths present in the strategy map. We will look into the extracted similarities and dissimilarities among the traditional industry and the high-tech industry from the first step of the analysis, together with the four perspectives of the balanced scorecard and five principles of innovation portfolio management.

5.3.3.1 Operationalizing the concept of "*managing*"

In order to do the second step of the two-step analysis, and to answer the second sub-question, an operationalization of efficiently *managing* the balance fit, will be done with the help of performance management related literature, and innovation portfolio management theory coupled with the four categories developed in the first step of the analysis (section 5.1.2). The four categories of *strategic intent*, *dynamic capabilities*, *strategic aggressiveness*, and *balancing capabilities* will be conducive in the segregation of information and knowledge, which will be analyzed from the four perspectives of the balance scorecard and the innovation ambition matrix, in order to understand how the companies are using their capabilities for managing their found balance fit, based on the developed selecting criteria.

For operationalization of managing, we seek to clarify what we acknowledge by "*managing*". As previously mentioned, it will be done by using performance management related literature, more specific the balance scorecard and innovation portfolio management theory. According to the Balanced Scorecard Institute, the balanced scorecard is a strategic planning and management system, in which the four perspectives should be viewing different perspectives and existing capabilities of the company, to efficiently align their activities and strategic goals. With this in mind, we are analyzing to understand different ways of managing for finding the balance fit, based on the four perspectives of the balanced scorecard, and put it within the framework of the strategy map.

Allocating, planning and arranging resources and human capital as for achieving the strategic intent, means that the internal structure of companies will be changed, as the arrangements of assets happens. With this in mind, it must be assumed that when the strategic intent of companies is changing, so must their balance fit and way of managing the processes also change for that specific strategic intent, as the companies' environment changes. The non-discovery of a clear ratio, leads into the thought of different ways of organizing (e.g allocating and planning

resources and assets), based on the balance fit that relies on the concept of ratio between exploration and exploitation of the companies. Organizing for finding the balance fit is perceived as a part of the management process, and it cannot be seen as a direct precursor for how to efficiently manage the balance fit. Instead, we understand the action of managing effectively as an accumulation of different processes that companies must decide on and implement, in order for managers to lead companies to find the balance fit between exploration and exploitation. Therefore, we view that there is an inclusive relationship between organizing and managing, and not as two separate actions that companies should execute.

As for the four selecting criteria; *context of exploration and/or exploitation*, *product life-cycle*, *technological advancement* & *return on investments*, we acknowledge that they have an impact on each other, and by that cannot be seen as independent criteria that guide in finding the balance fit of exploration and exploitation. With that in mind, the second analysis will contain an analysis of the criteria individually and their synergies among each other, to understand how managing the individual criteria based on the operationalization of *manage*, through the perspectives of the balanced scorecard, and further gain an understanding of how the individual criteria is managed as first step towards different ways of managing in finding the balance fit. Additionally, the four selecting criteria from the cross-case analysis will probably not affect all the four perspectives of the balanced scorecard, nor the five principles of innovation portfolio, and thereby the entire way of managing for finding the balance fit.

5.3.3.2 Managing for the context of exploration and/or exploitation

In lieu with the cross-case analysis, the context of exploration and/or exploitation of the different industries can be understood with a starting point in the financial perspective of the balanced scorecard, with additional input from innovation portfolio management. The financial perspective is looking into the companies' use of financial resources and the performance that comes from it. Managing for the context of exploration and/or exploitation starts from the financial perspective, due to the fact that it determines whether the companies go for either productivity or growth. For productivity purposes, the financial perspective often relies more on spending less, fitting with a major exploitative focus, while for growth purposes, selling more and being more explorative to generate new revenue sources. In combination with the innovation matrix from innovation portfolio management, the separation of the financial perspective towards either productivity or growth, also affects how to manage for innovation. The majority of focus on either exploration or exploitation affects to a large extent the capabilities in whether to pursue core, adjacent and/or transformational innovations. Linked to context of exploration and/or exploitation, the financial perspective and the innovation matrix, is the principle of *metrics* as the measurement to inform the managers of how to manage their innovation portfolio and thereby also their balance fit. The metrics further contribute to the division of the financial purposes by measuring either financial metrics for core and adjacent innovations, and using non-economic and internal metrics as for assessing transformational innovation within the early stages.

Furthermore, the desire to reach either productivity or growth also has an affect on what capabilities and competences are needed, in order to follow the chosen specific path. The human-, information- and organizational capital should address and be aligned with the tangible and intangible resources, which should be helpful in producing and increasing value propositions for new and existing customers. Taking into consideration the principle of cause-and-effect of the balance scorecard, with the help of the knowledge generated by the exploitation and exploration activities and capabilities, the developed knowledge impacts the learning and growth perspective by adding to the intangible resources. Furthermore, we see that the principle of *talent* from innovation portfolio management theory, embraces that the separated contexts of exploration and exploitation underlines different sources of intangible resources, to identify and align their current strategic intents with their long-term goals. When managing for productivity intents, the focus of capabilities and core activities are embodied with analytic skills, to interpret and translate received data, in order to benefit from the closeness to the markets, for managing the exploitative activities to build on existing business core. Managing for a growth intent, on the other hand, looks more towards discovering and analyzing social needs in order to continuously be a first mover outside of core business, and higher the chances for developing transformation innovations. Simultaneously with the intents to either explore or exploit, the learning & growth perspective should be expected to improve capabilities and competences continuously for delivering value for new and existing customers. A second principle from innovation portfolio management, *integration*, is also an important addition for the criteria of managing for the context of exploration and/or exploitation. A proper integration of resources and activities for following the chosen strategic path, productivity or growth, enables the companies to manage the appropriate activities and capabilities into finding the balance fit. As for the context of exploration and/or exploitation, we do not see a connection that affects directly the internal perspective and customer perspective, but due to the cause-and-effect principle from the balanced scorecard, we acknowledge that there are indirect connections between them.

5.3.3.3 Managing for product life-cycle

Managing for the product life-cycle, as concluded in analysis I, affects to a large extent how to manage for the processes of exploration. However, there seems to be additional issues to take into consideration, when managing for the product life-cycle. Although it is not always clear what the length of the product life-cycle is, assumptions can be made as to the already existing products and industrial context. Additionally, the life-cycle of products does not end where a new product life-cycle is introduced, on the contrary, the introduction of a new cycle could help the previous product life-cycle into reaching an increase in revenue. The way of managing for product life-cycle seems to affect especially the internal processes perspective differently, based on either productivity or growth purposes, as it determines one of the most important processes for strategies to be executed. When the product life-cycle happens at a high speed as with a high rate of change, the way of managing for the internal perspective relies on mostly the explorative capabilities, as to continuously seek for new opportunities on existing and emerging markets. On the other hand, when the product life-cycle is longer and contributes to a lower

rate of change, the rate of exploration is not as urgent. We perceive that What determines how to manage for the product life-cycle, is especially linked to the customer perspective of the balanced scorecard, as the customers determines the amount of demand, which either shortens or prolongs the life-cycle of products. As the demand from customers changes, it also impacts the frequency in which innovations are being introduced on the market, with the purpose of satisfying those demands. The choosing of "winning ideas" is dependant on the amount of focus that should be given to the innovations in the core, adjacent or transformational levels, based on the product life-cycle. As the exploration and/or exploitation activities and plans may need to be changed simultaneously with the product life-cycle, it affects the abilities of flexibility and agility, together with the internal exploration capabilities. By continuously exploring for new opportunities, companies would be able to stay ahead of competitors, and be more flexible and agile, in relation to both the changing internal and external conditions. Furthermore, the fact that the product life-cycle is differentiated as the dynamics of demands and technological development changes, it affects how to manage the processes of customer management, as to use the customer feedback in time for that gathered knowledge to be useful, as well as the forming of relationships, resulting in enhancing the customer value.

The length of the product life-cycle impacts the time on when to focus on exploitation activities and developing exploitation capabilities. Furthermore, the life-cycle of products also affects the principle of the *pipeline management* of innovation portfolio management, through giving tracking mechanisms in order to respond accordingly to the changes on markets. The division of either productivity or growth purposes, again distinguishes the innovations. For the productivity intent, the exploration of 'winning ideas' from a multitude happens in order to further exploit them, while for the growth intent the exploration of new opportunities results in even more explorative activities, as to create and develop more transformational innovations. Additionally, this means that the way of managing the internal processes is connected to the length of the cycle, as to prepare for introducing the next product for generating revenue.

As the product life-cycle has an affect on the innovation to develop, the learning & growth perspective of the balanced scorecard also seems to be indirectly affected. The innovation of either core, adjacent and/or transformational levels, creates different needs of either exploration or exploitation skills and competencies. This, we interpret as meaning that the product life-cycle, to a smaller extent, is affecting also how to manage the tangible and intangible capabilities and resources. As to ensure to manage and integrate the necessary skills and capabilities to the daily activities, an external focus on the conditions necessary for acting upon those capabilities must exist. As for managing the product life-cycle, we acknowledge that the life-cycle indeed can be managed in different ways for finding the balance fit, especially seen in view of cause-and-effect, starting in the internal processes perspective affected by the customer perspective, and further affects the learning & growth perspective.

5.3.3.4 Managing for technological advancement

The previous analysis suggests that the technological advancement has a major effect on exploration capabilities, as the speed of change coming from the technological advancement, affects also the exploitation activities to evolve into exploration activities. The technological advancement affects to a large extent the changing of focus in either exploration or exploitation, with effect in the amount of advancements happening. When managing the processes for the technological advancement, both exploration and exploitation activities are crucial to consider as connected with the rate of change and advancement. Managing for technological advancement seems to have a close connection to how to manage for the product life-cycle, however, they are contributing differently to the balance fit, as not only for exploration capabilities, but also for exploitation capabilities to evolve into exploration capabilities. We understand that managing for technological advancement, as with the rate of change, is taking its starting point within the customer perspective of the balanced scorecard, as due to the demand expressed on the markets by customers. Additionally, when directing exploration and exploitation in regards to technological advancement, we understand that the exploration and exploitation activities of customers and markets are related in essence, as the customer perspective is a determining factor in establishing a sense of focusing on either exploration or exploitation to achieve the financial goals. With this in mind, the technological advancement is also suggested, in the cross-analysis, as affecting the exploitative activities and turning them into explorative activities, as companies can be forced to do both according to the customers' demands to maintain their strategic position on the market. The customers' needs are changing as the contribution to technological advancements proceeds, meaning that companies have to manage for the technological advancement, taking its starting point in the customer perspective, as to stay competitive and to create and develop both core, adjacent and transformational types of innovations.

As for the intents of productivity and growth, we acknowledge that technological advancements seemed more crucial for the intent of growth. However, as seen from the previous analysis, there needs to be a certain degree of technological advancement in the productivity intent, in order to create an innovation space as part of the exploitation activities. In relation to the *integration* principle of the innovation portfolio management, it is not only affecting how to manage for the context of exploration and/or exploitation, but also in managing for the technological advancement as part of the internal process perspective and customer perspective of the balanced scorecard. The integration principle is about aligning the tangible and intangible resources with the conditions of the market and customers' needs, which is conducive to the role of the internal process perspective of connecting the capabilities developed in the learning & growth perspective, with the value proposition of the customer perspective, thus exemplifying the cause-and-effect of the balanced scorecard.

Managing for the technological advancement is a two-way process which, with the help of also managing for the product life-cycle, can have an impact on and is impacted by the financial goals through the case-and-effect principle of the balanced scorecard. Additionally, we also perceive

that the technological advancement should be managed through the principle of pipeline management, as it emphasizes what processes to asses and further recalculate, as well as the possible changed external conditions of customer needs and technology, to decide if the projects or innovation could be successful or not. The technological advancement changes every time companies contribute to it with transformational innovations, which means that the way of managing for technological advancement is independent on what intended path to follow; productivity or growth. This is caused by the continuous exploration activities that must be undertaken, because the technological advancement is rapidly changing, to constantly expanding the available opportunities to exploit the right project from many alternatives.

5.3.3.5 Managing for return on investments

As the financial goals, and thereby also intents of either productivity or growth, have an impact on how to manage for either exploration and/or exploitation further also impacts on how to manage for return on investments. Affiliated with the notion on managing for return on investments, is the notion of the connectivity between the perspectives of the balanced scorecard. As to say that by investing in whichever perspective, there will be a certain return based on that investment. This is to say, that the managing of return on investments is directly connected to the financial goals, but also indirectly connected to all of the other perspectives. As we see it, this developed idea makes space for the thinking of a wholesomeness of the managing activities inside companies.

As for the dissimilar industrial context, we do see that it also has an affect on how to manage for return on investments, due to the connectivity to both the product life-cycle and the technological advancement. Highly changing markets with short product life-cycles amplify lower risks on return on investments, as the exploration capabilities are so extensive and constitute the major activities for survival. On the other hand, higher risks are connected to longer life-cycles of products, when innovating out of the core business. Investing in more elaborate and technologically advanced ideas in order to further establish not only a presence on existing and new markets, can also contribute to return on investments in order to increase shareholder value.
To reach a set goal of increasing shareholder value of the financial perspective, the managing for return on investment can also be seen from the point of view of the innovation ambition matrix, which accentuates the need of managing for the principles of *funding* and *metrics*. As by determining which innovative projects to invest in, the next principle to take into consideration is the funding principle of innovation portfolio management, which focuses on the providence of the investments, through which the indirect connections to the perspectives are constructed. Additionally, the metrics principle is useful in calculating, adjusting and regulating the financial input, as to lead to a higher return of investment.

As we understand, managing the return on investments could also be linked to the innovation portfolio through the degree of newness of the innovations performed. The amount of

innovation is not directly linked to this criteria, but as we understand it, the purpose of it has a significant impact on the financial gains, through whether the innovations are situated inside or outside the core, as well as incremental or radical. This means that even if exploiting activities are turning into explorative activities or just exploration, the return on the investment can be differentiated based on the degree of newness of the innovative project, in which the tangible successful or failing outcome of the strategy is seen in financial terms.

5.4 Conclusion on Analysis II

In the above analysis, we have explored and analyzed the four selecting criteria based on similarities and dissimilarities from analysis I, with the focus of answering the second sub-question, revolving around how to manage the selecting criteria, leading into understanding different ways of managing for finding the balance fit. However, this is with the notion that all the four selecting criteria cannot be viewed as independent of each other. This further means that even if not all the four selecting criteria are managed for, as for finding the balance fit of exploration and exploitation, the "neglected" criteria will still have an impact on how to manage for finding the balance. The above analysis has lead us to understand that there are indeed different ways of managing for finding the balance fit, depending on the intent of either exploration and/or exploitation. Managing for finding the balance fit depends on the combinations between the developed selecting criteria and further, the perspectives of the balanced scorecard and the principles of the innovation portfolio management. However, this is to delineate that these are not the only criteria that should be taken into consideration when managing for finding the balance, but are the ones we found during our research.

The first looked-at criteria of the context of exploration and/or exploitation had its starting point in the financial perspective, to determine if a productivity or growth purpose was desirable to achieve, and examining them through the lenses on the innovation ambition matrix principle of financial metrics. We further saw, when analyzing the criteria, that the context of exploration and/or exploitation had an indirect impact on what necessary capabilities to develop within the learning & growth perspective, as the beginning of achieving the financial goals, with the help of the integration principle of innovation portfolio management. Analysis II further indicated an independent relation among how to manage for the context of exploration and/or exploitation and how to manage for the product life-cycle. The product life-cycle affects to a large extent the internal processes perspective of how to manage for the exploration activities and capabilities as a result of the life-span of products. The indirect relation of the context of either exploration and/or exploitation together with the product life-cycle, was showed in how the dissimilar industrial contexts affected the amount of time to spend on exploration and/or exploitation. The pipeline management principle helped match the intent of either exploration/exploitation with the processes performed, which, with the help of external input from the customer perspective and integration principle, could shorten or prolong the product life-cycle. In extension to the first and second selecting criteria, the technological advancement also seemed to impact how to manage for finding the balance. The technological advancement was analyzed to understand how the distinct intentions of either growth or productivity could affect the internal processes by using exploration and exploitation capabilities. Exploration and exploitation activities, on the other hand, are being affected by the external input of customers, as providing an additional focus on either exploration or exploitation development. As with the previous criteria, the technological advancement is connected to the principles of pipeline management and integration for choosing the necessary processes, as well as allocation of resources. For the last criteria of return on investments, it seems to affect the financial returns of the other criteria and perspectives and

we interpret this as a circular process. This means that the return on investments is the outcome of all the investments done in the other criteria within the three perspectives of the balanced scorecard, which connects the metrics principle to how to manage for return on investments.

5.5 Methodological summarization of analysis I and analysis II

Within the two steps of the analysis of the thesis, different methodological approaches have been applied, as allowed within the paradigm of interpretivism. Within the first analysis we applied a cross theoretical analysis to extract selecting criteria for guiding companies in finding the balance fit. The method applied in the second analysis was a content analysis, in which we were coding and interpreting the extracted criteria according to the four perspectives of the balanced scorecard, to gain an understanding of different ways of managing for the balance finding the balance fit. The different approaches applied in the analysis chapter can be seen both in the view of data gathering and the further analysis hereby. The gained understanding from the analysis have followed the path of the inductive reasoning as to the creation of knowledge of the phenomena of balance fit, which can be seen through the selection of the theory-based categories in analysis I and further the developed selecting criteria to analyze in analysis II. Within analysis I, the four categories were chosen as result of intensive research in exploration & exploitation, ambidexterity literature, strategic management and strategic aggressiveness related literature, as foundation of analyzing the four empirical cases. This lead to extraction of selecting criteria, as to guide companies in finding the balance fit between exploration and exploitation. Leading into the second analysis, the same inductive approach was applied, as the developed selecting criteria were analyzed further with performance management related literature and innovation portfolio management theory, to understand different ways of managing for finding the balance fit. However, in analysis II we did not include empirical data as with analysis I, but the extracted criteria from analysis I were further analyzed.

Chapter 6

Discussion

This thesis includes a two-step analysis, where the first step was based on theoretically based categories as for cross-analyzing the empirical data from the four chosen companies, to learn from best practice, and further develop selecting criteria for guiding companies to find the balance fit between exploration and exploitation. In the second step of the analysis, these selecting criteria were analyzed with performance management related literature and innovation portfolio management theory, as with the purpose of gaining an understanding of different ways of managing for finding the balance fit. Both steps of the analysis have made us to believe that there are different ways of managing for finding the balance, and we further acknowledge that different industrial contexts could lead to different ways of managing for finding the balance fit. The purpose of the discussion is to discuss the implications of the findings in connection to theory, as to answer the research question of: *how to find and efficiently manage for the balance fit between exploration and exploitation, within dissimilar industrial contexts?*. Added to that, a more in depth understanding of the characteristics of the strategic aggressiveness types will emerge, coupled with the criteria developed, to discuss what it implies for the ratio of the balance fit. Seen from a methodologically point of view, the explorative nature of the analysis allows the discussion to also evolve around developing generalizations of propositions as for contributing to theory.

6.1 Managing Ambidexterity

Previous research within management of ambidexterity suggests that one of the most crucial features for managing ambidexterity is the ability to reallocate tangible and intangible resources and capabilities, as to address new opportunities and threats. Additionally, this also includes the abilities of making the decisions and choices required to reconfigure and exploit the assets to support exploratory activities [O'Reilly III et al. 2011, pp. 17]. The findings of this thesis suggests, that as to find and manage for finding ambidexterity (the balance fit), companies need to take our suggested four selecting criteria into consideration, as they seem to impact how to find and manage for finding the balance fit, based on dissimilarities within similar aspects of the criteria. Although, this is without mentioning that there can possibly be more selecting criteria to consider, however, these were the ones extracted within our research.

An examination of the main similarities and dissimilarities between best practice companies, with the result of guiding for finding the balance fit, indicates that four selecting criteria; *context of exploration and/or exploitation*, *product life-cycle*, *technological advancement* and *return on investments* are independently affecting parts of the process of how to find and manage for finding the balance fit. Researchers have explored the characteristics of both exploration and exploitation, however within a context of start-ups. The findings suggested that exploration and exploitation differed in, especially terms of time-line, potential returns and risks. It was identified that for exploration, the returns of investments were less certain, however more distant in time and as for exploitation the returns of investments were more certain and also achieved in a shorter period of time [Sinha 2015]. These findings seems to support our findings, however our findings suggested further that the fit of exploration and exploitation should also be considered in relation to the environmental settings, as it largely affects how to further manage for the fit. Additionally, within the within-case analysis we punctuated the need of understanding the balancing capabilities of the four chosen companies, through the view of organizational ambidexterity, in which we found that all companies' balancing capabilities relied on separating exploration and exploitation units, as per the specific needs of the respective environments. The separation of the off-shoring activities for both the high-tech industry and the traditional industry, further seems to be consistent with additional findings, as we found that the high-tech industry seemed to off-shore most of their manufacturing processes (exploitation), to mostly Asian and European countries, while the traditional industry is off-shoring their R&D units (exploration), to Asian hubs of knowledge. These findings are particularly interesting as the companies within the two dissimilar industries are applying the same methods of off-shoring, and the explored behaviour is also seen in other studies of research, describing that exploitative units are rigid in their distribution over a less concentrated area, and explorative units are flexible in their processes and are concentrated over a bigger area [Sinha, 2015; Stadler et. al 2014].

Given the understanding that finding and efficiently manage for the balance fit is associated with, and affected by environmental factors, also supported by previous research from Berger-Tal, Nathan, Meron & Saltz (2014), it can also be understood as having the ability to reallocate assets and resources, as to address opportunities and threats from the industrial environment in the several industries. However, as the analysis of the four cases, and the content analysis showed, finding the balance fit and efficiently manage for it cannot be seen as a linear process, as the ratio of the balance fit depends on how the combination of the four selecting criteria and their management processes should be, according to the balancing ratio. The content analysis (analysis II) further showed that even if companies are managing for specific exploration and/or exploitation activities, these too can evolve into more exploration activities, as the respective market positions rely on the ability to manage for exploration capabilities, and not only exploitation capabilities to survive. This is a new learning goal for us, as the theory of management of ambidexterity does not employ exploitation activities turning into exploration activities. Additionally, we found that exploration activities can also turn into even more exploration activities, as the amount of, especially transformational innovation increases.

Also, by attempting to manage for the balance fit, communicating and describing the strategy to follow is crucial, as to describing the links between assets and value creation, to ensure that the strategy of either growth or productivity can be implemented to sustain a flow of value creation that fits with the demand and changes of the environment. Previous studies presented by Mburu & Thuo from 2015, say that what we refer to as intent, onto which path a company could focus on, could be more directional towards more dynamic and rapidly changing environments, as for the continuation of handling internal and external pressures by the company [Mburu et al. 2015, pp. 58]. Although our findings of the developed criteria of managing for the context of exploration and/or exploitation, suggests that strategic intent and thereby the decision of relying mostly on either exploration or exploitation, is at the core of the company's use of their exploration and/or exploitation capabilities. This means that no matter how dynamic the environment is, the intent of companies from dissimilar settings is contributing to how to manage for the balance fit. However, we do acknowledge that what could distinguish the intent within the dissimilar settings are the frequency of change and rate of dynamics, which aligns our finding with the previous research mentioned above.

6.1.1 The balancing ratio

Now, we understand that as to stay afloat, companies must rely on their capabilities to innovate. Additionally, on a turbulent market based on constant changes, the ability of managers when managing the balance fit, depends on the success in managing the innovation portfolio. However, how the balance ratio of exploration and exploitation should be divided, is still questioned. Our findings of the two steps of the analysis indicated that the four developed selecting criteria are affecting how to manage for both exploration and exploitation. Furthermore, it argued, among others, for the importance of how the balancing fit is affected by environmental factors, as product life-cycles and technological advancement. As the criteria were all indirectly dependent and connected, the decisions of when and how frequently to invest in either major exploration or exploitation, further affects the innovation portfolio. According to the theory of innovation portfolio management, companies often invest in initiatives within a sense of different spectrums of risks and financial returns, however the objectives should be surrounding the idea of investing less as to achieve higher returns, based on the level of companies' aggressiveness. Additionally, the ratio of investments in either core, adjacent or transformational innovation is important. The article by Bansi Nagji and Geoff Tuff, *Managing Your Innovation Portfolio* (2012), suggests that companies should balance the three types of innovations, and additionally allocate 10% of investment towards transformational innovation, 20% towards adjacent innovations, and 70% towards core innovation. This contributes to the return on long-term investments companies have, which as found by the authors, are the direct proportionate of the above percentages, with 10% from core innovation, 20% from adjacent, and 70% from transformational innovation. According to our findings, the grouping on the industrial context depends on the focus of innovation, which especially contributes to our understanding of why the high-tech industry has a focus on transformational, out-of-core business innovation, as to achieve a higher return on investment.

The above further seems to support our findings that investing in exploration activities and capabilities contributes to a lesser risk towards companies in a high-tech industry, as compared to the traditional industry, in which the exploitation time-frame increases the risk of investing. Additionally, managers have to allocate both exploration and exploitation resources and capabilities at the "*right time*", as to make an internal and external fit, both regarding the aggressiveness of their strategy and what impact the environment has, as to efficiently manage for the balance fit. For example, the content analysis (analysis II) indicated that the product life-cycle is affecting how to manage for finding the balance fit, as it impacts how to allocate resources and capabilities for either productivity or growth purposes. However, due to the nature of the product life-cycle, it is unclear for companies how long the life-span of a product is, no matter how many new product life-cycles are being introduced afterwards. Consequently, compared with the innovation portfolio management theory, it means that when the product life-cycle appears to be long, the investment of resources is the highest in the core innovations, resulting in lower returns of the investments done, as a long product life-cycle requires smaller investments for product adjustments, as to extend the life-span and squeeze more revenue. On the other hand, the same cannot be said for transformational innovations, in which the investment is low, but the returns are considerably high, because of the lack of adjustments needed in the apparently short product life-cycle, and the level of impact it has on the market and/or industry. Additionally, we acknowledge that the balance fit is dependent on the right timing for investing in exploration and the right timing for exploitation, which seems to contribute to how we perceive the return on investments, also indicated by the analysis of the four cases undertaken by two dissimilar industrial settings.

6.2 Towards a typology of the balance fit of exploration and exploitation

With the previous discussion surrounding managing for ambidexterity in mind, we now look towards developing a typology of the balance fit, as to make a classification in which the phenomena of balance fit is classified into types, based on the developed selecting criteria from analysis I. The typology of the balance fit, can support managers in making managerial decisions for finding the appropriate course of action, based on the choice of type and degree of aggressiveness to reach for the intended goal, that seem most suitable for companies. Developing a typology was not an intended objective for us to reach for this thesis. However, the inductive process of our analysis and partial discussion, seemed to imply a conceptual classification into ways of finding and managing the balance fit, leading us to choose to follow the path of making an explanatory typology, where the individual cells of the typology are the outcome that are explained by the intersection of dimensions [Collier et al. 2012, pp. 218]. The choice of developing a typology can be seen as one of the first steps into developing theory [Christensen 2006], however as we did not initially know that this thesis would contain a typology, a description of the process of constructing the theoretical "framework" will follow. The process of developing a typology is based on three different tasks, suggested by Sartori (1970;1984), in which the start

is to carefully examine the concepts from which data can be gathered, then to understand from where and how the concepts were developed, and finally to recognize the different ways the assembled classification can be used [Collier et al. 2008, pp. 158-159].

The process combination of managing for and finding the balance fit, is however dependent on the intent of companies coupled with the environmental context in which they are operating. This leads to our understanding that the companies must pick-and-choose from among their management processes, the ones they deem necessary to fulfill their intent. Even if companies have the same ambidexterity capabilities, the possible different intents will affect how companies manage for finding the balance fit, which will affect how companies find the ratio between exploration and exploitation, and therefore, also their innovation portfolio. However, when coupling the four criteria with the balance scorecard perspectives, we see the full influence of the cause-and-effect principle, which further supports that managing for finding and actually finding the balance fit, is not a linear process. As mentioned before, we acknowledge that there are different ways of managing for finding the balance fit. Additionally, within our empirical sampling, we found that there are three analyzers and one prospector, which means that the combination of the four selecting criteria could have affected how the four cases are managing the balance fit differently. Though, this is only comprehensive when looking at the industrial context.

The previous steps of the analysis emphasizes the environment, as having a major impact on how companies find and manage for finding the balance fit, and currently we are seeking to develop a possible typology of the balance fit, as to develop further understanding of the four types of aggressiveness coupled with the selecting criteria. Notice, that we do acknowledge that all of the four types of aggressiveness may occur within dissimilar industrial contexts, categorized by the traditional and high-tech industry in the thesis. However, as to develop the typology revolving around the strategic aggressiveness context, the selecting criteria of the product life-cycle is not included as it is industry related, which further is not in line with generalization of a typology.

The four types of aggressiveness gives a clear indication of both the intent and how aggressive to be, as to achieve the intent, which is interesting to discuss in relation to the three selecting criteria of *context of exploration and/or exploitation*, *technological advancement* and *return on investments*, as to develop a typology, within the context of fit between exploration and exploitation. When combining the three criteria developed with the strategic aggressiveness strategies mentioned above, an attempt of developing a possible typology (figure 6.1) is made, which exemplifies what activities a company must undertake in order to manage for finding the balance fit, when following one of the types of aggressiveness.

The first criteria of the context of exploration and/or exploitation is looked at through which of the strategies from strategic aggressiveness literature, a company employs while being in their specific industry. Though, notice that this criteria will be perceived in a management related context and further described in section 6.2.1. Additionally, the technological advancement criteria is viewed as exploration and exploitation capabilities, as part of our findings suggest that

the technological advancements of an industrial setting, affects how fast a company can take advantage of the transformation of exploitation activities into exploration activities. The criteria represents the idea that the most important activities are connected to one of the concepts of either exploration or exploitation. The last selecting criteria is a pure financial goal that separates companies through which path pertaining to the strategy map they follow, either productivity or growth.

6.2.1 Four strategies for balancing the fit of exploration and exploitation

For developing the typology, we are using the three inductively developed criteria evolved from the categories based on theory of exploration & exploitation, ambidexterity, strategic management and strategic aggressiveness, also presented above. These criteria seemed to have an impact on how to find and efficiently manage the balance fit, as concluded in the analysis chapter. This means that we extracted the criteria from the data leading towards this inductively developed proposed typology. Additionally, the criteria added value to one another, as they cannot be seen individually and independently, when finding the balance fit, as they affect different parts of the management process, and must therefore be seen in a holistic view. The three criteria will be looked at through the adaptive cycle, the strategy map and innovation portfolio management afferent to the four strategies of strategic aggressiveness. The additional focus on the existing theory of the strategic aggressiveness, will provide a further understanding into the balance fit of exploration and exploitation of the four types of aggressiveness (defender-prospector-analyzer-reactor). Table 6.1 combines the three selecting criteria identified and analyzed in the cross-case analysis, and suggests four types of the balance fit, three of which are successful. First, we dare to introduce the classifications of the balance fit, as for afterwards discussing the effects of fit between the three selecting criteria; context of exploration and/or exploitation - in terms of management, technological advancement and return on investments of a balance fit, and the success of efficiently managing the fit. Additionally, we will discuss the typology in relation to the theory of innovation portfolio management, as to build on existing literature without conflicting it, but for adding to it with the context of exploration and exploitation fit in a narrative way.

When looking into the literature about the *defender strategy*, we know that this strategy of aggressiveness is trying to create a stable set of product and customers, by occupying an intended market as to deliver value propositions in the most efficient way. As we perceive it, the defender manages exploration and exploitation as to seal off a portion of the market to create a stable environment, starting with cost-oriented intensive planning of product development, closely related to existing activities, leading into cautions and core incremental growth. Additionally, the performance of this type of strategy is measured against previous years and likely on specific financial KPIs, as its metrics. Adding to that, the internal processes are mostly done with the help of continuous improvements and cost-efficient technology, as foundation to the performance of the company, which excludes development outside of core business. Taking this into account, the defender strategy does not seem to seek and scan the environment for new options, and to not respond to new technological advancements. With the goal of establishing a

narrow and stable domain, the return on investments of the defender is connected to the maintenance of their market, thereby the majority of activities leading more towards productivity paths, into smaller incremental innovations most likely within their core business. Furthermore, we also see that there are correlations for the defender, between how to manage for exploration and exploitation as with the innovation portfolio, without mentioning the ratio of balance of the three types of innovation. The section above, revolves around the defender's strategy for finding a balance fit of exploration and exploitation, indicates a higher scale of exploitation activities and capabilities, than exploration capabilities. Implicitly to say, that defenders cannot make innovations specifically as to growth, but instead it can focus on doing solution selling as the defender's approach of innovating more into their core business with exploitation as the driving force. Referring to the strategy map, the defender would mostly be focusing on a productivity path and probably be positioned in the middle of that path, which can turn into incremental innovations of their core, as the highest priority of innovations of this strategy. However, even though the defender is having mostly core innovation within their portfolio, adjacent innovations could also be possible, as their exploitative activities at some point have to develop into exploration activities, which means that the defender must also follow the path of growth, however in a small and abstract scale, as the core focus is to maintain its stable market and customers.

The *prospector strategy* on the other hand, is emphasizing the aggressiveness of creating and developing innovations, as the strategy is focused on locating and exploiting new markets and products, by facilitating numerous operations. The managing of exploration and exploitation of a prospector, is towards monitoring multiple changes within the environment, as to sense areas adjacent to their multiple cores of business, perceived as an indication of the prospector's way of managing exploration and/or exploitation. Furthermore, the planning of activities is rather broad, focused on problem based solving and is not finalized before the action can happen, which is appraised by having measurements against important competitors. In addition, the processes of the prospector strategy are based on multiple technologies, which leads to a low degree of uniformity within their productivity processes. However, because of the capabilities embedded in people, and not in the actual technology, we perceive the prospector as the contributor to the changing of the industry. As contributor to the changing industry, the prospector will most likely have a broad and continuously developing domain, coupled with a risk of low profitability from stretching their resources, in order to achieve growth by making both core, adjacent and transformational innovations. Differently than the defender strategy, the prospector's way of finding a right fit of exploration and exploitation, is leading towards more attention on exploration activities. Given this, the innovation portfolio of the prospector should rely more on the higher end of the innovation portfolio, adjacent and transformational innovations, and have less attention on the exploitation activities as for achieving core innovations. While the prospector is putting more effort towards the path of growth, there are indeed still things to be aware of when only developing and monitoring growth, as the prospector will have some issues about monetary flexibility, which means that the explorative activities also are evolving into exploitative, on the path of productivity, but on a radical edge in the sense of substantial cutting costs.

After looking into literature about both the defender and the prospector, the literature shows that the *analyzer strategy* is focusing not only on maintaining a base of customers and markets, but also continuously looking towards new opportunities for new products and customers. The managing of exploration and exploitation by the analyzer, is towards the approach of trying to balance both stability and flexibility, which could be linked to the analyzer's need for intensive and comprehensive planning connected to the context of exploration and/or exploitation on which it wants to focus. Linked to that, we acknowledge that the analyzer is relying on the surveillance of internal mechanisms towards market penetration and product-market development, which is appraised through both efficiency and effectiveness measures. Also by looking at the relevance of the analyzer's dual technological core, the focus on applied research, seen together with the moderate degree of technology efficiency, leads to a hybrid stable-changing core of business. Due to the hybrid core of business, we interpret that the analyzer will most likely have a hybrid domain, which is both changing and stable, leading to the ability of the analyzer to chooser whether to go for a productivity or a growth path. As for the analyzer's way of finding a fit between exploration and exploitation, it is revolving around choosing whether to focus on exploration and/or exploitation, which is giving an insight into the ability of the analyzer to focus not only on the higher end of the innovation portfolio - transformational innovation, but also on the lower end - core and adjacent innovation. A ratio for an analyzer could be somehow similar to what Nagji & Tuff (2012) suggest within the article of innovation portfolio management, 70% for core, 20% for adjacent and 10 for transformational [Nagji & Tuff 2012, pp. 9], as the analyzer is revolving around both exploration and exploitation. As for the paths or either productivity or growth, as exemplified above, the analyzer has the privilege of choosing on which to focus on, but if the precarious balance of the innovating in the low- and high-end of the innovation portfolio is lost, it may be hard to restore the equilibrium, or it could even lead to the analyzer becoming a reactor. The balance fit for the analyzer seems to us to be the most problematic to position on the paths of productivity and growth of the strategy map, as this type of aggressiveness can choose to weigh either exploration or exploitation the most. According to the strategy map, we establish the possibility that the analyzer is the closest to the middle point between productivity and growth, however, the situational ratio depends not only on the timing on exploration and exploitation, but also on the apparent industrial context in which the company is.

Finally, we regard the *reactor strategy* more as a residual strategy, due to the fact that it revolves around the inability of a company to react to the changing environment, and having an inconsistent pattern of adjustment to uncertainty. According to the theory, it is incorrect to call this type a strategy, because of its inability of reacting to changes and allocating the necessary resources. This inability to manage the companies' resources will inevitably lead to a success trap, with focus on only the short-term achievements, meaning that companies will either continuously profit from existing combinations of resources. The technological advancements are also separating the activities, although they do not affect the outcome of getting stuck in a

success trap, as they do not explore opportunities with a long-term goal in mind. Consequently, we agree with Miles & Snow regarding not to perceive the reactor type as a strategy, as it covers unstable companies that do not possess a set of mechanisms that makes the company able to continuously respond to the changing environments over time. Furthermore, we do not view the reactor as able to follow exploration strategies, as the instability of the reactor type is causing too many implications when discussing how to find and manage for a balance fit, which means that the risks of the reactor to end up in a success trap by over-exploiting are incredibly high.

Based on the discussion above, we are suggesting a possible typology (figure 6.1) developed inductively from our findings, which is implying a complex hypothesis between the types of the strategic aggressiveness and the three selecting criteria, which further indicates different types of balance fit, taking three of the selecting criteria into consideration.

Selecting criteria for finding the balance fit / Type of aggressiveness	**Management of exploration and/or exploitation**	**Technological advancement**	**Return on investments**
Defender	Cautious and incremental growth by cost-oriented and intensive planning to reach product development and core innovations	Cost-efficient technology leading to continuous improvement to maintain efficiency by ignoring developments outside of core business	Aggressive maintenance of narrow and stable domain by a majority of exploitation, that leads more towards productivity
Prospector	Growth through product and market development through adjacent and transformational innovations, by problem oriented planning to monitor a wide range of environmental change	Multiple technologies as to lower the degree of routinization, resulting in creating changes in the industry	Broad and continuously developing domain with a risk of low profitability and overuse of resources by exploring intensely, that leads more towards growth
Analyzer	Steady growth through market penetration by transformational innovations, and product-market development through core and adjacent innovations by intensive and comprehensive planning Optimally balanced between stability and flexibility with the help of surveillance mechanisms	Dual technological core with large influential applied research group and moderate degree of technical efficiency	Hybrid domain that is both stable and changing, with a privilege to choose between exploration and exploitation and thereby productivity or growth
Reactor	———	———	Success trap

Figure 6.1: Typology of the balance fit of exploration and exploitation

We acknowledge that the selecting criteria exemplify the environmental influence that companies have to take into account, when finding the balance fit between exploration and exploitation. However, with the addition of the strategic aggressiveness types, an enhancement of the understanding of particular influences on certain strategies offer an increase in value for each of the dimensions used. Additionally, after looking into the four strategies, together with the three selecting criteria, to explain table 6.1, we have reached a classification of what the possible typology of the balance fit could look like. We induce that the defender is a strategy that probably will follow a productivity path. This type of aggressiveness is managing primary for

exploitation activities and capabilities, and is furthermore relying on only one core technology as to ensure efficiency, therefore not developing a lot of new capabilities. The management of, primary the exploitative activities, seems to direct the use and need of the criteria of technological advancement to be very low, as the management of exploitation leads in managing the technological core that already exists within this strategy of aggressiveness.

On the other end of the spectrum, the prospector seems to follow a path of growth, as it is in its nature to be an innovator, and therefore managing for more exploration activities and capabilities, as to reach growth with a major focus on adjacent and transformational innovations. As the management of the exploration activities means less attention on exploitation activities, the criteria of technological advancement is indicating that the prospector is relying on multiple technologies, which makes the strategy able to rapidly take advantage of their transformed exploitation activities to exploration activities. By this we induce that the return on investments for the prospector will be towards growth purposes.

The combination of the analyzer and the three selecting criteria, seemed to be the most problematic, as the analyzer can chose which path to follow - productivity or growth. This type of aggressiveness is looking towards managing not only for radical changes, but also for incremental adjustments, which causes a shift in their attention in planning, with focus on either ensuring more stability, or inducing more flexibility capabilities. Tied closely with the managing of their choice of either exploration and/or exploitation, is the duality of their technology core, by paying close attention to reaching a steady efficiency level, making sure to focus not only on their manufacturing processes, but also on their research development. The using of the hybrid capabilities of the analyzer makes sure that there are increased advantages of doing both exploration and exploitation and by that, the balance fit.

Lastly, we consider the reactor strategy, not as a strategy compared to the three previously mentioned, as the reactor falls into the success trap by over-exploiting, and because the allocation of resources and capabilities forces the companies to being unable to react to the changing environment.

Reflecting on the typology of balance fit, our interpretation and understanding of the ratio of the fit, has reached a new point. According to the typology, the balance of exploration and exploitation should be present in all successful strategies, although the fit does not have to be in a ratio of 50/50. It can also be towards a majority of either exploration or exploration, as long as there seems to also be a fit of how aggressive companies want to be to reach their intents, coupled with their management of exploration and/or exploitation, and their use of the technological advancement to reach the desired return on investments. Although, this represents only our interpretations and reflections on the introduced typology of the balance fit, and should therefore, not be seen as a definite result as it has not been further tested.

6.3 Generalization of propositions

In order for this thesis to fulfill the purposes of an exploratory case study, a generalization of propositions as mentioned by Yin (2003), will be developed from both steps of the analysis and the discussion, in order to deepen the found research gap with possible future researches. As part of the generalization however, it is important to notice that it cannot be seen as generalizing findings related to specific individuals or groups outside those out of the study, but can only be seen as generalization of propositions as contribution to theory [Creswell 2009, pp. 190-193]. In the discussion presented above, we reflected on the overall performance of the thesis. To do so, the discussion revolved around managing ambidexterity, coupled with the balancing ratio by combining the three of the four selecting criteria with the four types of strategic aggressiveness. During these reflections we further came up with four propositions, extracted from the typology inductively developed from the empirical sampling and existing theory.

The founding point of finding the balance starts at the strategy, what is it that the company wants to do; in that regard, the strategy determines how to manage for the balance fit. Thereby interpreting that a successful balancing of exploration and exploitation fit inside a company, depends on the alignment of the strategy and how aggressive the company wants to be.

A defender strategy pursuing cautious and incremental growth is taking few risks associated with optimally serving its existing domain, but has a small scope of capability for sensing and exploiting new domains. A defender is competent to respond to current demands and state of technological advancements, however, it is not prepared in the case of major environmental changes. Thus, we propose the following:

- **Proposition 1**
  A defender strategy would usually follow the left side of the strategy map, following the strategic aggressiveness of exploitation towards further productivity

Pursuing a prospector strategy involves carefully allocating resources in terms of products and markets surrounding its fast technological advancements. However, over-usage and misplaced resources could lead to the prospector being unable to respond to the future demand of its domain. The strategy of a prospector is counting on continuous environmental change, in order to maximally utilize its resources. However, in the case of a static environment, the strategy will fail. Therefore, we propose:

- **Proposition 2**
  A prospector strategy would usually follow the right side of the strategy map, following the strategic aggressiveness of exploration towards further growth

Within the context of exploration and exploitation, the analyzer is associated with flexibility and stability at the same time, due to its privilege of choosing to focus on either productivity or growth, and its dual core of technologies supporting both paths. The successful completion of this strategy depends on the company's ability of being stagnant on its position of balance between stability and flexibility. However, should the environment of the analyzer change dramatically,

the company would shift in either following a pure productivity or growth path. This is without mentioning that the balance ratio for the analyzer, is equally distributed, as we perceive the analyzer doing both exploration and exploitation, but probably not without radical shifts to either way. Accordingly, we propose:

- **Proposition 3**
  An analyzer strategy has the privilege to choose whether to follow the right or left of the strategy map towards either further productivity or further growth, but probably not without radical shifts to either way

The reactor strategy is most likely to end in failure, as to its inability to respond correctly to changes in the environment, while in one of the three previous strategies, or due to its inability to align the strategy, organizational structure and technologies available. The inability of the reactor to explore the available technologies on the market, leads companies using this strategy into relying on its existing exploitative capabilities and activities. Hence, we propose:

- **Proposition 4**
  A reactor strategy would tend to usually do too much exploitation without finding a balance, leading into success trap

The above propositions are developed based on suggestional connections between developed concepts and theoretical implications, to point towards further areas of inquiry for researchers. Meaning that from the propositions recommended above, hypothesis should be derived and further tested, as theoretical propositions are of exploratory qualitative nature [Research gate forum 2014].

6.4 Theory contribution

The balance fit of exploration and exploitation is crucial as for companies to survive in today's changing global market (e.g James March 1991; O'Reilly III et al. 2011; Reeves et al. 2015 - 1), but how to find the balance and how to manage for the balance, seems neglected within existing literature. As for conducting this research, we used multiple existing literature revolving around exploration & exploitation, ambidexterity, strategic management, strategic aggressiveness, performance management and innovation portfolio management, leading to a multiple case study, with the purpose of understanding how to find and efficiently manage for the balance fit, within dissimilar industrial contexts. When conducting the research, a typology was developed within the context of an exploration and exploitation fit, a first step to a deeper understand of the characteristics of the types of aggressiveness context with the three developed selecting criteria. This thesis contributes to ambidexterity and strategic aggressiveness theories, the circumstances of which has been neglecting how to find and efficiently manage for finding a balance fit. The further contribution to practical research is limited, due to the generalization limitations of the cross-case analysis performed.

The research proposes that the success of finding and managing for finding the fit of exploration

and exploitation depends on, among others, how to manage for exploration and/or exploitation, technological advancement and return on investments. These criteria, coupled with the four types of aggressiveness suggests four ways of balancing the fit of exploration and exploitation, from which only three ways are successful. This partnership of theory and developed criteria led to the making of a typology, from which four propositions were made, for further research within this topic.

6.5 Limitations and further research

The two steps of the analysis performed in this thesis, included four retrospective case studies, that contributed to a cross-case analysis and a content analysis, which were based on secondary qualitative data. Consequently, the developed typology and propositions can, and should be further tested across dissimilar industrial contexts of companies. Accordingly, the explorative essence of this research, coupled with the small data sample, is conducive to be contributing to filling parts of the discovered research gap, as tentative theory. Although, as mentioned before, the proposed typology must be continuously developed and tested by several approaches, as more case studies are needed to elaborate on the contribution. However, there are additional issues to take into consideration, which require more attention. First, the small representation of the strategic aggressiveness strategies in the sample. Furthermore, the extend of further research that is needed in order to test the propositions and typology developed, and if they provide an understanding of validity after testing.

Included in the aforementioned limitations, we acknowledge that the extracted criteria are not enough to fully answer the research question surrounding the filling of the discovered research gap. Therefor, we suggest additional research surrounding supplementary criteria, especially related to the four types of strategic aggressiveness, which could affect or influence the managing for finding a balance fit. The found criteria are inwards looking, but we do not ignore the fact that there are other issues that could affect performance, both inside and outside of the company context. We do not claim that following these criteria leads to definite success in finding and managing the balance fit, but there could be connections to some indication, as to what is important to take into consideration on how to manage for the balance within dissimilar strategic choices. Literature that was not part of the current thesis, could lead to a discovery of other inward looking criteria such as the role of managers and their impact, the risk appetite of companies, the decision making processes that are being managed in companies individually and collectively, or any conflict that could affect performance. Additionally, outwards looking criteria could also affect the company context, such as degree of competitiveness in the industry, the political situation, global financial setting, etc.

As taking the above additional limitations into account, and the fact that the thesis contributes to only a part of the research gap, we propose further research surrounding areas of how to organize for finding the balance fit. This thesis covered how to find the balance fit and efficiently manage for it, and we operationalized the managing issue as also including organizational settings for how to organize. However, we find this area interesting, as to further explore on the micro

level of the processes, how the allocation of both tangible and intangible resources correspond with short and long-term goals, as to achieve a balance fit of exploration and exploitation.

Finally, as part of the subject of organizing, a large influence could be specifically extracted from the organizational culture inside companies, which were not taken into account in the construction of the typology of the thesis. Further research regarding the impact organizational culture has on the prospect of managing for finding the balance fit between exploration and exploitation, should be undertaken as a possible addition to the filling of the research gap.

6.6 Methodological reflections

Our methodological chapter (chapter 3) puts into perspective the use of either qualitative or quantitative data, in order to answer the research question and validate the findings. However, while quantitative data makes use of the same techniques to reach a similar result, qualitative data will make use of the researcher's interpretation of data, which is very difficult to replicate. The sections of applied gathering techniques (3.2.4), choice for data analysis (3.2.5) and evaluation of data (3.2.6) from this thesis, refer to our initial understanding of what methods to apply and what evaluation techniques and principles we chose to secure a high level of credibility and validity. The starting point of the research has been slow and challenging while effecting the research process, which was not in line with our initial plan for the thesis.

In accordance with the chosen data gathering techniques, the choosing of secondary data (section 3.2.4) was met with challenges, but also advantages. It has been beneficial for us to have the data available at any time, and the various sources have contributed to the validity of the data, however the limited access in the companies' internal data was a obstacle we could not overcome. While keeping in mind the already mentioned reliability procedures in section 3.2.6, we discovered that the use of an additional procedure lead to an increase in reliability of the transferred code, by making sure there is no deviation in the meaning of codes during the process of coding the information [Creswell 2009, pp. 190]. This enforced the belief that there is a constant understanding of reliability of data from our point of view. As for the validity of the thesis, we are confident in the validity of the findings of the two-step analysis, as we have taken into account the strategies mentioned in the section of evaluation of data (section 3.2.6). As with the principles of reliability, we have also employed additional validity strategies, like peer debriefing (finding a person, which will review and ask questions about the qualitative study of the topic, to resonate with other people than the researcher), and bias clarifying (the validity strategy through which the researchers, us, will reflect of the interpretation of data by making comments about the background of the researcher) [Creswell 2009, pp. 192]. Additionally, the ways of evaluating the gathered data includes the generalization principle, which was used in a part of the discussion chapter (especially section 6.2), as to imply the founding of theory. As for Kuada's assessment of authenticity and trustworthiness, we understand that we have applied the concepts as intended by the author, in helping us to focus on and understand the topic elected.

Chapter 7

Conclusion

It has been assumed that the balance of exploration and exploitation is associated mostly with changing external environments, with dynamics of accelerating either more exploration or exploitation (March 1991; Levinthal et al. 1993). In this thesis, we have adopted an exploratory approach to understand the "*balance fit*", and how to find it and manage for it, and based on that we developed, through cross theoretical analysis of four chosen best-practice companies in balancing exploration and exploitation and a content analysis, a proposed typology of the context of the balance fit of exploration and exploitation, supported by innovation portfolio management and performance management.

Given the exploratory nature of this research, we started off by cross-analyzing our chosen empirical sampling, from two dissimilar industries, as to gain an understanding of what and how external factors could affect the fit of exploration and exploitation. Based on similarities and differences, we extracted four selecting criteria *Context of exploration and/or exploitation*, *product life-cycle*, *technological advancement* and *return on investments*, that companies should take into considerations when finding the balance fit. The extracted selecting criteria seemed to be affected by the environment, which further affected the traditional industry and the high-tech industry's balance fit, which indicated that there were different ways of finding the balance fit, and thereby also ways of managing for finding the balance, depending on dissimilar industries, which lead to a content analysis (section 5.3). The content analysis was based on analyzing the patterns across dissimilar industries, coupled with additional literature from performance management and innovation portfolio management, through a preparatory stance of managing for the criteria. The findings of the content analysis lead to multiple possible combinations of the selecting criteria, together with the four perspectives of the balanced scorecard and five principles of innovation portfolio management. We came to the understanding that finding the different ways of managing for the balance fit depends on the *context of either exploration and/or exploitation* of companies. Furthermore, the different ways of managing also depends on the *life-cycle of product* that companies introduce, and how they are sensing and reconfiguring for the *technological advancements*, as for achieving the highest *return on their investments* in alignment with their strategic path.

In the discussion, the implications of the findings of analysis I and analysis II were examined in

relation to managing for ambidexterity and the balancing ratio, leading towards discussing the four types of aggressiveness; *defender strategy*, *prospector strategy*, *analyzer strategy* and *reactor strategy*, coupled with the innovation portfolio. In the discussion we came to the acknowledgement that the balance fit of exploration and exploitation is a complex and non-linear process to find and to efficiently manage for. With the inclusion of the types of strategic aggressiveness to the discussion surrounding the results of the content analysis, a typology was developed in which we came to the realization that specific types of aggressiveness could be connected more to either exploration or exploitation, or both exploration and exploitation. As contributing to the further filling of the gap discovered, four propositions were developed from the typology made, according to the paths of the types of aggressiveness used.

As for answering our research question, we have stated that companies must take into consideration their industrial environment, as well as their usage of resources and capabilities in order to reach the state of finding the balance fit between exploration and exploitation. Furthermore, the intent of what to achieve must be in line with how companies seek to achieve it, coupled with what existing resources and capabilities companies have, and which to further develop. This taken into account, we have gained an understanding that different industrial contexts could lead to different ways of finding, and managing for the fit of exploration and exploitation. With this knowledge, the paths for companies to find and manage for the balance fit start in each of the strategic aggressiveness strategies of the typology. The typology further made us understand four ways of finding and efficiently manage for the balance fit, from which three were successful, however we also gained, from the content analysis, that the product lifecycle is of great importance when finding and managing the fit within the industrial context. As meaning, that we are extracting from the research that there needs to be a external and internal fit of strategies, organizational context and technology available.

Chapter 8

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Chapter 9

Appendix

9.1 Appendix 1

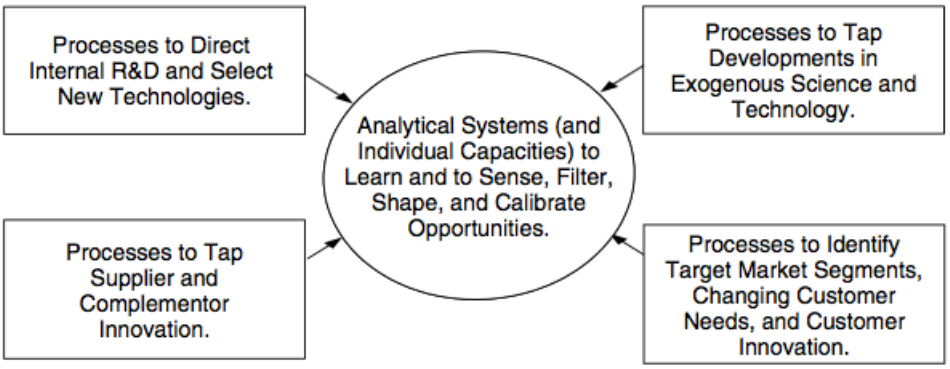

Figure 9.1: *Elements of an ecosystem framework for 'sensing' market and technological opportunities* [Teece 2007, pp. 1326]

9.2 Appendix 2

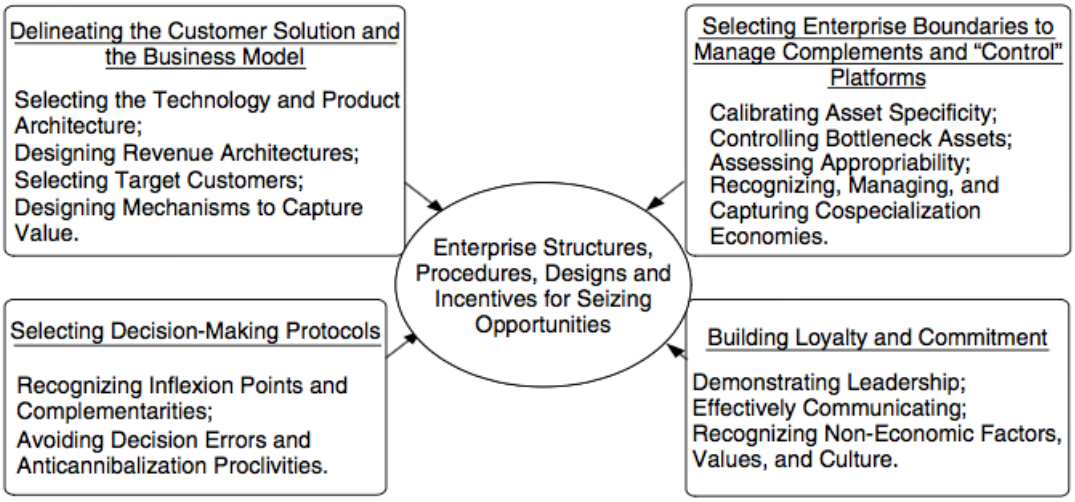

Figure 9.2: *Strategic decision skills/execution* [Teece 2007, pp. 1334].

9.3 Appendix 3

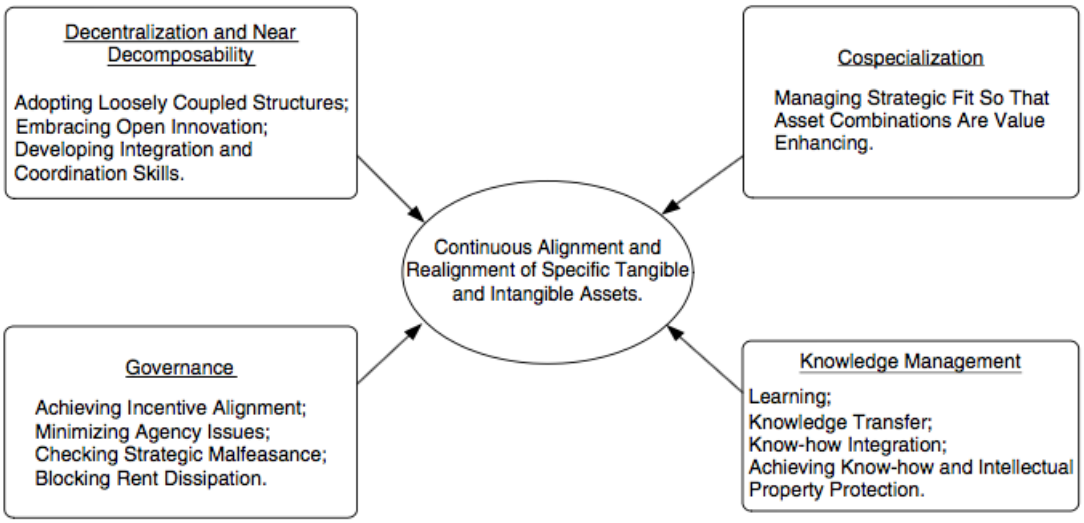

Figure 9.3: *Combination, reconfiguration, and asset protection skills* [Teece 2007, pp. 1340]